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Australian Academy of Technological
Sciences and Engineering (ATSE)

Response to the Productivity Commission

Draft report *Caring for Older Australians*

Ageing-in-place:

Living well with enabling technologies

A submission by

The Australian Academy of Technological Sciences and Engineering

(ATSE)

March 2011

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Ageing-in-place: Living well with enabling technologies
Submission to the Productivity Commission Draft Report *Caring for Older Australians*
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Australian Academy of Technological Sciences and Engineering

Response to the Productivity Commission Draft Report *Caring for Older Australians*

21st March 2011

The Australian Academy of Technological Sciences and Engineering (ATSE) welcomes the opportunity to respond to the draft report of the Productivity Commission's inquiry *Caring for Older Australians*[i].

Executive Summary

The Academy of Technological Sciences and Engineering (ATSE) recognises that the Productivity Commission's proposed new funding mechanism has the potential to facilitate the uptake of technologies that can enable ageing-in-place[1]. However, ATSE remains sceptical that the proposed new funding base is sufficient to enable widespread and rapid uptake of technology and to deliver the consequential government savings. ATSE firmly believes that technology will be the key driver in ensuring a high quality of life and cost-effective care for older Australians; this submission illustrates the economic evidence for this.

ATSE urges the Productivity Commission to explicitly encourage an increased national focus on the R&D, demonstration, commercialisation and wide-scale deployment of smart enabling technologies to enable older Australians to remain in their homes for as long as possible, provide cost effective solutions to meet the needs of an ageing population and address the projected shortfall in the number of healthcare professionals. To this end, ATSE recommends that the Productivity Commission:

1) Set out strategies for the Australian Government to facilitate the rapid, wide-scale deployment of technology for the ageing population, in order to capture the benefits of the proposed new funding model.
2) Commission a study to quantify the potential savings which can be delivered through ageing-in-place, enabled by smart technologies.
3) Recommend to governments that ageing-in-place through the uptake of smart technologies is demonstrated through large-scale trials and studies in order to better understand the potential of smart enabling technologies to improve quality of life and deliver financial savings in Australia.
4) Alert the Australian Government to the need for strong national co-ordination of research, development and demonstration of smart technologies for healthy longevity in Australia and the need to develop a trained workforce to ensure their successful application.

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[1] Ageing-in-place is the maintenance of older individuals safely, securely and happily in their own homes

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Introduction

ATSE is an independent, non-government organisation with a mission to "foster excellence in technological sciences and engineering to enhance Australia's competitiveness, economic and social wellbeing and environmental sustainability". ATSE provides independent, evidence-based, robust policy advice in the broad areas of applied science, technology and engineering. To deliver this, ATSE draws on the expertise of our Fellowship of over 800 eminent scientists and engineers (who are elected to the Fellowship).

Like other engineering academies around the world, ATSE is examining the contribution which technology can make in dealing with the present and future challenges in health care for their populations, particularly for the increasing aged cohort. However, ATSE notes that while the draft report identifies making 'more strategic use of information technology' is a mechanism of improving productivity[ii] and that 'technology assisted training' is referred to in *Draft Recommendation 9.3,* neither **gerontechnology**[2] nor **ageing-in-place** is explicitly mentioned in the draft report.

In 2010 ATSE produced a major report on *Smart Technology for Healthy Longevity*[iii]; the short guide to this report is included in the Appendix of this submission. The ATSE report identifies a number of opportunity areas for the application of technologies for the aged population which can be developed and applied in Australia; namely in: *security and safety* (elderly-friendly homes, prevention of falls, communication and social interaction); *diagnosis and treatment* (telehealth, coping with degenerative diseases, nanomedicine) and *assistive technologies* (biorobotics, brain/machine interaction, mobility systems). Further, ATSE concludes that there are substantial savings to be gained in national health care costs by the widespread application of these technologies.

The key finding of the report was that "**a national policy is required for the research, demonstration, commercialisation and wide-scale deployment of smart technology for ageing-in-place to ensure: a healthy, safe, secure and fulfilling future for the increasing aged population in Australia by enabling them to remain safely at home longer, by easing the strain on the national healthcare system and providing cost-effective solutions to meet the needs of the growing number of elderly Australians**".

ATSE welcomes the opportunity to provide input to the Productivity Commission inquiry into Caring for Older Australians.

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[2] Gerontechnology is the linking of medical aspects of ageing to advanced technologies

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1) **Strategies to facilitate the rapid, wide-spread uptake of technology for the health of the aged population and to capture the benefits of a new funding model**

ATSE strongly agrees with the recommendation that there is need for new funding models to accommodate the growing demands on the healthcare system as a result of demographic ageing and for older people to remain and receive care at home, for as long as possible. ATSE acknowledges the Productivity Commission's proposed major change to the funding model and recognises that this has the potential to facilitate the uptake of technology, for example by assisting technology providers to enable older individuals to remain at home for longer.

However, ATSE remains sceptical that the proposed new funding model will lead to a rapid uptake of technology or deliver consequential financial benefits to the Australian Government through savings in aged care, without the implementation of a national scheme to encourage ageing-in-place and enable people to stay in their own homes for as long as possible. Such a scheme needs to ensure funding for the provision of appropriate medical and IT technologies in homes together with support for monitoring and data analysis, and training for carers.

There are a number of emerging innovative, smart enabling technologies that offer the prospect of enhanced security and safety (so-called telecare), diagnosis and treatment (so-called telehealth) and physical assistance to improve the quality of life for older people, to empower them to remain safely at home and to provide opportunities to participate in the community. A broad combination of new technologies will be required to successfully deliver the benefits of ageing-in-place, specifically: nanotechnology, biotechnology, information and communication technology, and cognitive science. These need to be linked to design, engineering, materials and biomedical science to produce optimal solutions to the challenges posed by the ageing population.

ATSE has identified nine technological opportunity areas for Australia where research and development can improve the health and quality of life for the aged population. These fall into three categories:

- **Security and safety**: elderly-friendly homes, prevention of falls, communication and social interaction

- **Diagnosis and Treatment**: telehealth, coping with degenerative diseases, nanomedicine

- **Assistive Technologies**: biorobotics, brain/machine interaction, mobility systems

In all of these technology areas there is potential for development of new business and industry sectors, in line with the objectives of the National Enabling Technologies Strategies.

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These technology areas can support ageing-in-place in a number of ways, for example, by minimising falls and other accidents in the home through telecare[3], by using embedded sensors which are linked to remote monitoring stations (for example, refer to the smart home scheme shown in Fig. 1).

Figure 1: A smart home using an array of wireless sensors to provide security and safety[iv].
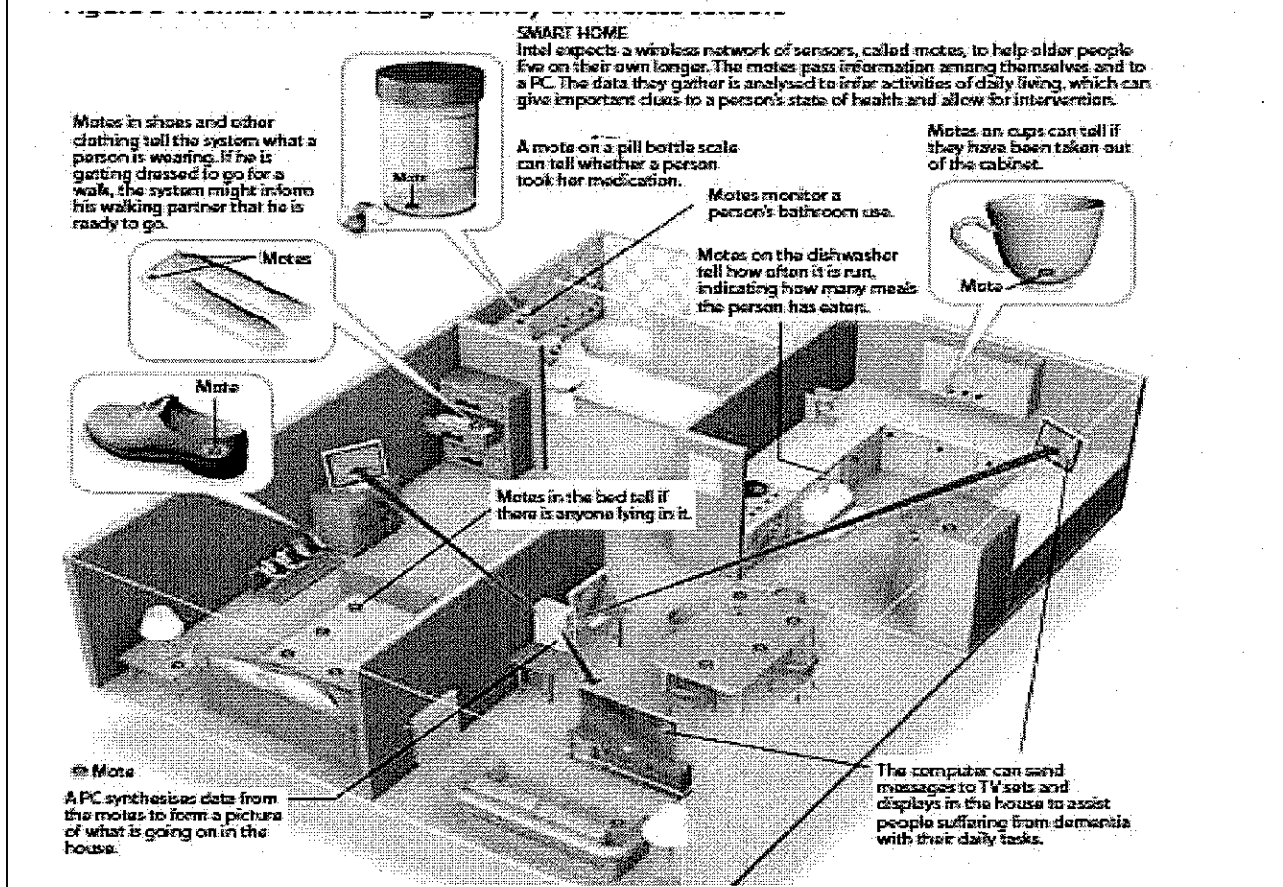
Another example is to provide early alerts to changing health patterns through telehealth[4] by enabling elderly patients to record a number of vital signs with simple instrumentation. These medical parameters are sent to a care team which analyses the data and either takes action or feeds back information for self-management of chronic illnesses. A telehealth scheme is illustrated in the Appendix, *Ageing-in-place: Living well with enabling technologies*.

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[3] Telecare is the use of devices (such as sensors or alarms) to provide a safe secure environment for older individuals. Examples include sensors and triggers to detect and respond to falls and other accidents; automated lighting; reminders (such as to avoid medication errors).

[4] Telehealth is the use of electronic information and telecommunications technologies to support remote clinical health care and the management and delivery of healthcare services from public and private health institutions.

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> ATSE recommends that the Productivity Commission urges the Government to implement strategies for research, **development and wide-scale deployment of the identified range of technologies for the ageing population, in order to capture the benefits of the proposed new funding model**. Furthermore, ATSE recommends that the Productivity Commission explicitly supports the implementation of a national scheme for the development and widespread use of telehealth to support a national policy on ageing-in place.

2) Quantify the potential savings afforded by ageing-in-place

Available evidence from overseas indicates that substantial savings in national health care costs can be obtained by using the technologies noted above. The limited data available from large-scale trials in the US and Europe indicates that improved services and significant savings can be obtained by using telehealth (e.g. US Veterans[5]) and elderly-friendly homes with telecare (e.g. West Lothian[6]).There are also smaller trials which support these positive findings. Other large-scale studies are in progress in England and Europe which should produce additional data. An example is the Whole System Demonstrator program funded by the National Health Service in England which is the world's largest randomised trial of telecare and telehealth. This is due to report in the next few months.

So far there are little available data for Australia, but ATSE contracted the Centre for Strategic Economic Studies at Victoria University to carry out a short analysis of the potential savings afforded by ageing-in-place as part of the process of gathering evidence for the ATSE report. Estimates, based on the cost of residential care indicate that enabling 10% of the current residential care group to remain in the community, through the application of an 'ageing-in-place' policy, supported by appropriate technologies and receipt of Home and Community Care rather than residential aged care, would deliver savings of over $500 million per annum to government expenditure. Similarly, estimates, based on costs of treatment, indicate that if only 10% of fall-related injuries among individuals aged 65 years or over could be prevented, through the application of suitable technologies, the overall cost to the Australian health system would be reduced by approximately $85 million per annum[v]. These estimates need to be confirmed by field data.

> ATSE recommends that the Productivity Commission funds a more detailed study using all available data to **quantify the potential savings afforded by enabling ageing-in-place by using smart enabling technologies** that are currently either available or under development in Australia.

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[5] US Department of Veterans Affairs (DVA) introduced a national home telehealth program in 2003. More information can be found at: ATSE (2010) *Smart Technology for Healthy Longevity* p72
[6] West Lothian Council, Scotland, 'Opening Doors for Older People' initiative. More information can be found at: ATSE (2010) *Smart Technology for Healthy Longevity* p72

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3) Demonstrate the use of smart technology to enabling ageing-in-place

ATSE strongly agrees with the recommendation that it is desirable to keep people at home for longer and that *'older Australians generally want to remain independent and in control of how and where they live their lives'* (Mike Woods, Deputy Chairman, Productivity Commission, 2011)[vi]. As noted above, ATSE believes that the best way to achieve that outcome is to facilitate the uptake of smart technologies to enable ageing-in-place through an increased national focus on the R&D, demonstration, commercialisation and wide-scale deployment of smart enabling technologies to enable ageing-in-place.

There is an urgent need for large-scale trials on elderly-friendly housing across Australia. Some initiatives have been taken by private groups working in residential care with State and Federal grants and others by State regional hospital groups. For example, in 2010 a not-for-profit organisation (Feros Care[7]) carried out a trial of 30 homes with telecare and 15 homes with telehealth in NSW and Queensland. The result was overall endorsement for improved services and for potential savings. Feros Care will be extending its trial in 2011 to 300 homes with telecare and 30 homes with telehealth. Another example is Silver Chair in Western Australia, which has shown that telehealth can be used to reduce hospital admissions of patients with chronic pulmonary and heart disease and thus yield cost savings. A third example is the Grampians Rural Health Alliance which is actively promoting telehealth across its region in South–Western Victoria. In 2011, the Australian Government has announced plans to fund $4 million of telehealth trials in Armidale and Kiama, linked to the rollout of the NBN[vii]. The availability of the NBN will make a whole range of new technologies viable for monitoring, communication and assistance to allow older people to live in their own homes. ATSE is encouraged by the government's decision to undertake this and we look forward to the results of the NBN trial. ATSE recognises the importance of the social aspects of such trials, such as the monitoring of people's reactions. It is essential that social scientists and economists are involved in the trials teams.

There is, at present, no large-scale co-ordination of pilot initiatives to validate the use of gerontechnology in Australia. ATSE notes that some co-ordination is occurring through the National Cross-Jurisdictional Telehealth Working Group, formed by States and Territories in response to shared concerns about the lack of direction and attention to telehealth at the Federal level.

> ATSE recommends that the Productivity Commission urge the Australian Government to urgently fund **large-scale demonstration of elderly friendly housing in Australia, linked to studies of older people in these environments, in order to fully understand the potential of smart enabling technologies to improve quality of life and to deliver financial savings in Australia.**

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[7] Feros Care is a non-profit aged and community care provider http://www.feroscare.com.au/

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4) **Strategies to Support Development and Application of Smart Technologies for Healthy Longevity in Australia**

To realise the potential of smart enabling technologies in the widespread application of ageing-in-place with its consequential benefits, there is a need for national coordination to make optimum and efficient use of the available intellectual resources and to provide sustained commitment to R&D support. The ATSE report recommends the development of a National Research and Development Agenda on Technology and Ageing by the Departments of Health and Ageing, and of Innovation, Industry, Science and Research. This would facilitate joint projects between the National Health and Medical Research Council and the Australian Research Council. There is a need for universities to synthesise a range of skills in Centres of Excellence in Gerontechnology to provide research and training in the application of smart technologies for healthy longevity.

Awareness must be raised amongst healthcare authorities, the health insurance industry and the public as to the potential of smart technologies to assist in providing healthy, secure and happy futures for the aged population. Furthermore, Australian business and industry should be alerted to opportunities for commercialisation of outputs from gerontechnology R&D. Finally, as noted in the ATSE report, there is a need to ensure that there will be a critical mass of trained and accredited technicians and paraprofessionals capable of installing, maintaining and applying the array of gerontechnology products that will be coming available in the future.

ATSE recommends that the Productivity Commission note the **need for strong national co-ordination of research, development and application of gerontechnology, and the need to develop a trained workforce to ensure the successful application of smart technology for healthy longevity in Australia.**

Conclusion

ATSE firmly believes that **technology will be the key driver in ensuring a high quality of life and cost-effective care** for older Australians. ATSE strongly agrees with the Productivity Commission's projection that:
"It is expected that older Australians will also want to take advantage of advances in care and technology to assist them to remain independent and engaged in society for longer"[viii] Productivity Commission, 2011.

The 2010 ATSE report *Smart Technology for Healthy Longevity* found that smart enabling technologies have the potential to improve the quality of life for older Australians and deliver

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substantial financial savings in aged-care, by enabling ageing-in-place. In order to realise this potential, ATSE makes a number of recommendations to the Productivity Commission.

Whilst ATSE recognises that in the Productivity Commission draft report *Caring for Older Australians*, major changes are proposed to the funding model for the care of the elderly, ATSE remains sceptical that the proposed new funding base is sufficient to enable widespread and rapid uptake of technology and to deliver the consequential government savings. ATSE feels strongly that the Productivity Commission needs to explicitly encourage the uptake of technology and recommend proactive measures to facilitate the immediate and wide-scale uptake of technology, in order to improve the quality of life for older Australians and to deliver substantial financial savings to the Australian Government.

Further Details

The ATSE report, *Smart Technology for Healthy Longevity,* reviews the state of aged care technology in Australia and in Europe, and looks ahead to the future of ageing-in-place, where elderly individuals are empowered to remain in their own homes and, crucially, explores how technology can be utilised to help realise this vision. The report can be downloaded at http://www.atse.org.au/news/featured-articles/155-smart-tech-for-health-longevity. The short guide to the report, *Ageing-in-place: Living well with enabling technologies*, is included in the Appendix of this submission.

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[i] Australian Government, Productivity Commission (2011) *Caring for older Australians, Productivity Commission Draft Report January 2011*
[ii] Australian Government, Productivity Commission (2011) *Caring for older Australians, Productivity Commission Draft Report January 2011* pxxxix
[iii] Australian Academy of Technological Sciences and Engineering (2010) *Smart Technology for Healthy Longevity*
[iv] Australian Academy of Technological Sciences and Engineering (2010) *Smart Technology for Healthy Longevity* p21
[v] Australian Academy of Technological Sciences and Engineering (2010) *Smart Technology for Healthy Longevity* P8
[vi] Mike Woods, Deputy Chairman, Productivity Commission (2011) *Major overhaul proposed for Aged Care: Media Release* http://www.pc.gov.au/projects/inquiry/aged-care/draft/media-release
[vii] Senator the Hon Stephen Conroy, Minister for Broadband, Communications and the Digital Economy (2010) media release *Telehealth trials for NBN sites: Armidale and Kiama* http://www.minister.dbcde.gov.au/media/media_releases/2010/107
[viii] Australian Government, Productivity Commission (2011) *Caring for older Australians, Productivity Commission Draft Report January 2011* p2

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Appendix 1

Ageing-in-place: Living well with enabling technologies[1] (2011)

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[1] Australian Academy of Technological Sciences and Engineering (2011) *Ageing-in-place: Living well with enabling technologies* Short guide to the ATSE report 'Smart Technology for Healthy Longevity'

AGEING-IN-PLACE: LIVING WELL WITH ENABLING TECHNOLOGIES

A SHORT GUIDE TO THE REPORT

SMART TECHNOLOGY FOR HEALTHY LONGEVITY

AGEING-IN-PLACE: LIVING WELL WITH ENABLING TECHNOLOGIES

A national policy is required for the research, demonstration, commercialisation and wide-scale deployment of smart technology for ageing-in-place to ensure: a healthy, safe, secure and fulfilling future for the increasing aged population in Australia by enabling them to remain at home longer, by easing the strain on the national healthcare system and providing cost effective solutions to meet the needs of the growing number of elderly Australians.

Executive summary

The mounting challenges of population growth and demographic ageing will place a considerable strain on Australia's national healthcare system, leading to increased healthcare costs and a risk of lowering the standards, not only for older Australians, but all Australians. To address these challenges, Australia will need an increased national focus on the R&D, commercialisation and deployment of smart technology to enable the elderly to remain in their homes longer and provide cost-effective solutions to meet the needs of an ageing population. New health funding models to support the wide-scale deployment of these technologies will be required to achieve the potential savings and benefits.

The Academy of Technological Sciences and Engineering's (ATSE) landmark report, *Smart Technology for Healthy Longevity*, reviews the state of aged care technology in Australia and in Europe, looking ahead to the future of ageing-in-place, where elderly individuals are empowered to remain in their own homes and, crucially, explores how technology can be utilised to realise this vision. This is a short-guide document based on the ATSE report, which can be downloaded at www.atse.org.au/news/featured-articles/155-smart-tech-for-health-longevity.

Population pressures: the challenge of an ageing society in Australia

Australia's population is projected to grow to 36 million by 2050, comprising 7.8 million people aged over 65 and 1.8 million over 85. Population growth poses immense challenges for energy, transport, education and water, as current urban habitats are likely to be enlisted to accommodate the largest increases of this growth. Furthermore, demographic ageing[1] will lead to significantly increased healthcare costs which will be further accentuated by a reduction in the healthcare workforce. Technology offers cost-effective solutions to enable ageing-in-place (whereby people can remain at home safely and securely, for longer) and provide medical support and treatment; technology can be deployed to relieve the pressure on the service provider hubs of the national healthcare system, offering the potential for substantial saving in both residential aged care and in overall healthcare for the elderly.

Demographic ageing is taking place in all developed countries and an increasing number of developing countries, due to longer life spans and declining birth rates. Although Australia's continued high immigration rate has buffered the process, slowing the rate below that in Europe or Asia where demographic ageing is happening substantially faster, demographic ageing in Australia is inducing a population change (Figure 1). The number of people of working age (20 to 64) relative to older people, currently stands at 5:1. **By 2050, population ageing will have driven this 'demographic support ratio' down to 2.7:1**, indicative of a smaller proportion of people of working age to support retirees. This will eventuate in a shortage of healthcare professionals to attend to the increased number of older persons and is symptomatic of a significant economic challenge that will demand improved productivity to be overcome.

Older people have higher healthcare demands, as they proportionally incur higher levels of chronic illness, disability and degenerative diseases. They need increased resources to be invested in the development of new drugs and medical procedures related to age, inducing higher costs to governments. The Australian Government, in the *2010 Intergenerational Report*[2], forecast a **sevenfold increase in health spending on people aged over 65**. Government urgently needs to consider how technology, in a range of areas, can be adapted, developed and deployed to reduce costs and improve the quality of life for the elderly. Technology not only can provide solutions to overcome barriers of safety and security, diagnosis and treatment, but assistive technologies offer significant potential to reduce costs.

A larger number of older people may have a very positive impact on society, especially if healthy years can be extended. In addition to new models of healthcare and training to accommodate the increased demand for health services by older people, a radical change of mindset is required to overcome the current stereotype of older people as unable or unwilling to deal with new technology.

Ageing-in-place: responding to the challenge through technology

There is a suite of emerging innovative technologies that offer the prospect of enhanced security, safety, diagnosis, treatment and physical assistance to improve the quality of life for older people and to empower them to remain safely at home. The numerous smart technologies currently available support ageing-in-place in a number of ways, for example, by providing early alerts to changing

Figure 1 Projection of the proportion of the Australian population aged 65+

Per cent

65-84   85 and over

Source: Treasury Intergenerational Report, 2010
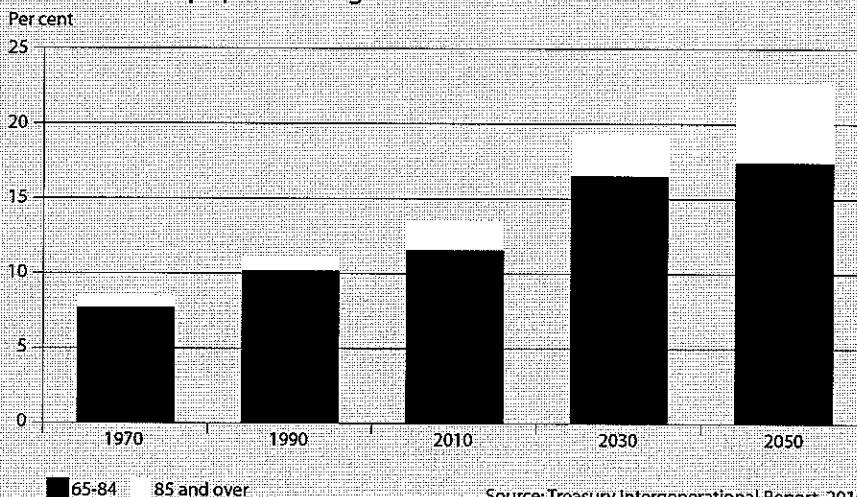
health patterns or by minimising falls and other accidents in the home. This also enables substantial financial savings in residential aged care, medical treatment and through reduced admissions to hospitals.

To enable successful ageing-in-place, technology must provide solutions to issues such as **personal health monitoring, telehealth, shopping, cognitive training and education. Information communication technology** (ICT), particularly wireless communication, can be used to address these challenges in the context of housing for older people and, crucially, is a key enabler of social communication. These smart enabling technologies can be deployed and implemented into existing homes; however, future homes will need to be designed especially in order to incorporate the required systems and to provide for the life-long needs of the occupants. This will demand modification to the Building Code of Australia.

Although there is already a substantial investment in R&D capacity in this area in Australia, particularly in the field of **telehealth** (Figure 2), more needs to be done to strengthen and coordinate this activity and to ensure that public and private aged care authorities and organisations can effectively utilise the outcomes. Many technological solutions already exist but are not being utilised to their full potential, for example, individual devices are not compatible for linking to a common control system. Other barriers include poor design for ease of use and maintenance, a lack of consultation with users about their needs, high cost and a lack of policy on financing. To overcome these barriers, there is a need for: **national and international protocols for the connection of wireless devices; improved awareness in industry and business** of the potential markets for technology for the aged population; and national policies for funding elderly-friendly homes.

There are numerous opportunities for Australian business and industry to capitalise on the projected expanded markets, both in Australia and abroad, which will be opened up with the increased development and application of smart technologies for coping with ageing and the development of a national broadband system (NBN) that will facilitate the mobilisation of e-health and enable greater integration of the elderly into society by assisting enhanced social communication.

Technological opportunities in aged care for Australia

Delivering solutions to the complexities and challenges inherent in the deployment of technology to the aged will demand a broad combination of technologies, specifically: nanotechnology, biotechnology, ICT and cognitive science. In accordance with the objectives of the Australian Government's National Enabling Technologies Strategy (which marks the convergence of the aforementioned technologies to focus on areas of social, economic and technical importance and emphasises the importance of potential for development by business and industry) several technological opportunities for Australia have been identified, in three categories (see right).

Gerontechnology[3]: lessons from overseas and opportunities for Australia

The concept of applying these smart enabling technologies to the medical aspects of ageing (gerontology) to assist in daily living is termed 'gerontechnology'. Worldwide, the concept of gerontechnology is well established in national agendas as illustrated by **significant activity in the development of technologies for the aged population** in the US, Japan and in particular in Europe, where there are well-organised and well-funded national and multi-national programs including elderly-friendly housing. This is particularly crucial for accommodating the needs of dementia sufferers, which is a key area for action in Australia given the increasing frequency of dementia and the growing shortage of carers. Large-scale **developments of elderly-friendly housing in Australia linked to studies** of aged people in these environments are required to fully understand the potential of these technologies to improve quality of life and deliver financial savings in Australia.

It is imperative that the concept of gerontechnology is established in Australia,

Opportunities for Australia

1 Security and safety – elderly-friendly homes, prevention of falls, communication and social interaction.

2 Diagnosis and treatment – telehealth, coping with degenerative diseases, nanomedicine.

3 Assistive technologies – biorobotics, brain/machine interaction, mobility systems.
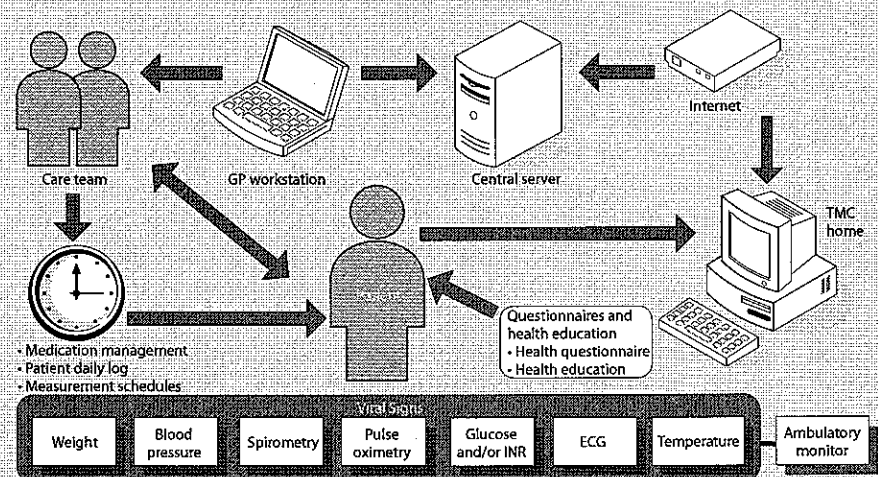
in education, research, industry and business. It is important that it is applied as a means to coordinate R&D activity in this area. Despite having numerous formal centres of activity on health and ageing in a number of universities across the country, Australia, unlike Europe and North America, does not have any centres for gerontechnology and there is a lack of overall coordination on a national scale. Given that research on gerontechnology in Australia is dispersed through a number of different areas, expenditure is difficult to estimate. An audit of activity and funding on gerontechnology is urgently required.

Funding models

Current funding models focus on institutional care as opposed to keeping individuals in their own homes. The Productivity Commission (2011) in *Caring for Older Australians*[4] recently identified the need for new funding models to accommodate the increased demands on the healthcare system as a result of demographic ageing and for elderly people to remain and receive care at home.

This echoes the findings of the ATSE report that **there is clear need for a new funding model to facilitate the wide-scale deployment of technologies to enable ageing-in-place.**

Figure 2 Schematic of a telehealth system

Care team · GP workstation · Central server · Internet · TMC home

· Medication management
· Patient daily log
· Measurement schedules

Questionnaires and health education
· Health questionnaire
· Health education

Vital Signs: Weight | Blood pressure | Spirometry | Pulse oximetry | Glucose and/or INR | ECG | Temperature | Ambulatory monitor

Social and ethical issues

Although there are clearly a multitude of benefits that may arise from the use of smart technologies in the home environment, there are also threats and vulnerabilities which must be addressed; particular issues surround privacy, autonomy, informed consent, identity and dignity.

Conclusion

To realise the potential of smart enabling technologies to achieve reduced healthcare costs and enable older Australians to enjoy a high quality of life and to remain safely in their homes for longer will demand national coordination to make optimum use of the available resources and sustained commitment to R&D support. There is a need for universities to synthesise a range of skills in Centres of Excellence in Gerontechnology to provide research and training in the application of smart technologies for healthy longevity. Meanwhile, awareness should be raised amongst healthcare authorities, the insurance industry and the public as to the potential of smart technologies to assist in providing healthy, secure and happy futures for the aged population. Furthermore, Australian business and industry should be alerted to opportunities for commercialisation of outputs from gerontechnology R&D. The ATSE study identified three key gerontechnology opportunity areas for Australia: security and safety; diagnosis and treatment; assistive technologies. The report makes nine recommendations for the development and deployment of these technologies to improve quality of life for elderly Australians by enabling ageing-in-place.

Summary of recommendations for using technologies to enable ageing-in-place in Australia

1 **Support gerontechnology from research to deployment**

The Australian Government **Departments of Health and Ageing (DOHA)** and **Industry, Innovation, Science and Research (DIISR)** should develop a National Research and Development Agenda on Technology and Ageing to ensure national coordination of existing programs relevant to gerontechnology; identifying priority areas and ensuring sufficient funding for their research, demonstration, commercialisation and wide-scale deployment. This would complement the National Strategy

for an Ageing Australia and the National Enabling Technologies Strategy and be in line with the Australian National Research Priorities.

Where clusters of expertise exist, universities and research institutes should be encouraged through joint **Australian Research Council (ARC)/National Health and Medical Research Council (NHMRC)** support to set up Centres of Excellence in Gerontechnology.

The **Department of Health and Ageing** should be tasked to develop a new funding model to support ageing-in-place and to capture the economic benefits.

2 **Understand the potential economic and societal benefits of ageing-in-place**

The **Productivity Commission** should be tasked to carry out a study of the potential savings arising from maintaining seniors safely, securely and happily in their own homes by using technologies that are available or under development in Australia. The **Productivity Commission** should also be tasked to advise on a new funding model for wide-scale deployment of technology for the ageing population.

Medicare and the health insurance industry need to assess the potential of new technologies to reduce serious accidents and other events which can lead to hospitalisation of elderly people, and to implement mechanisms that encourage the application of new technologies.

3 **Deploy gerontechnology solutions to successfully deliver the benefits of ageing-in-place**

The Australian Government **Department of Education, Employment and Workplace Relations (DEEWR)** should establish a Taskforce drawn from relevant Skills Councils to identify the training and accreditation needs of a future gerontechnology workforce operating in the home environment. This should be seen as a component of the National Health Workforce Strategic Framework.

The **Privacy Commissioner** should be tasked to examine the issue of privacy in the application of technologies to the aged population.

4 **Recognise the concept of ageing-in-place to enable independent living for the aged population**

Ageing-in-place should be an essential component of the National Strategy for an Ageing Australia. **DIISR** should actively seek to

ensure Australian participation in international programs and projects on gerontechnology to amplify our limited resources and gain access to new findings.

Further Information

The ATSE report *Smart Technology for Healthy Longevity*, authored by Professor Greg Tegart AM FTSE, was launched by Professor Margaret Shiel FTSE, Chief Executive Officer of the Australian Research Council, in July 2010 in Melbourne.

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The full report and accompanying presentations can be downloaded from the ATSE website (at www.atse. org.au/news/featured-articles/155-smart-tech-for-health-longevity). Limited hard copies are available from Harriet Harden-Davies, 03 9864 0926, harriet.hardendavies@atse.org.au
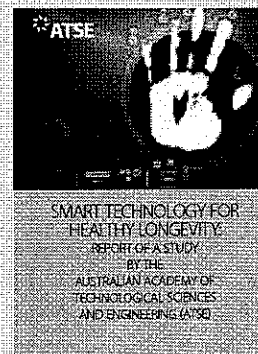
Notes

1. Demographic ageing is the process by which an increased population triggers a change in the population balance between old and young people.
2. Australian Government (2010) *Intergenerational Report*
3. Gerontechnology is the linking of medical aspects of ageing to advanced technologies.
4. Productivity Commission (2011) *Caring for older Australians*
5. 'Major overhaul proposed for Aged Care', Media Release, www.pc.gov.au/projects/inquiry/aged-care/draft/media-release

"Older Australians generally want to remain independent and in control of how and where they live their lives."
— Mike Woods, Deputy Chairman, Productivity Commission (2011)[5]