



11th EU Hitachi  
Science & Technology Forum  
**2008**

**Ageing Society and Technology**

26-27 April 2008, Munich

SUMMARY REPORT

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# C O N T E N T S

<b>Foreword</b>	<b>3</b>
<b>What is the Hitachi Science and Technology Forum?</b>	<b>5</b>
<b>Executive Summary</b>	<b>6</b>
<b>Introduction</b>	<b>7</b>
<b>Keynote Speeches:</b>	
Ageing - Challenges and Opportunities Ahead for European Society	8
Ageing in Ageing Societies: Older People's Living Circumstances, Needs and Expectations:	9
Towards a Life-long Active Society:	10
<b>Session I: Technology for Ageing Society</b>	
Europe: An Old Continent	11
Ageing Well in the Information Society	12
<b>Session II: Technology for Ageing Individuals</b>	
inHaus: Developing Assistive Environments for a Longer Independent Living at Home	13
From Megatrend to Healthcare Product Definition	13
Technologies for Ageing Individuals	14
<b>Session III: Ageing Society - Broader Views</b>	
The Economics of Frailty	15
Prolonging Active Life through Ethical Technology	15
<b>Reports by the Group Sessions Moderators</b>	
Group Session 1: Health	17
Group Session 2: Social Inclusion	17
Group Session 3: Knowledge & Experience Sharing	19
Group Session 4: Productivity and Autonomy	21
Group Session 5: Mobility	22
Plenary Panel Discussion and Q&A	23
Hitachi Group in Europe: Business and Strategy Update	25
<b>Closing of the Forum</b>	<b>26</b>
List of Speakers and Moderators	27
Acknowledgement	27

## FOREWORD



It is my privilege to introduce the summary of the proceedings of the 11th EU Hitachi Science & Technology Forum on “Ageing Society and Technology”, which was held in Munich and which saw the participation of 110 participants from Europe and Japan.

The main objective of the EU Hitachi Science & Technology Forum is to contribute to the public policy debate in Europe by providing a platform for the discussion of societal issues related to science and technology, impacting the daily life of European citizens.

Ageing society is a growing problem within many developed countries. Japan has experienced a rapid demographic change in the last few decades. On the other hand, Europe has a long history of being a mature society. I am convinced that Europe and Japan can share their respective experiences on this issue and work together in order to overcome this common challenge, despite their very different social and cultural backgrounds.

The ultimate goal is to achieve a social fabric in which elderly people can enjoy their everyday lives, while performing the same duties and benefiting from the same rights as younger members of their community, for as long as possible. We also have to take into consideration individual differences, since elderly people are not a homogeneous group. And of course we need to pay attention to ethical issues such as respect, dignity, autonomy and privacy.

Health, social inclusion, knowledge & experience sharing, productivity, autonomy and mobility, are all integral parts of our current and future lives. During the 11th Forum, we discussed a number of these issues as well as the potential role that technology can play in finding satisfactory solutions. The summary of those discussions can be found in the following pages.

It goes without saying that the Forum’s success and reputation is made possible due to the talent and commitment of our speakers, moderators, Forum fellows, Forum Members and other participants. To all of them, I extend my deepest gratitude.

A handwritten signature in black ink that reads "Junzo Kawakami". The signature is written in a cursive, flowing style.

**Dr. Junzo Kawakami**

Executive Vice President and Executive Officer, Hitachi, Ltd.  
Hitachi Group Chief Technology Officer



## What is the EU Hitachi Science and Technology Forum?

The Hitachi Science & Technology Forum is a platform dedicated to promoting dialogue between European citizens and decision-makers. It brings together professionals from a wide range of sectors and backgrounds to discuss societal issues related to science and technology in the daily life of European citizens. Since its launch in 1998, annual meetings have been held at locations across Europe on topics relevant to the European policy debate.

Participants are European scientists, engineers and business-people who have all participated in long-term internships at Hitachi laboratories or plants in Japan, together with representatives from Hitachi's businesses in Europe and invited guests and experts.

The Forum has two objectives. Firstly, it provides a platform to address and discuss societal issues related to science and technology in the daily life of European citizens.

Secondly, it provides a yearly occasion for Forum members to network with friends and colleagues.

The topics and venues for the annual meetings have been:

- 1998, Juan-les-Pins: R&D in SMEs, comparison between the EU and Japan
- 1999, Germany: Information technology and its benefits to society
- 2000, Dublin: Electronic commerce and its impact on society
- 2001, Brussels : Life sciences and their impact on European society
- 2002, Budapest: Water Issues and their impact on European society
- 2003, Antwerp: Energy and its implications for European society
- 2004, Stockholm: Transport and IT: impact on European society
- 2005, Athens: Technology and its impact on the city of the future
- 2006, Warsaw: ICT for safety, trust and security: its impact on European citizens
- 2007, Paris: Energy, Environment and Sustainable Society: its impact on European citizens

This eleventh Forum, held at the Arabella Sheraton Hotel in Munich from 26th - 27th April, attracted over 110 delegates. To allow Forum members greater involvement in the organisation of the event, a Working Group is created, appointed for one year. Thus, the Forum is run by its members, on topics selected by its members, for the benefit of its members. A newsletter, European Connexion, is also published as a link between Forum members and Hitachi, and as a tool to promote the Forum proceedings.

Since 2001, at the request of Forum members, the meetings have included a presentation on current Hitachi R&D developments. Hitachi executives from the EU and Japan have attended the Forums and answered questions related to Hitachi's activities.

The Forum relies on the support of experts who have a keen interest in European societal issues and contribute to its success through a strong personal commitment. These individuals comprise the Forum Fellowship (see back page). The chairman of the Forum Fellows is Dr. Junzo Kawakami (Executive Vice President & Executive Officer, Hitachi Ltd.).

Hitachi, with the active participation of Forum members is committed to contribute to European Society by helping to shape policies which will improve the daily life of their fellow European citizens. In this respect, the EU Hitachi Science & Technology Forum works to clearly bring the benefits of new technologies to all Europeans.

## EXECUTIVE SUMMARY

Around 110 participants met in Munich on 26th-27th April for the 11th EU Hitachi Science & Technology Forum. The meeting attracted a diverse range of scientists, engineers, executives and policy-makers who assembled to debate this year's topic – Ageing Society and Technology.

### Ageing and Demographic Change

The Forum heard that ageing, or more correctly 'demographic change', is a global issue affecting both industrialised and some developing countries:

- In Europe, the population aged 60+ will increase from 20% in 1995 to 25% in 2020, and those aged over 80 will double by 2050.
- The countries ageing fastest are those which have had high fertility rates that have dropped suddenly, which includes many southern Europe countries and Japan.
- Japan is the fastest ageing of all industrialised countries, with the proportion of older people expected to be 50% higher than the OECD average by 2030.
- China is also ageing quickly, due to the one child policy: there the population over 80 will reach 7.5% by 2050, compared to just under 1% today.

The factors behind 'the ageing society' are complex. In statistical terms, the observed demographic changes are a net product of 'ageing', which is the outcome of decreasing fertility rates and increasing life expectancy, and 'shrinking', which results from fertility rates being lower than mortality and migration that does not fill the gap. Ageing is a long-term phenomenon, whereas shrinking is cyclical and occurs over shorter timescales. Individually and for society, the issue is population ageing, whereas for firms, labour force shrinking is the major problem.

The Ageing Society is characterised by a variety of factors, including: the increasing proportion of older people; particularly strong growth among the very old (aged 80+); the increasing number of people living alone; reduction in the size of households due to decreasing birth rates; shrinking family networks; and families' diminishing potential to care for older relatives.

Even within the Ageing Society, not everyone can expect to achieve a long life. Studies show that life expectancy varies according to factors such as health, disability, employment status, marital status, gender and education level.

### Being Old in an Ageing Society

A key point, reiterated throughout the meeting, is that **the elderly are not a homogeneous group**. Older people have the same diverse range of attitudes, expectations, prefer-

ences and personal attributes as everyone else. They want, and deserve, to be treated as individuals rather than being lumped together under the label of 'old'. On health issues, in particular, the elderly are becoming better educated and acting more as consumers.

Nevertheless, we cannot ignore the fact that growing old brings problems. Older people may face many barriers in being able to live independently, such as mobility inside and outside the home; taking medicines; keeping safe and secure; social isolation and loneliness; forgetfulness; and access to care provision. They may become increasingly frail, and lose physical or cognitive abilities.

### Older People and Technology

Technology opens new opportunities for older people at home, at work, and in their communities. Information and communication technology (ICT) can support the elderly so that they can stay in their own homes for longer. It can also support those who supervise and care for the elderly, whether as professionals or informal carers. For the future, use of ICT in ageing is both a social necessity and an economic opportunity.

Technological solutions for ageing are not straightforward, however. Use of ICT decreases with age, particularly for older women. Many older people still don't have access to ICT or cannot afford it. The elderly often find technology challenging and have had bad experiences with it. They want equipment and services to be simpler to use.

Up to now, ICT has been designed for the young, healthy, wealthier and better educated. **We need to democratise technology products and services** by better accommodating the needs of older users within mainstream products. These 'age-friendly' ICT products and services have to be adaptive, to fit older users' needs rather than users fitting ICT's needs, and to embed ethics. We have to look both at what we produce and how we produce it.

### Recommendations and Action Areas

#### Challenges for Business

The Forum called on businesses to recognise the **growing demand for new age-friendly products and services**.

Seniors are a growing market which needs to be better served by businesses, including through appropriate advertising and distribution channels. Segmentation will enable businesses to define products that better meet users' needs and so gain higher market share.

Ageing is also a challenge for business from an employment

## I N T R O D U C T I O N

point of view. Companies should guard against becoming over-reliant on a young and mobile workforce. Older workers have much to contribute but need to be motivated differently. The Forum called on businesses to **revise their employment practices**, in particular by offering more flexible working arrangements, and getting rid of mandatory retirement ages and seniority-based pay. Companies should also **promote age diversity and mentoring**, and do more to **prepare older employers for retirement**.

The Forum recognised the importance of **capturing older workers' knowledge and expertise**, either for their own companies or for society at large. Greater efforts should be devoted to systems such as volunteer programmes. ICT is well placed to orchestrate such community-based approaches (a Facebook for seniors?).

### Challenges for Technology

The Forum called for **more research and development for age-related products and services**, including pilot studies and best practice competitions, to reflect the priorities and values of the new generation of older users. Greater efforts should be devoted to **addressing ageing and usability issues through standards**, and having common standards throughout Europe and the world. **Ethical issues** – such as respect, dignity, autonomy, privacy and choice – are especially important, but these cannot be addressed through technology alone.

### Challenges for Governments

Society can no longer afford to neglect older people's contributions and has to find ways of capturing them which meet the needs of individuals, businesses and society as a whole. The Forum called on governments to **modernise institutions** – such as education, labour markets and social security systems – so as to better reflect the needs of the ageing society. We must **reform social security systems** to remove barriers to older people staying in employment and in securing long-term care. We must also ensure that opportunities for education and training are available throughout life, so as to pave the way towards a **lifelong active society**.

Around 110 participants attended the 11th EU Hitachi Science & Technology Forum held in Munich, Germany from 26th – 27th April 2008. The theme for this year's Forum was "Ageing Society and Technology". As usual, the gathering attracted a diverse range of scientists, engineers, executives and policy-makers.

**Mr. Ko Takahashi**, General Manager, Hitachi Corporate Office Europe, welcomed everyone to the meeting. "Ageing is a phenomenon which touches all human beings", he said, "but Ageing Society as we will learn from the various lectures, is already a reality in Japan and will be impacting Europe soon". It is important to recognise that the Ageing Society should not only be seen as a burden on society but would also offer many new opportunities, especially if we use technology in the right way. The goal of the Forum is to contribute to the public policy debate in Europe by proposing innovative recommendations on how technology could support the Ageing Society. He encouraged all participants to contribute actively to the debates.

**Dr. Jean F. Freymond**, President and Director, D@G (Geneva Dialogues), served as Forum General Moderator, drawing linkages between the presentations and encouraging participants to engage in a constructive analysis of the issues. In his opening remarks, Dr. Freymond said it was a pleasure to support the Forum once again and to see a mix of familiar and new faces. The ageing issue, although central is often not recognised as such. Anticipating one of the presentations, he noted that a survey in Japan had found that only 9% of the population thought ageing concerned them. The reasons are complex. They have to do partly with our relationship with death and becoming sick; partly because ageing is not newsworthy; and also because the age constituency is not very well organised and structured. Hence, the Forum would be an excellent opportunity to deal with something of concern to everyone.

## KEYNOTE SPEECHES:

### Ageing - Challenges and Opportunities Ahead for European Society

#### **Ageing in Ageing Societies: Older People's Living Circumstances, Needs and Expectations:**

Dr. Heidrun Mollenkopf, Heidelberg University; Chair of Universal Access and Independent Living Expert Group, AGE – The European Older People's Platform

Dr. Mollenkopf's presentation provided an introduction to the ageing issue, focusing in particular on the perspective of older people themselves. "What does it mean to become old in an ageing society?", she asked.

Technology is now more significant in all areas of life, including in older people's living environments. This is all the more important in view of the increasing frailty in old age and the demographic changes affecting our societies. This demographic change is characterised by a variety of factors, including: the increasing proportion of older people; particularly strong growth among the very old (aged 80+); the increasing number of people living alone; reduction in the size of households due to decreasing birth rates; shrinking family networks; and families' diminishing potential to care for older relatives.

Older people value their independence and wish to stay in their own homes for as long as possible. But they can face many barriers in being able to live independently, such as mobility inside and outside the home; taking medicines; keeping safe and secure; social isolation and loneliness; forgetfulness; and access to care provision. In view of the increasing risk of competence loss and of decreasing familial and professional support options, technological devices and systems have the potential to compensate and assist in all these areas. "But does technology in fact have anything useful to offer older, impaired people?", Dr. Mollenkopf asked.

Analysis of out-of-home mobility undertaken by the European-funded MOBILATE project underlined the fact that older people should not be considered as a homogeneous group. The project identified four distinct groups in terms of attitudes: a 'mobility rich' group that has good outdoor mobility and is highly satisfied; two intermediate groups that are less mobile; and a fourth 'mobility poor' group that has low mobility and is dissatisfied with mobility options. It is this latter group that requires intervention support. The groups are correlated with factors such as age, gender, health status, size of household, car use, financial status, and geographical location.

A second example compared impaired and non-impaired

people's use and attitudes to technology. Again, impaired persons are characterised by lower education, lower income, living singly, being female, and higher age. The impaired fair worse than the non-impaired in all areas and have bad experiences with technology. They want equipment and devices to be simpler to use, especially ICT. For many strenuous household tasks, no technological solutions have been available up to now. These findings underline the need for new intelligent systems and for a combination of technology and services.

Turning to the situation in Europe today, Dr. Mollenkopf noted that overall more than 40% of EU households have broadband internet access. But penetration varies considerably between Member States and the Eurostat figures exclude the oldest users (those over 74), who studies show are the least equipped. ICT use decreases with age in all EU member states, and older women in particular are at risk of being excluded from ICT participation.

"What will change in the future?", she asked. Social trends, in terms of more single households and people living more mobile lifestyles will continue. There is also increased awareness of health and fitness, but longer life expectancy also brings increased risk of dementia. Future generations of older people will be more familiar and more comfortable with ICT having used it at work and at home. We can expect improved standards of living, but also the gap between the 'haves' and 'have nots' will continue and most probably increase. Finally, advances in ICT are turning conventional notions of 'near' and 'far', 'public' and 'private' on their heads: we might know people we meet online better than our neighbours. "Will we live a real life or a virtual one?", was the question posed.

In conclusion, Dr. Mollenkopf emphasised that older people are not a homogeneous group, a point that should be remembered when it comes to designing ICT products and services. Until now those that have profited most from technological developments have been the young, healthy, wealthier and better educated. For older people to share these benefits devices and systems have to be optimised so as to remove barriers to their use and make them more affordable. This presents a major challenge for all involved: designers, producers, service providers and social policy-makers.

### **Towards a Life-long Active Society:**

Prof. Atsushi Seike, Professor of Labour Economics,  
Keio University

Like other advanced economies, Japan is experiencing demographic change, Prof. Seike explained. Hence it is important to promote the employment of older people beyond the current retirement age, a phenomenon which Prof. Seike referred to as a 'life-long active society'. In fact, Japan is the fastest-ageing of all OECD countries. The proportion of the population over 65 will have grown from just 6% in 1960 (around half the then OECD average) to 30% by 2030 (around 50% higher than the projected OECD average). In the post-war period, life expectancy in Japan has increased from 50 to 78 years for men, and from 54 to 85 for women. Over the same period, fertility rates have declined, from around 4.0 in the late 1940's, to 2.0 in the early 1970's and around 1.3 now, one of the lowest rates in the OECD. The net result has been an inversion of the population pyramid, with the older retired population outweighing younger people of working age.

On the other hand, Japan has favourable labour force characteristics. Participation by workers aged over 60 is one of the highest in the OECD. Around 70% of men and 40% of women aged 60-64 are still in the labour force, with significant proportions continuing in work up to age 70. Although Japanese workers show a strong motivation to continue in employment beyond traditional retirement age, they face barriers in terms of social security and employment practices. Legal restrictions mean that above a certain level people lose pension benefit in direct relation to earnings.

Hence many people limit their earnings to this level so as to retain full pension eligibility. In the US, UK and other countries such limits have already been eliminated or compensatory measures introduced. Regarding employment practices, more than 90% of firms with more than 30 employees still specify mandatory retirement (typically aged 60). This significantly reduces people's motivation to continue working, even in secondary employment. The skills, expertise and experience of these older workers is lost to the labour market.

Finally, turning to the situation of those out of work, Prof. Seike noted that the older unemployed still face difficulties in finding jobs. Around 40% of over 45's and 53% or over 55's see age as a barrier to gaining employment. It is necessary to revise the seniority-based wage and promotion system and to encourage employers to extend job opportunities for older workers.

Summarising, Prof. Seike noted that Japan faces big problems but also has big opportunities. He saw three main agents of change. Firstly, Japan's 'baby-boomers' are now reaching their 60's and many are still in the labour market. Having worked hard in the golden age of the Japanese economy in the 1970's and 80's, this generation has a strong motivation to keep working. Secondly, small and medium-sized firms are leading the way in breaking the mould, having less rigid and hierarchical structures, and offering more flexible careers with better work-life balance. Thirdly, as longer working lives become the norm, the burden on younger generations will reduce.



*Keynote Speakers:  
Prof. Atsushi Seike and  
Dr. Heidrun Mollenkopf with (left)  
Dr. Jean F. Freymond*

## SESSION I:

### Technology for Ageing Society



*Prof. Dr. Thusnelda Tivig*

#### **Europe: An Old Continent**

Prof. Dr. Thusnelda Tivig, Rostock Center for the Study of Demographic Change

Europe has long been known as the 'Old Continent' Prof. Tivig, explained. Now this is also the case in demographic terms. Her presentation provided a detailed picture of the spatial dimension of demographic change within Europe and its consequences for individuals, businesses and the macro-economy. Is this a risk or an opportunity?

Firstly, she offered some definitions. 'Ageing' – meaning the age profile of the population - is the outcome of decreasing fertility rates and increasing life expectancy. 'Shrinking' – meaning the overall size of the population for a given area or cohort – results from fertility rates that are lower than mortality and migration that does not fill the gap. Ageing is a long-term phenomenon, whereas shrinking is cyclical and occurs over shorter timescales.

The two factors can manifest themselves differently, even within countries with very similar economic conditions. Thus, for example, Germany has been ageing since 1970, in terms of mean age, and was repeatedly shrinking, until 2003. France has been ageing since 1965, but is continuously growing since at least 1950. Japan has been ageing since 1950 and stopped growing in 2004.

Prof. Tivig then presented a detailed statistical picture of ageing within the EU. The mean age in the EU in 2004 was 40 years, but regions show variations around this, from below 37 years (e.g. in Ireland, Slovakia and parts of Poland) to over 42 years (e.g. in eastern Germany, central Sweden and much of Greece, Italy, and Spain). Over the period to 2030, all regions will age but at different rates, depending on how the population is affected by the mix of (long-term) ageing and (short-term) shrinking. In some regions, for example, the average age increases by more than 7 years, whereas in others the rise is less than 3 years. "Some young regions age fast, and some old regions age slow", Prof. Tivig explained. The net result is a change in population and population density. Overall, population in 112 of the 264 EU regions is predicted to shrink over this period.

Turning to the economic sphere, Prof. Tivig explained that demographic change occurs differently in the total population and the working-age population. Specifically, low birth rates translate with a delay of 20-25 years into shrinking of the labour

force, whereas population ageing occurs mostly at ages beyond employment. Additionally, work-force growth is also the outcome of social norms regarding labour participation of women and the elderly and of the length of education periods considered necessary given technological and societal development. As a result, individually and for society, the main issue until 2030 is population ageing, whereas for firms, labour force shrinking is the major problem.

Thus, while demographic change is pervasive in Europe, its local expression varies markedly. It opens up new opportunities and responsibilities at all levels and rather than fight it, we should accommodate its consequences. For businesses, it is clear that ageing brings growing demand for new products and services, and for age-friendly advertising and distribution channels. Businesses also have to guard against becoming over-reliant on a few highly-talented young, who will always be very mobile. Older workers have much to contribute but need to be motivated differently. In addition, more needs to be known about how productive creativity changes with age.

### Ageing Well in the Information Society

Peter Wintlev-Jensen, Head of Sector, ICT for Inclusion, DG Information Society & Media, European Commission

Reiterating points made by other speakers, Mr Wintlev-Jensen observed that the ageing population affects all major industrial countries. In Europe, the population aged 60+ will increase from 20% in 1995 to 25% in 2020, and those aged 80+ will double by 2050. Among those aged over 50, 21% have severe vision/hearing/dexterity problems. The ratio of working to retired people will shift from 4:1 today to 2:1 by 2050, and the cost of pensions, health and long-term care could reach between 4-8 % of GDP by 2025.

But there are also opportunities. The wealth and revenues in Europe of persons over 65 is over €3000 bn. The market for smart home technologies will triple between 2005 and 2020, and early patient discharge using tele-health could reduce healthcare costs by up to €1.5bn. Figures from the UK show that use of tele-care technology at home can empower the elderly and produce efficiency gains of 25%. In short, we have to see the use of ICT in ageing as both a social necessity and an economic opportunity.

“So what’s in the way?”, Mr Wintlev-Jensen asked. Many barriers persist: older people don’t use the internet and find

technology challenging; mainstream products don’t accommodate the needs of older users; there are legal and technological barriers; and markets are fragmented.

To address these issues, in June 2007 the European Union adopted an Action Plan on “Ageing Well in the Information Society”. The Action Plan identified three ‘wins’: improving the quality of life of elderly people and of their relatives and carers; ensuring sustainability of health and social services in terms of financial and human resources; and creating new jobs and business opportunities for European industries. Actions are of two types. Firstly, at a policy level, actions are proposed to raise awareness, share understanding of ageing issues, and to create the right conditions through legislation and other measures. Secondly, funding actions are proposed covering the research and innovation value chain. These aim both to prepare for the future through research and innovation (the Seventh Framework Programme for Research, FP7), and to accelerate the take-up of proven solutions (the ICT Policy Support Programme).

Europe is stepping up research in this area through the Ambient Assisted Living (AAL) initiative (2008-2013). This is a new joint programme between Member States on ICT for ageing that aims to foster the emergence of innovative ICT-based products, services and systems. Industry and certain EU Member States will pool their resources so as to leverage a critical mass of research, development and innovation at European level. It will play a key role in linking national programmes to EU research and will improve conditions for industrial exploitation by SMEs. In total, around €600m is being invested in the programme, complementing the €400m budget for longer term research under FP7.

*Peter Wintlev-Jensen*





*Dr. Viktor Grinewitschus*

*Britta Fuenfstueck*

## SESSION II:

### Technology for Ageing Individuals

#### **inHaus: Developing Assistive Environments for a Longer Independent Living at Home**

Dr. Viktor Grinewitschus, Fraunhofer-IMS and Head of inHaus Innovation Center (Technology and Innovation)

Like other countries, Germany is facing the demographic challenge. Already in 2003 more than 2 million people were in need of nursing care. Of these, more than two-thirds were at home, with care provided either by relatives (48%) or by an ambulant carer (22%). The remainder (around 30%) were living in nursing homes and, as in other European countries this proportion is decreasing. This is due to the combined effect of strains on public finances and people's preference to stay in their home as long as possible.

Use of technology to set-up assistive environments is one of the most attractive and viable solutions to offer the elderly more personal freedom and less invasive restrictions. Care technology can support people to live independently as long as possible by strengthening out-patient care and providing communal care environments. It can support supervision by recognising problematic situations or emergency cases as fast as possible. And it can support professional carers in both ambulatory and stationary settings. Key applications include communication, call- and alarm and monitoring systems, everyday living activities, safety and security, and healthcare support.

inHaus1 is a German facility, opened in 2001, that offers a complete testing environment – a Living Laboratory - for smart home technology. It has allowed testing of applications, market research and user acceptance tests for novel systems and solutions in real-life surroundings. Efforts have focused on a reference architecture for smart home services with middleware integration. Examples include an intelligent entrance system that warns of open windows and running devices; a smart medicine cabinet that monitors medication; and a smart smoke detector that is connected to the oven power supply. A further facility, inHaus 2, is under construction and will open in November 2008.

Summarising, Dr. Grinewitschus noted that solutions for a longer independent living at home are certainly required. Smart home technology will be an important part of future care scenarios. Much technology is available already, the challenge is how to combine it into complete solutions. Strong cooperation will be required across the value chain, from designers and product manufacturers to care providers and older users

themselves. New business models also need to be developed based on a combination of technology and services. The inHaus-Innovation Center is a platform to develop and test future assistive environments and related business processes.

#### **From Megatrend to Healthcare Product Definition**

Britta Fuenfstueck, VP Business Development, Siemens Healthcare

Ageing is a global problem, Ms Fuenfstueck asserted. For instance, in China around 7.5% of the population will be older than 80 years by 2050, versus just under 1% today. In industrialised nations, healthcare costs will rise by around one-third during this decade, from €2.9 trillion in 2002 to an estimated €3.8 trillion by 2010. In Germany, healthcare costs already account for 10.7% of GDP. Another trend is that patients are becoming better educated and are behaving more as consumers, making choices about their own healthcare. Studies show that prevention and early detection really pay-off for both patients and healthcare providers. Early detection increases survival rates and significantly reduces treatment cost. In the case of breast cancer, for example, with early detection 80% of patients are alive 15 years after diagnosis. "What can we do to detect age-related illnesses earlier?", she asked.

Technology can help in a number of ways. A new computer tomography technique, developed by Siemens, avoids the need for patients to be given  $\beta$ -blockers in the treatment of heart disease. This saves valuable time and improves both the quality of care and the patient experience. Another example is magnetic resonance, where Siemens has developed a larger than normal scanner that improves patient comfort and helps in the diagnosis of systemic diseases such as diabetes. A further example is audiology, where Siemens has developed a remote-controlled noise-filtering hearing aid for use in noisy environments such as restaurants.

Summing up, Ms Fuenfstueck emphasised two points. Firstly, in respect to health especially it is better to intervene early. Secondly, segmentation enables businesses to define products that better meet users' needs and so gain higher market share.

### Technologies for Ageing Individuals

Yasushi Fukunaga, Corporate Chief Engineer, Research & Development Group, Hitachi Ltd.

Ageing is one of the three main strands in the Japanese government's innovation policy, known as Innovation 25. The other key themes are the knowledge society and global sustainability. Innovation 25 is a long-term strategy that aims to ensure innovation contributes to growth with an eye on 2025. It aims to integrate reform of social systems with a strategic roadmap of developments in science and technology. Three of the five goals relate specifically to ageing: safe and secure society; society with diverse work styles; and long & healthy lives.

Systematic management of information is essential in the transition to a knowledge-based information society. Senior citizens' knowledge and experience is an important part of this. Alongside the 'broadcasting' of data from ICT platforms, new services will rely on the 'broad-gathering' of data from real-world scenarios. To create new services we need to aggregate huge amounts of data from human behaviour and environments. Collection and analysis of this data will be facilitated by sensors and RFIDs in a wide range of applications, such as factories, transport and our homes and offices. Hitachi calls this use of a wealth of micro-data to visualise real-world objects the 'X-microscope'.

Hitachi has undertaken a number of projects, some related to Innovation 25, which aim to demonstrate the use of ICT services for the knowledge-based information society. In the Autonomous Mobility Support Project for the Ministry of Land, Transport, Infrastructure and Tourism (MLIT), the company has implemented urban management features such as town security, CO2 discharge control and urban navigation, all relying on utilising sensor nodes. In another project for the Ministries of Health, Labour and Welfare, it has implemented a 'life microscope' for medical check-ups: sensor nodes record data on activity and physical condition, enabling people to reflect on and improve their lifestyle. And in the sphere of social policy, Hitachi operates an online social network service offering information on employment and welfare issues for company employees and alumni; more than ten thousand people have already benefited.



Yasushi Fukunaga

*Dr. Martin Karlsson*

*Prof. Simon Rogerson*



## SESSION III:

### Ageing Society - Broader Views

#### The Economics of Frailty

Dr. Martin Karlsson, Institute of Ageing, University of Oxford

Dr. Karlsson's focus was on the social and economic issues associated with long-term care (LTC). Despite thirty years of research, the picture on morbidity is still rather unclear, he explained.

Research undertaken by his own institute showed that life expectancy was influenced by a wide variety of factors. In addition to the obvious criteria of health and disability, these include whether someone works or not, their gender, marital status, and education level. For instance, in the UK for men the highest life expectancy (88 years) is for those who are healthy, working, co-habiting and university-level education. The lowest life expectancy (73 years) is for those who are disabled, not working, single, and have low education. A similar situation pertains for females, although not working tends to be a more positive factor.

The economics of long-term care requires complex models and many of the variables cannot be predicted accurately. In broad terms, there are system parameters, which can vary significantly between countries. These include: the boundary between LTC and healthcare; the role of the family in provision and financing of LTC; the balance between residential and home-based services, and between public and private bodies; and the form of public subsidy.

There are several different funding models: private savings, private insurance, private insurance with public-sector support, public sector tax-based support, and social insurance. Comparison between countries shows that the British system, based on taxes and means-testing, is by far the cheapest, whereas the Swedish one, based on taxes and public provision, is the most expensive. In terms of future costs, however, the required contribution rates move more or less proportionately over time, implying no big differences in how the various systems respond to demographic change.

Dr. Karlsson saw the lack of private insurance for long-term care as evidence of market failure. Underwriters fear that individuals might be able to influence the risk of disability and/or they might seek to maximise the benefits once disability has occurred. Future costs of long-term care are unpredictable and might not be insurable.

Frail individuals are bad risks for LTC insurance but good risks in the annuity market. Thus, one approach could be to 'bundle'

disability with pensions. Recent research has shown that adding disability bonus to annuity hardly changes premium and such products are much less sensitive to market uncertainties. Such products offer benefits all round. For policy-makers, they reduce uncertainties; for insurance companies, they reduce the amount needing to be spent on screening; and for consumers they open the way to cheaper insurance, including for some who would not otherwise get insurance at all.

#### Prolonging Active Life through Ethical Technology

Prof. Simon Rogerson, Centre for Computing and Social Responsibility, De Montfort University

Prof. Rogerson said his perspective was that of "a technologist looking out" and that he aimed to challenge some of the stereotypes of what it is like to be old in the information society. The 1970's was a pivotal period, he argued. This saw the introduction of computers into schools and workplaces, as well societal changes such as the growth of consumerism. "Anyone who left school before the early 1970's has a completely different view of the world", he said. Hence, the key age is not 65 but 55 and over – the age of pre-1980 school-leavers today. Around 126 million people in the EU fall into this category and, given rising life expectancy, they could be around for up to another 40 years. This threshold age will gradually drift upwards, since subsequent generations will have a different mindset. "We have a heterogeneous ageing population and for technologists one solution is no solution".

Turning to ICT ethics, Prof. Rogerson noted that we need to ensure ICT advances and protects human values rather than damaging them. We should formulate and justify policies for the ethical use of ICT and find transparent and justified means for delivering ICT outcomes. Key ethical issues with ageing include respect, dignity, autonomy, privacy, choice, access, connectivity and duty of care: these cannot be addressed through technology alone.

Implementation of ethical ICT, Prof. Rogerson argued, requires a mixture of process and product. We have to ensure a professional approach in how we conduct R&D or deliver products and services (the process). In addition, we have to look at what is being produced (the product) and find ways of embedding ethics into the technology. Prolonging active life is not just about health and welfare, but also about lifelong learning and facilitating social interaction.

To be 'fit-for-purpose' ICT products and services have to be

adaptive, to fit users' needs rather than users fitting ICT's needs, and to embed ethics. One example is a mobile phone developed by Emporia which is designed to appeal to older users. It has large buttons and display, a super-loud speaker and ringing volume, an emergency function, and an orange backlight for people with sight problems. Operators in Europe have refused to offer it, however, as they do not see it fitting in with their core market.

To conclude, Prof. Rogerson quoted from an influential report, Design for an Ageing Society, published in 2007, which he said captured the essence of his message: "Quality of life in old age moves beyond mere creature comforts to having a healthy, secure and meaningful life. Healthcare and housing is just one facet of their needs. Building a sense of inclusiveness and dignity should be a public initiative as much as a social responsibility." "If we do this we truly can prolong active life through ethical technology", he added.



*Dr. Vincent Rialle*

*Dr. Sandra Huning*



## REPORTS BY THE GROUP SESSIONS MODERATORS

### GROUP SESSION 1: HEALTH

*Dr. Vincent Rialle, University Hospital of Grenoble*

This session focused on health issues in the context of the ageing society.

One of the most discussed topics was cost effectiveness and reimbursement of technical aids, especially for life-saving solutions, such as tracking devices for quick recovery of cognitively impaired patients who wander. Considering that technology can meet daily health needs only when it is available at a reasonable cost: How can evidence of benefits be assessed, especially for products and services where clear evidence of cost-effectiveness is lacking? Who pays or will provide reimbursement for such cases? More generally, how can we ensure cutting-edge technology is affordable for end-users? The debate clearly stressed the incontrovertible conflict between public concern posed by ageing and private solutions regarding healthcare, homecare, telehealth, smart-homes, etc. Another central question, very specific to the health session, addressed the medical aspects including design, recommendation, prescription, and medical assessment of ICT for elderly people. This question was too broad to be covered in detail, although a series of thoughtful remarks were raised. A shared concern was the common difficulty to bring together two distant “universes”: the one of elderly people living alone and young researchers in emergent technologies.

Take-up of ICT is restrained by the wide diversity of rules, practices, and organisations throughout the world and peculiarly between European member states. Such diversity acts as a brake on the sharing of new solutions, a reflection obviously not specific to the Health session. In this regard, the moderator stressed the availability of the “International Classification of Functioning, Disability and Health” (ICF), produced by the World Health Organisation, as a rigorous but universal and consensual means to share a common language regarding the precise identification of handicaps and autonomy losses. This useful tool should lead to a common understanding of the medical response to elders’ fragility and handicaps in terms of technical aid and innovative services.

The attendees addressed the need to develop the design and use of technologies to fight frailty due to isolation and the feeling of loneliness, and to promote interpersonal communication, improve family ties, feed self-esteem, increase quality of life, and develop the role of informal caregivers. It was argued that a strong relevance of ICT to loneliness and isolation is its potential to facilitate the creation of small networks of elders and caregivers, and intergenerational exchange. From a healthcare

viewpoint, ICT should be summoned to support a more person-centred approach to healthy ageing. Particularly gerontology networks do not make the most of ICT for care coordination, remote checkups, or even informal exchanges. However, the opposite drawback was pinpointed: the use of ICT, such as videoconferencing and remote bio-signals monitoring, as a pretext to avoid real personal visits to elders. Such behaviour would result in a strong decrease in personal contact. Hence, there is a need for guidelines on ethical and adapted use of technology, especially regarding eldercare. It was also stressed that technologies which render the concept of ‘ageing in place’ very sound and tractable, both medically and socially, deserve to be better identified and recognised by healthcare professionals and caregivers. This should be achieved by the development of adapted teachings and training courses. Moreover, the value-added services these technologies provide need also to be more acutely assessed. Probative data of these added values should be produced scientifically in order both to convince health policy-makers to promote their up-take and to allow gerontologists to prescribe some of them to patients.

### GROUP SESSION 2: SOCIAL INCLUSION

*Dr. Sandra Huning, Berlin Brandenburg Academy Sciences and Humanities*

Framing the discussion on “Social Inclusion”, the moderator started the session by introducing a thought of the German historian Jürgen Kocka. Prof. Kocka argues that the ageing society in most European countries is full of chances and opportunities. However, society and individuals are not yet ready to fully exploit its potentials due to a structural discrepancy: while more and more people are living longer and stay healthier, and the share of older people in the overall population increases, institutions such as education, the labour market and the social security system still reflect times when the relation between older and younger age groups was much different from today. This poses two problems. On the one hand, the elderly are healthier and more active, but cannot participate in society up to their potentials; on the contrary, retirement and long-distance family relationships may even negatively impact their “social inclusion”. On the other hand, society fails to benefit from the potential contribution of the elderly to the labour market, civil society, innovation, and value creation. In the long run, it will no longer be able to afford to neglect elderly people’s contributions to society. In this context, issues of justice and ethics also need to be addressed.

This framing opened up the discussion, and showed the scope

of societal transformation which may be needed to adapt to demographic change. The group agreed that social inclusion is a central factor for a high quality of life, and contains the following elements:

1. Choice: Speaking about “the elderly” can be prejudiced or even patronising, if it replaces speaking with them. The elderly are a very heterogeneous group with quite differing preferences and self-perceptions of when they feel socially included or excluded. Therefore it is important not to impose age-friendly products and services on them, but rather to listen and open up choices.
2. Participation: In order to have a choice, opportunities for participation are essential. This concerns not only social and economic institutions, relations and networks, but also political decision-making processes.
3. Value / Acknowledgement / Treatment: An equality of treatment that elderly people receive, and their acknowledgement by society and its institutions are essential for their well-being.
4. Intra- and intergenerational exchange and interaction: Mutual respect and value are a result of regular communication, interaction, and exchange not only within one generation, but also among generations. An important issue in this context is also the transfer of experience and knowledge.

Specific age-related situations were identified especially in terms of elderly people’s physical exclusion, for which various causes can be held responsible. Physical exclusion specifically was seen as a consequence of elderly people being perceived as old or even “useless”; of their losing a partner and suddenly living alone; of high physical distances between them and their friends and families which could lead to isolation after retirement; of the higher probability of physical impairment and decreasing mobility; of a decreasing access to democracy and public services; or of changes in socio-economic status after retirement, resulting in a severe change of living conditions and – in many cases – less spending money.

The discussion then turned to the role of ICT, especially the internet, for social inclusion. It became clear that technology can only be part of a comprehensive problem-solving strategy, and that there could never be technological solutions alone. The group came to the conclusion that policies addressing

social inclusion need to aim at the following:

1. To maintain or even enhance elderly people’s physical and intellectual capacities, e.g. by establishing volunteer programmes or supporting existing civil society organisations which offer opportunities for activities and social exchange after retirement (in response to “the basic need to be needed”);
2. To provide general access to communication infrastructure and the internet: this includes not only physical access such as technical infrastructure and public service points, but also the enhancement of IT-literacy because accessibility alone does not necessarily imply that people know how to use new media in reflective ways. The idea of open access or universal service systems were recommended for further consideration (such as free access to telephones and computers) as affordability is an important issue for many seniors.
3. To provide support and set incentives for types of standardisation: These should take into account from the very beginning specific needs and potential impairments of elderly people, and be oriented towards easy-to-use interfaces. Although the number of elderly consumers is increasing rapidly, the market has been slow to adapt, or continues to privilege young and middle-aged consumers. A market for the elderly, especially in terms of technological development, is not yet served adequately.

The following open questions came up during the discussion, but could not be adequately addressed due to a shortage of time:

1. How can the perception of society towards the elderly be influenced so that their contributions to society are acknowledged? The group discussed whether there was a “social duty of the young to the old” in respect for their achievements.
2. How can lifelong learning be implemented? Should – and could – society get rid of the strict life course regime it implemented a long time ago?
3. Do ICT really help to fight loneliness, or do they make the elderly even lonelier? How can both social and technological solutions be complementary to each other? It seemed to the group that platforms of both kinds – social and technical – are needed to support social inclusion. It was stressed that the elderly are a very heterogeneous group,



*Group sessions I, II and III*



*Guido Bognolo*



and that elderly people have different wishes and needs, not only according to their health and financial status but also to gender and culture. Respect towards elderly people, and their role in society are defined quite differently in various national or regional contexts. Images of the ageing are constantly in flux, but observable changes take more than one generation to materialise.

Technology is not the one and only, or the best solution, but it may be an important part of it, especially as generations are ageing who are used to applying technology in their everyday life. However, it seems that the market still needs some incitement to pay appropriate attention to the specific needs and interests of elderly people. Therefore, policies need to support technological development by providing financial support for research and development, and create demand, e.g. in the framework of pilot studies or best practice competition. The group concluded that still much more research needs to be done, foremost in terms of the priorities and values of the coming ageing generations, in order to generate solid advice for policy-makers and businesses.

### **GROUP SESSION 3: KNOWLEDGE & EXPERIENCE SHARING**

*Guido Bognolo, Confederation of the European Senior Expert Services*

One aspect of the ageing population is the issue of many retired or pre-retired seniors that both have the energy and the motivation to continue their professional life and are prepared to put their expertise and knowledge at the service of segments of society most in need of it.

From this premise, the workshop explored the perspectives for seniors to continue an active and dignified life by making accessible the enormous wealth of knowledge and expertise they have accumulated during their professional careers for the benefit of society. This may include advice and guidance on various matters to small and medium size enterprises (SMEs), non-governmental organisations (NGOs), tutoring centres and/or individuals. The issue is particularly acute in developing countries and is aggravated by the absence of infrastructures enabling a sustainable development based exclusively on local resources. At the same time, it is obvious that any help provided represents a small but valuable contribution to fight poverty, promote knowledge and improve social equality and integration. Hence, the workshop debated how technology could help in three areas:

- to identify opportunities and create networks of seniors



willing to share their knowledge and professional experience for the advancement of the less-favoured segments of society;

- to enable these seniors to update their knowledge and provide maximum impact from their interventions; and
- to facilitate the tracking and sharing of individuals' knowledge.

The last question was in part addressed by the presentation of Mr. Yusuke Mishina, who summarised work being done within Hitachi on the development of new models for simplifying data tracking and maintenance of individuals' expertise and the match-making with specific project demands. Building and maintaining extensive databases on individual expertise is time-demanding, expensive and subject to mis-interpretations. A dynamic and interactive system that can isolate the relevant information from the curriculum of the seniors and compare in real time with the demanded expertise is under study. There is no doubt that there would be major benefits to be gained from the seamless operation of any such system, that could also be used to help identify the in-company match-making between personnel qualifications and project specifications.

Companies seem to be largely unaware of the existence of organisations harnessing and directing the resources of seniors to the benefit of SMEs and other organisations, or of the opportunities that could be available through networking their "active" retired people. Two courses of action were identified here:

- Volunteer senior organisations need to mount a marketing effort, to make themselves and their objectives known. Seniors' organisations should adopt a proactive communication strategy, presenting themselves to the HR departments of companies and offering their services to integrate retiring older workers into their programmes.
- Companies should integrate in their retirement packages the opportunities offered by volunteer senior organisations. At present many companies do little or nothing to prepare employees for retirement.

There was a debate on the freedom of volunteer seniors to use their knowledge and expertise in their assistance missions. It was recognised that the actual knowledge gained by seniors throughout their professional career is obviously subject to confidentiality obligations. At the same time, however, knowledge is a perishable good that loses its value with time, whilst the experience developed - in the sense of judgement, decision-

making and contacts networking - is of long-lasting value and can be made freely available.

The role of information technology in assisting "active" seniors, both at the level of individuals and at their organisations was recognised, with several facets deserving attention:

- Firstly, and in common with the observations made by guest speakers, IT and its presentation should be "user friendly", i.e. simple and intelligible. It would be desirable if the communications on technological advances and the instruction leaflets were written by "users", for the benefit of users, rather than by the technologists.
- Secondly, the innovations developed should be brought to the attention of the potential users through a capillary marketing approach.
- Thirdly, there are valuable tools available to enable upgrading of knowledge for people who are interested in it. Google and Wikipedia have been generally acknowledged as being powerful engines for upgrading and disseminating knowledge but are not free from shortcomings and criticism. Users should raise their observations to the administrators of these systems to enable improvements to be introduced. Language is a barrier to communication and knowledge sharing but machine translation is still rudimentary.

While the workshop recognised the importance of matching IT technologies with the capabilities and needs of seniors, it did not reach a consensus on the long-term implications. One view was that the matching is a transient issue, due to the existing gap between available technology and seniors' capabilities to use it. This may disappear as the juniors of today will be the seniors of tomorrow and will have the capabilities to fill the gap. Another view was that the gap will continue to exist, because technology will advance faster than people can absorb it. The question was raised whether companies were aware of the loss of experience / knowledge when people retire and what was being done to prevent this loss. The answer at the workshop was that the awareness and the tools vary between regions. Far East cultures are more respectful of expertise and are more concerned about its loss. However some of the solutions developed may not be acceptable in the context of other cultures. Western economies seem to consider loss of expertise as part of a natural, unavoidable and desirable rejuvenation process, making room for new ideas and approaches. This last observation underlines the fact that cultural differences drive the needs of seniors and the possible solutions to address them.



*Guido Bognolo and Mariàngels Fortuny*

#### **GROUP SESSION 4: PRODUCTIVITY AND AUTONOMY**

*Mariàngels Fortuny, International Labour Office*

##### *Issues discussed:*

Participants felt that productivity trends were highly related to education and skill development of the workforce. Declines in productivity are therefore strongly related with skill obsolescence, which of course declines with age unless adequate preventive or remedial measures are taken. A key issue is, therefore, that older workers engage in education and training programmes.

According to participants, companies sometimes may feel that investing in older workers is not profitable because they will not stay long in the workforce before retiring. It was highlighted, however, that there is evidence that younger workers have shorter job tenure than older ones because they tend to change jobs more frequently than their older counterparts. Regarding older workers' willingness to engage in training, it was noted that sometimes there is a motivation problem, as some older people may believe that it is not worth making the effort to learn because they will retire soon.

An important conclusion was that there is not a great deal of research on productivity and age, and that most of the evidence is anecdotal or based on a few studies on blue-collar workers. It was mentioned, however, that it is sometimes difficult for companies to undertake studies on productivity as the work councils tend to oppose. Nevertheless, participants felt that it is important to make efforts to undertake more research on productivity trends and age.

##### *Recommendations:*

Regarding policy recommendations, these were targeted to governments, employers and older workers themselves. Participants felt that governments have a key role to play in order to make education and training attractive for companies. For example, governments can promote training through fiscally attractive measures.

Furthermore, governments have a key role to play in undertaking awareness-raising campaigns on ageing. There is a need for such campaigns in order to sensitize companies, older workers and the rest of society to the important ageing challenges.

Through appropriate regulatory measures, government can

contribute to mitigate the effects of ageing workforces.

Participants noted that it is crucial to continue increases in retirement ages in accordance with increases in life expectancy. Some participants suggested that quotas based on age (as they already exist based on gender and race) could ensure that companies hire a certain amount of older people. Other participants however, did not agree with such regulatory measures. The issue of seniority wages was also briefly discussed and participants felt that this was a discouragement for companies to employ older workers. Therefore, rigid systems of seniority wages (in place in some companies in Japan, Germany and elsewhere) should be gradually abandoned in favour of performance-based pay at all ages.

Regarding companies, participants noted that it is important that they invest in promoting the employability of their staff in order to avoid skill obsolescence later on in life and they should promote training and retraining of their older employees. Training of older workers, however, should be adaptive and age-related in order to be truly effective. Furthermore, there is evidence that good working conditions are key to prolonging working lives. Therefore, participants felt that preventive measures, both in terms of skill development as well as working conditions, are of crucial importance.

Mentoring was also discussed as a key measure to transfer knowledge between employees. This could also include younger workers teaching their older counterparts about a specific skill. All in all, mixed-teams and age-diverse workforces were seen as a positive initiative as young and older workers may bring different but complementary skills and talents. Regarding older workers' own willingness to learn and enroll in training and retraining courses, it was also stressed that older workers themselves have a key role to play in terms of making an effort to be willing to learn new things and being motivated. Finally, participants noted that older people have a key role to play in volunteer work which is an important way to make use of the productive potential of older people for the benefits of themselves, economies and societies. Child care was given as an example of volunteer work where older people could greatly contribute to society.

#### **GROUP SESSION 5: MOBILITY**

*Ann Frye, Ann Frye Ltd*

Mobility is essential to the physical and mental well-being of older people and the loss of mobility has a very high cost both



to the individual and to society. This was the starting point for the Group's discussions.

The Group focused on three main topics: different approaches to the mobility problems of older people; possible technologies to solve these problems; and some recommendations for the future development and application of technology to benefit older people's mobility.

#### *Identification of the problems*

Today older people face mobility problems as pedestrians, public transport users and as motorists. Two major issues were raised:

- *Different solutions for different generations:* Today's older people need different solutions to tomorrow's older people. For example, technology for today's older people needs to recognise their ICT limitations. Tomorrow's older people will be much more 'ICT literate' and comfortable with the use of technology.
- *Psychological and information problems:* Many older people not only have physical and sensory problems that affect their mobility but also psychological problems such as fear. For example, the biggest single reason why older people stop going out alone is a fear of falling. Confusion and memory loss are also common problems with a growing number of older people affected to some degree by dementia. This can severely limit their ability to go out independently and safely. Technology needs to overcome these problems as well as those related to a loss of physical mobility or sensory acuity (sight and hearing).

#### *Possible technologies*

Possible technologies that could solve these problems range from the application of simple, readily-available technology to some more futuristic ideas.

- *Greater use of GPS technology:* Some older people don't go out because they cannot find their way about or forget the route they need to take, even for local journeys. GPS (Global Positioning System) could be used not only by older drivers but also older pedestrians and those who use a scooter or powered wheelchair. GPS can also contain information about street hazards, so that older pedestrians, perhaps with sight problems or scooter users can avoid them. Information on availability and timing of public transport can also be valuable.
- *Personalised cars:* Technology already exists to 'personalise' items such as car seats so that they adjust automatically to the optimum position for individual drivers. It is also possible to link ignition systems with a test of the driver's alcohol level. It should be possible to extend these capabilities both to increase the comfort and safe driving position of older drivers and also to help determine fitness to drive. This could be particularly valu-

able in the case of people with dementia, for whom giving up driving can be a traumatic and difficult process (both for the individual and their family). Other useful applications for older drivers include the technology which is already available to detect when a driver becomes drowsy. This could also be used, for example, to detect when an older driver may have a problem with alertness, concentration or fainting.

- *Intelligent electric pavement buggies/scooters* with guidance systems. The use of pavement buggies and scooters is growing among older people and provides a valuable form of local outdoor mobility for those people no longer able to drive or with limited ability to walk. Linking these vehicles with guidance and navigation systems would enable older people to use them more widely and with greater confidence and safety.
- *Autonomous cars:* It was agreed that autonomous cars that require no physical effort for the driving task could be a solution for older people with limited strength and mobility and for whom fatigue is a common problem. Solutions already exist (although at high cost) for severely disabled people to continue to drive with very limited capacity for physical movement. These concepts could be extended and made more readily available and affordable to help older drivers.

#### *Recommendations for further technology development*

Finally, the discussion turned to challenges and recommendations for the development of possible technologies to increase and prolong the safe, independent mobility of older people. Proposals included:

- *Technology for assessment of older drivers:* One of the problems for governments and traffic authorities is that some older people continue driving although they are incapable of doing so safely. It is often very difficult to persuade them to stop driving because of the loss of independence that giving up the car can mean. In the light of the personalised car developments set out above, the Group considered that technology could, in future, offer a means of automatically assessing a driver's physical and mental capabilities, and could take over the role of licensing authorities which currently have to make checks - often arbitrary - at a particular age to assess fitness to drive. These checks are not necessarily reliable predictors and can only make an assessment at a given point in time. Using technology to carry out the assessment task on a continuous basis would enable older people to continue driving safely for as long as possible.



Dr. Jean Freymond

Group Session V



- *Common platform of standards:* The Group felt that the motor manufacturers (and other key industry sectors) should collaborate, not compete, on fundamental technologies to promote safe mobility of older people so that a common platform of standards could be developed. Unless there was collaboration in this field, the benefits to older people of consistent and well researched mobility solutions would be greatly reduced. This approach would not inhibit the competitiveness of products once the standards had been agreed.
- *Marketing products to older people:* The Group noted that European industries seem reluctant to develop and market products aimed specifically at older people. This means that older people are often unaware that such products exist and could significantly benefit their safety and mobility. Government policies to support and encourage greater recognition of the size and nature of the market among older people may be also required.

In summary, action is needed to tackle both the personal and the societal problems which create barriers to mobility for older people. This action must include the further development of technology specifically addressing older people's needs, as well as a policy framework at national and/or European levels to ensure that standards are in place. Action to prolong the safe and independent mobility of both today's and tomorrow's older people is not an option, it is a necessity both for the individual and for society.

## PLENARY PANEL DISCUSSION AND Q&A

### Dr. Freymond opened the discussion to the floor for a wide ranging debate.

Hafiz Khan of the Oxford Institute of Ageing stressed the importance of intergenerational support. It was not fair to leave everything to elderly people, he argued. Young people have to play their part too on the ageing issue. Also we have to think about developing countries, where poverty is a major factor. Such countries also face ageing populations but cannot afford the sort of health and social security systems we have in the developed world.

Another delegate suggested we needed greater incentives for the younger generation to take care of their parents. Dr. Freymond agreed that the role of the extended family was important, as is still the case in Japan and other Eastern cultures. This shows the importance of cross-cultural exchange.

Mike Parr of PWR observed that training needs to be more formalised, so that we are able to maintain skillsets throughout our working lives. Such approaches have already been adopted in some EU countries. He also saw mentoring as important: older workers have a knowledge-set rather than a skillset and can be a calming influence within a team and increase productivity.

Prof. Seike noted the growing impact of non-regular (i.e. part-time) workers in the labour market. The consequences of this are twofold. Firstly, they are not covered by social security schemes and so will find it difficult to support themselves during old age. Secondly, being low paid, they will not be able to contribute to social security to support the rest of the population. We need to up-skill such workers. Dr. Freymond agreed that a profound transformation of the social security system was called for.

Prof. Seike also responded on a question posed by Prof. Tivig: "Is technological change age-biased?". He was optimistic here: if companies don't respond to the ageing challenge through new products and services then they will lose customers and market share.

Peter Wintlev-Jensen was concerned about the notion that future generations would automatically become more computer literate. Illiteracy occurs in all time periods, he pointed out, and most probably digital illiteracy will be the same. Many people

don't have a natural inclination to learn formally, so we have to stimulate them in other ways.

Spyros Konidaris said we were trying to solve the present-day problems of a post-industrial information society by extrapolating from the past. We need a paradigm shift that leads to new tools and approaches. We must revisit our assumptions, he insisted. For instance, the discussion suggests that the 'voluntary industry' will be very important for the future.

Prof. Rogerson agreed it was time for a paradigm shift. For example, the notion that those who retire early die young reflects the former situation for industrial blue-collar workers and is no longer true for knowledge workers. Studies show that those who stay active live longer, whether that activity is through work or voluntary work or whatever. Another delegate agreed that older knowledge workers in particular could be extremely productive. In US universities professors regularly work into their 80s. Companies need to rethink their approaches and give those who want to work a good chance. Finally, Dr Freymond underlined again the potential of modern technology to transform society, so that younger people are more available to help older people. "Technology without a human face doesn't help much", he concluded.



*Sir Stephen Gomersall*

*Attentive members of the audience*



## HITACHI GROUP IN EUROPE: BUSINESS AND STRATEGY UPDATE

*Sir Stephen Gomersall, Chief Executive for Europe, Hitachi*

A presentation on Hitachi's activities in Europe is now a regular feature of the Forum programme, with Sir Stephen's presentation this year focusing on Hitachi's offerings in healthcare.

"As with other societal issues, there is no one silver bullet for the ageing issue", Sir Stephen began. Identifying and measuring the problem is always the first step. Many contributors to the Forum were already performing the vital service of plotting that change, and the way it affects individuals, society and business. It requires a combination of human awareness, behavioural changes, and application of technology to adapt to the challenge of ageing societies and shrinking workforces.

"Technology must take in the consumer perspective", he continued. Society wants higher quality of life, greater security, but also a cleaner planet. Hitachi has a vast range of technologies but needs to collaborate with others to bring them to the market. "Mr Furukawa's emphasis is on social infrastructure as the core of the portfolio and on collaborative creation, which means working both across boundaries within the company and with outside partners to provide for those societal needs worldwide", he explained.

In the last year Europe has been Hitachi's fastest growing market, thanks to strong conditions in the power generation, construction machinery, data storage and other social infrastructure businesses. The number of employees in Europe has risen from 5000 to 8000 since 2004, and revenues from €5bn to €7bn. In 2007 the new European subsidiary of Hitachi Consulting was founded, which is offering business process, IT and environmental consulting services primarily to financial and public sector clients in the UK, Germany, and Spain.

The company is accelerating growth through expansion into new markets, particularly targeting the social and environmental sectors in South Africa, Central and Eastern Europe, and Russia. Hitachi is strong in energy saving and pollution-reduction technologies, which are seen as a driver of future business. For instance, the Hybrid Diesel high-speed prototype train has been testing successfully in the UK since last September. The company also aims for more creative innovation with European partners. Agreements have been concluded with a number of energy utility companies on research and pilot facilities for power generation with carbon capture technologies. It is also planned to bring to Europe the Cool 50 Data Centre concept, which is currently being developed in Japan with the target of 50% reduction in the energy consumption and carbon emissions of enterprise-level data storage facilities.

In healthcare, Hitachi solutions address key challenges, such as improving the quality of care, ensuring regulatory compliance, and managing costs in the face of increasing demand and tight cost constraints. Here Hitachi is seeking to leverage internal synergies and external partnerships to meet the demands of customers, who increasingly expect end-to-end solutions designed to meet market needs.

The Hitachi Group's range of products available to healthcare customers ranges from the more traditional areas of laboratory analysis equipment and medical diagnostics, such as electron microscopy for research, ultrasound, magnetic resonance imaging for clinical diagnosis, to supporting infrastructure such as IT systems, security, and climate control. The company is investing locally in providing services to healthcare customers, for example the Hitachi Medical Technology Academy, launched in Düsseldorf last year, providing rich education on the use of this equipment.

A seminar dedicated to the needs of such customers would form part of a major event to introduce the full range of Hitachi's societal-related businesses to the French and European audience. Sir Stephen extended an invitation to all participants to attend this exhibition, entitled Inspire Life, which would take place in Paris on 21-23 May 2008. The exhibition was to feature contributions and events organised by 26 European business Groups, and would include a 20-minute audio-visual tour of the full range of Hitachi's technologies, followed by the opportunity to interact with leading researchers and attend presentations and seminars organised by Group companies. A video taster tour was then shown. Further details were available at the Inspire Life website: [www.hitachi.fr.expo](http://www.hitachi.fr.expo). Sir Stephen extended his thanks to all those involved in the Forum for making this a most stimulating discussion.

## Closing of the Forum

Closing the meeting, Dr. Jean F. Freymond said he wished to share a few ideas and impressions.

Firstly, it was apparent that technology provides only part of the solution to the challenges of ageing. "The technological response has to be integrated into a system of response of institutions - political, social, educational and cultural." We have to think of overall solutions and engineers have to think constantly from a societal perspective. For their part, policy-makers have to integrate technological solutions into their approach. This is not easy because the private sector – which is the provider of the technology - is often kept at arms-length. Secondly, it is clear that actually becoming old is not the issue. There is no firm threshold to being old. Rather the problem is what condition we are in in old age: we can be disabled at the age of 20 and physically fit at the age of 85. We need to get rid of mandatory retirement ages. We should think of the elderly as individuals rather than as a group, with the aim of creating a lifelong active society. This would significantly reduce the cost of ageing to society. Education and training are especially important here.

The Hitachi S&T Forum had grown considerably over recent years, Dr. Freymond observed, and would grow further. From a

'family reunion' it is now an important professional event and the achievement of the organisers should be recognised. The Forum builds bridges between stakeholders and between Japan and Europe. The ageing topic had shown how much we could learn through sharing with each other. He thanked Hitachi for its long-lasting constructive commitment to the Forum and all it had achieved.

In his final address, Dr. Junzo Kawakami, Executive Vice President & Executive Officer, Hitachi, Ltd. observed that the ageing issue is common to Europe and Japan. The Forum had shown how much could be achieved by working together in various fields, despite the different cultural backgrounds. The debates had emphasised that the elderly were not a homogeneous group, and the importance of ethical considerations, as well as aspects such as health, mobility, knowledge sharing, productivity, and social inclusion. He extended his personal thanks to the speakers and moderators for their excellent presentations, and to all participants for their lively contributions to the discussion. He also thanked Dr. Freymond for his excellent job as Forum Moderator.

*Question and answer session*

*The Forum Moderators*

*Networking opportunities before dinner*



## Speakers and Moderators

Mr. Guido Bognolo	Confederation of the European Senior Expert Services
Ms. Mariàngels Fortuny	International Labour Office
Ms. Ann Frye	Ann Frye Ltd.
Ms. Britta Fuenfstueck	VP Business Development, Siemens Healthcare
Mr. Yasushi Fukunaga	Corporate Chief Engineer, Research & Development Group, Hitachi Ltd.
Sir Stephen Gomersall	Chief Executive for Europe, Hitachi Ltd.
Dr. Viktor Grinewitschus	Fraunhofer-IMS and Head of inHaus Innovation Center (Technology and Innovation)
Dr. Sandra Huning	Berlin Brandenburg Academy Sciences and Humanities
Dr. Martin Karlsson	Institute of Ageing, University of Oxford
Dr. Heidrun Mollenkopf	Heidelberg University & AGE - The European Older People's Platform
Dr. Vincent Rialle	University Hospital of Grenoble
Prof. Simon Rogerson	Centre for Computing and Social Responsibility, De Montfort University
Prof. Atsushi Seike	Professor of Labour Economics, Keio University
Prof. Dr. Thusnelda Tivig	Rostock Center for the Study of Demographic Change
Mr. Peter Wintlev-Jensen	Head of Sector, ICT for Inclusion, DG Information Society & Media, European Commission

### Forum Fellows

Dr. Dolf Gielen	International Energy Agency
Mr. Pierre Longin	President, Longin & Associés, Brussels
Prof. M. Muraszkiwicz	Director, Institute for Computer Science, Warsaw University of Technology
Mr. Antoine Ripoll	Senior Administrator in the European Parliament
Dr. Florian Schmitz	Rechtsanwalt, Clifford Chance Pünder, Frankfurt

<b>Forum General Moderator:</b>	Dr. Jean F. Freymond, President & Director, Geneva Dialogues (D@G), Geneva, CH
Report Prepared by:	Michael Sharpe, MS Consulting & Research Ltd, Birmingham, UK

## Acknowledgment

I would like to express my sincere appreciation to the distinguished speakers and moderators for their valuable contributions to the 11th Forum. I would also like to thank all attendees whose active participation and enthusiasm lead to vibrant and constructive discussions.

My gratitude also goes to Dr. Jean Freymond who, once again, kindly accepted to be the general moderator of the Forum and who has supported us enthusiastically and efficiently during the whole organizational process.

I would like to sincerely thank the Working Group members and the Forum Fellows whose advise and continuous support for the forum helped us to identify the most suitable discussion topics and to shape the Forum agenda.

Furthermore, we received great support from several institutions in preparing this Forum: The European Commission (DG INFSO, DG SANCO and DG TREN), Intel Corporation, the European Older People's Platform (AGE), Econsense and JETRO Munich; all contributed actively, my sincere thanks to them too.

### Ko Takahashi

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