

Netcaritynews

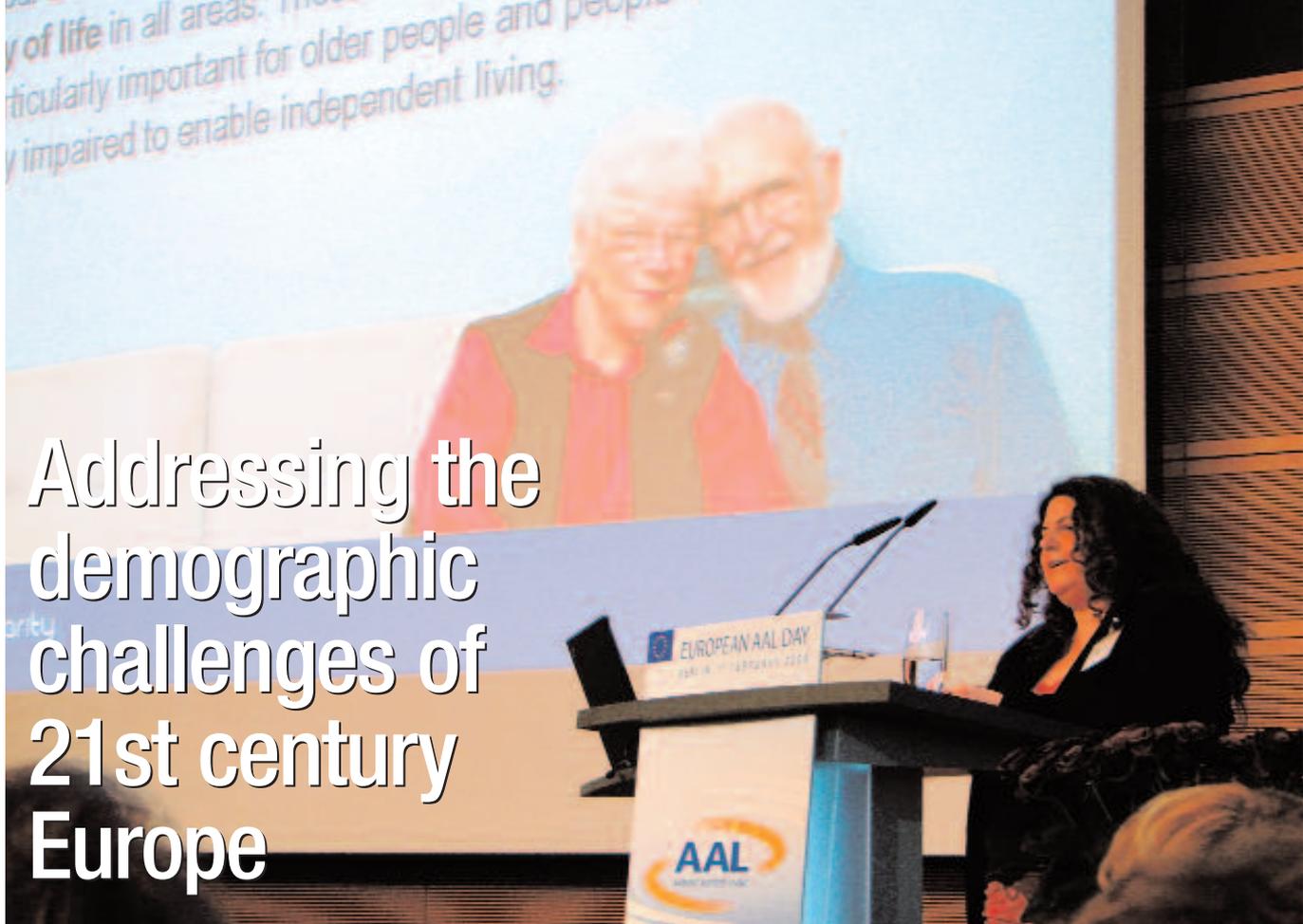
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Tackling Europe's demographic challenges

Turning users into innovators
Being old for just one week



Interview: Ad van Berlo, a pioneer
in ambient assisted living



Addressing the demographic challenges of 21st century Europe

Netcarity is breaking new ground with the introduction of technology to enable older people to live safer and more fulfilling lives.

The four-year multidisciplinary project is a response to European and global demographics. People expect to live longer and enjoy healthy lives as older people, with most preferring to live in their own homes and communities rather than moving to a care home.

By 2020, more than 25% of Europe's population will be over 60, and the number of people over 80 will double. The pressure on public and private organisations will intensify, creating an increasingly important role for new technologies, and the intelligent use of

established electronic systems in new applications.

Netcarity is researching and testing a new home care technology infrastructure to improve the independence and health of older people. "Our aim is to turn older people's homes into supportive environments that help them remain active and valued members of society," says the project's technical coordinator Rebecca Simpson. "We will support everyday living, monitor well-being, and encourage communication with family, friends and carers."

Netcarity's vision is a future where homes retain their conventional look and feel, but incorporate technologies which work behind the scenes to support older people.

New tools are being developed, based on pioneering software, state of the art communications, and sensing and imaging technologies. The creation of new technologies by Netcarity is expected to stimulate dynamic spin-off companies and new markets as Europe responds to the imperative of demographic change.

Netcarity embodies the AAL programme

Netcarity is not operating in a vacuum – but is part of the growing field of ambient assisted living (AAL) in Europe. AAL describes assistive technologies which are unobtrusive to users and address the needs of an aging population, and build intelligence into environments to support users in every day activities. By using intelligent products and providing remote care services, AAL hopes to extend the time older people can live in their own homes.

Live testing

The ambitious testing of Netcarity systems in a live environment is at the heart of the project.



“We’re about much more than developing theories,” notes Netcarity systems designer Alessandro Redaelli at the MR&D Institute in Italy. “Our main challenge is to integrate a range of technologies and test them in real homes.”

Netcarity is equipping a hundred houses in Italy and The Netherlands with prototype systems to be tested by older volunteers. By generating feedback from real people, the Netcarity team will be able to shape its technology and systems to fit the needs of users.

Each test home will feature a central hub or gateway that controls and integrates data from multiple devices, and manages all communication between users and service providers.

The Netcarity gateway – adapted to all major communication protocols including wifi, GSM, SMS, ADSL and ISDN – will carry data between trial homes and a secure server.

“It is the real life implementation and testing which makes Netcarity so exciting,” Redaelli says. “It connects us really closely to the kind of people who will become the users of future systems.”

The vision is for a hub which becomes a commodity, and into which can be plugged a variety of technologies and services which take account of people’s varying circumstances, needs and attitudes.

Netcarity expects its results to inform future projects which build on the success of its trials, and to be of interest to investors in the growing market for ambient assisted living (AAL) technologies.

“This is more than just a research project. We’re substantially advancing knowledge in an important field, and paving the way to a future which uses technology in a sensitive way to look after older people, and to help them look after themselves.”

All eyes on Netcarity

The wide range of partners in Netcarity (*see page 8*), and the project’s live testing environment, have attracted interest from almost every sector interested in ambient assisted living (AAL) technologies. The project is working with regional innovation teams, local authorities and scores of European universities. Older people, their families and their carers are enthused by the project; and interest is being shown by health insurers and social care authorities.

“Many people want proof that AAL systems work – and they’re looking to Netcarity to show the way,” says Netcarity systems designer Alessandro Redaelli at the MR&D Institute in Italy.

It’s not just the technologies and the results of tests which are attracting attention. Netcarity is also providing feedback about the future economic costs of AAL infrastructure, enabling business models and market forecasts to be developed.

Turning users into innovators

Creators of technologies for older people have been invited by a senior EU official to ‘turn users into innovators’ and harness the potential of ‘citizen developers’



“Proper user involvement is clearly the way to develop technologies which users will later adopt and appreciate,” says Dr Paul Timmers, Head of ICT for Inclusion at the EC’s Directorate-General Information Society and Media.

of ICT for independent living – and we ask EC projects to take this challenge seriously and to develop new methodologies for consulting the user at every stage.”

“It’s not in the spirit of the ambient assisted living programme to assume the user is only a recipient of technology.”

Speaking to Netcarity News at the recent AAL symposium in Berlin, Timmers called for European research projects to develop new ways of thinking about users.

“In the world of technology, it is not always the practice to really involve users during the development stage. We want to stimulate a shift in technology thinking, especially in this area

“Proper user involvement is clearly the way to develop technologies which users will later adopt and appreciate”

Q&A with Netcarity exploitation and dissemination manager Dr Udo Weimar

Q: What makes Netcarity different to other projects?

A: We’re not focused on technology and products, even though we have a lot of technology researchers in the project. We are focused on services which users want, and we’re developing our services on the basis of user research. Our role is to make the connection between users and the technologies.

Q: How do we integrate the bewildering array of technologies available to developers into tools and systems for ambient assisted living?

A: Netcarity’s interdisciplinary approach and focus on users means we are starting with what they want, and then developing solutions from the bottom up. We don’t have a problem with the huge amount of available technology, because technology is not our starting point. Once we know what users want and need, we look to the market and to our own developers for solutions. The challenge is to integrate them in a seamless way so the solution is based on the user and not the technology.

Q: At what age does somebody become an ‘older person’?

A: From a marketing point of view, it is important that we don’t address only the needs of older people – because many of them don’t perceive themselves as old. And with technologies for assisted living, many people won’t need to feel old any more. Many of the systems we are building will be applied to intelligent homes for people of all ages.

‘Care rather than cure’ – a founder and a pioneer

Ad Van Berlo is a biomedical engineer and psycho gerontologist who is recognised as a pioneer of ambient assisted living (AAL). He told Netcarity News about his experiences and challenges in the fast-growing field.



Developing services and systems which are wanted by users...
Netcarity dissemination and exploitation manager Dr Udo Weimar (left) with ambient assisted living pioneer Ad van Berlo.

How did you get involved with ambient assisted living?

In 1992, I was working as a medical technologist for a company making pacemakers, and I got tired of my long commute. About the same time, I thought I could be more useful working in care rather than cure; and I started an organisation called Smart Homes with my wife Corien.

What has changed in the past 16 years?

Technology wasn't as ubiquitous back then – we didn't have mobile phones or the internet, for example. And we thought differently about older people; there wasn't the same recognition that we're all getting older and that older people in developed countries are becoming a very large social and political group. When we first got started I approached companies such as Philips, but they wanted to be associated with young and sexy products and weren't interested in the older person's market. Today of course there is recognition how important this market is, and Philips is investing heavily in healthcare. Baby boomers have become big business.

Why have the Dutch emerged as leaders in ambient assisted living (AAL) and technologies for older people?

We're a socially cohesive community with a high-level of technology penetration. In addition, 50% of homes in The Netherlands are rented, and half of these are owned by housing associations. This makes it easier to reach a lot of people and to create demonstrations.

Has legislation had an impact?

Changes to legislation, such as compulsory wheelchair access and wider doorways, has influenced the way people think about issues such as aging and disability. And, of course, legislation develops in response to greater social awareness.

What is the experience of older people in The Netherlands today?

One of our major successes is the introduction of a €2-3,000 subsidy for older people to stay at home. Up to 20,000 homes have received that subsidy in the past three years.

What do you think is the biggest role for Netcarity?

Our overall challenge is to recognise the needs of users, and to match these needs to technologies which can be integrated into systems which are easy to adopt and use. I think Netcarity can play an important role in the development of software which has a capacity for reasoning, and intelligent sensing systems which can make houses more anticipative and proactive in the way they respond to their occupants. For example, most homes today have systems which need to be turned on and off. I'd like that to happen automatically according to the status and requirements of the user.

Smart Homes is a Netcarity partner

User-centred design and research for older people

Netcarity has embarked on a rigorous programme in Italy and The Netherlands to understand the needs of older people and their reaction to ambient assisted living (AAL) technologies.

In Eindhoven, local care organisation SWE De Archipel recruited volunteers who were either using its services or about to move into a new complex in Strijp, a nearby suburb.

Some volunteers were healthy, while others were more fragile and needed care. All volunteers lived independently, with or without help from a professional caregiver.

Social and care trends were explained to volunteers at an introductory meeting, along with Netcarity goals and the potential for technologies in home care support. Volunteers said their participation was due to interest in the project, but that it was important that technology be seen as a supporter and not an intruder in their homes. Users also wanted technology to increase their participation in activities.

It was also noted that residents wanted to keep control over their house, and to be able to overrule automatic technology functions and alarms.

Organisers of the trials said this was a good lesson for future projects, and an indication that a clear project explanation generated high levels of enthusiasm. It was noted, however, that Eindhoven is a city with high technical literacy, due to the presence of electronics giant Philips, and many of the volunteers were email and internet users.

Each volunteer was questioned about their lifestyle and health. They were given scenarios and asked to prioritise a variety of options, some of which included technology solutions. Privacy was a natural concern, though many users were comfortable

with the use of cameras so long as the distribution of images was controlled, and that cameras could be turned off when required.

Among the more interesting findings was that older people don't want to be a burden on their families; and they are interested in technology which helps with minor chores so time with family and friends can be used for socialising rather than care.

The trials explored the small manual systems which older people develop to support their lives – such as notes next to the telephone and special hooks for keys, and analysed which of these could be supported by technology.

“We’re not just using technology to automate tasks previously carried out by residents,” says occupational therapist Petra Panis, who managed the trials for Netcarity. “Our goal was to design tools and services which empower people to address their social, rational, and emotional needs. Equality, autonomy, and control are the goals of empowering design.”

Changing attitudes

Expert care workers, who conducted the interviews and trials with volunteers, were pleasantly surprised by how well technology could be accepted if it was introduced in a sensitive and user-centred way.

“As an occupational therapist in a profession which has traditionally taken a people-focused hands-on approach, I was initially sceptical about the technology and concerned it would take human contact away from older people,” Panis said. “But I can now see the role of technology as a complement to human contact.”

Well-being

A sense of well-being is the most important contribution that projects like Netcarity can deliver, according to volunteers. Although subjective, well-being creates a sense of purpose and usefulness, and a role in society after people have raised children and finished working.

“Being in control of one’s own life is a significant part of well-being,” says Panis. “And this sense of control leads to less dependency and better health.”

Health and protection were the most popular services listed by Netcarity volunteers, followed by inclusion and assistance. Among carers, protection was rated as the highest priority.

Consulting the carers

In addition to assessing the views of older users, Netcarity has consulted the people who take care of them. Here are some of their comments:

- Technology solutions should not prevent human contact
- Privacy must be considered at all stages
- Safety of carers is also important

What users want

During the user testing programme, older people were asked about their preferences for design and user friendliness. The following are some of their specific recommendations:

- Keep it simple – not too complex or too many options
- Easy to use in poor light conditions
- No unnecessary functions
- No wires that people can fall over



1.



2.



3.



4.



5.

Understanding the needs of older people – volunteers were recruited from a new housing complex (1) and questioned about their health and lifestyles (2). The research team looked at the range of old and new technologies in people’s homes (3) and conducted user testing (4 and 5) of prototype systems that may be introduced in future.

Getting older for just one week

Netcarity partners were challenged during a recent workshop on aging and its effects to see the world like older people. This has contributed to the partners' understanding of people's capabilities and expectations as they get older, and to their ability to develop appropriate and sensitive technologies and systems.



The June 2007 event included lectures on the physiology and psychology of aging, and first hand experience of its consequences. The experience of an older person with a hearing handicap was illustrated by trying to have a conversation while listening to an MP3 player. Partners were challenged to read a newspaper while wearing glasses that mimicked the impact of failing eyesight.

While wearing ski gloves, participants attempted to dial a telephone number or to pick up coins. This was an illustration of how older people experience a change in their coordination.

Other tests included opening doors and carrying plates while in a wheelchair, or buttering bread and making a phone call while wearing a wrist brace.

“Until you actually experience the physical impairment, it's hard to appreciate the daily experience of people for whom we are developing technology solutions,” said Netcarity project coordinator Dr Pietro Siciliano at CNR-IMM in Italy. “This exercise has been incredibly valuable as a tool to make us more empathetic with our end user.”

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**Ambient technology to support
older people at home**

