Executive Summary

This document proposes an approach to improve access to intelligent assistive care technologies for all people who could benefit, their families and carers. It proposes support for research to develop pathways to enable people with needs for support to have better access to intelligent assistive technology.

The needs for the benefits that intelligent technologies can provide are extensive and the technology is beginning to demonstrate massive benefits in overseas projects. There is a need for investment in research that will result in greater adoption of intelligent assistive technology for the benefit of older people, people with disabilities, chronic illness sufferers and others needing support. The need is very considerable as evidenced by the incidence of adverse events such as falls, premature hospital admissions and mistakes with medications. There is a high incidence of social isolation of older people and people with disabilities that can lead to clinical outcomes. The care workforce in community settings is poorly equipped with technology that can help them manage demands, provide all relevant information at the point of care and communication links to other carers and families. There is a paradox that the adoption of intelligent assistive technology is low but the needs are massive. There is a need for coordinated research programs to understand the barriers and to develop effective pathways to adoption and successful realisation of anticipated benefits.

Much of healthcare expenditure in most countries, and also much of health research, is focused at end of disease stages in acute settings rather than prevention and in community settings. There is a need to redress that balance through funding for research on technology for ageing and independent living. The potential benefits to consumers, families, governments, care funders and care provider organisations are considerable.

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Overview

Smart Ageing and Independent Living: An Introduction

Currently in Australia there is no national strategy, policy or funding in intelligent assistive technology to support ageing and independent living. Such a national strategy should be developed as a priority with the aim of helping people needing support to better manage their own lives, remain living safely at home and have ready access to care services 24 hours a day.

There is a need to better support independent living and active ageing through advocacy, raising funds and undertaking research. This needs to happen collaboratively by linking technology providers with care providers, consumers, care funders and other stakeholders for research to advance the availability of intelligent assistive technologies and deliver social, clinical and economic benefits to individuals and the community.

Research and modelling across a range of crucial areas directly related to aged care services and facilities, disability support, chronic disease management and independent living needs to be coordinated and effectively disseminated. There is a need for a singular professional focus in research to deliver significant outcomes and evidence for the development of leading edge practice, regulation, policy and strategies for adoption.

The three core areas of need in this field that a programme should address include:

1. **Awareness raising:** - to promote awareness of intelligent assistive technologies and their benefits through advocacy, lobbying, education and supporting the development of physical demonstrator homes. There is a need to lead and co-ordinate a comprehensive research program aimed at demonstrating how with increased technology adoption and sustainable use of home care, technology can provide better outcomes for health and community care users.
2. **Research:** - to develop, lead and co-ordinate a nationally focused research agenda aimed at supporting the adoption of intelligent assistive technologies for the benefit of consumers, carers, provider organisations and care funders.
3. **Fundraising:** - to manage a fund-raising strategy to support the research necessary for intelligent assistive technology to be widely available to all who could benefit.

The benefits of intelligent assistive technology include:
- Reducing hospital stays
- Supporting and developing quality workforce development responses including those related to retaining older people who wish to remain in the workforce, and future health and care workforce demand management
- Informing better direct support for families and professional carers
- Reducing the economic impacts of ageing, disability and chronic illness
- Providing export opportunities for the Australian technology and care industries

Research in this field will help reduce hospital admissions, length of stay and readmissions. Intelligent assistive technologies will reduce adverse events such as medication errors, falls, social isolation and other challenges of ageing and chronic illness. Consumers will have better clinical outcomes at a lower cost to the economy.

There will be new business, new intellectual property for commercialisation and export opportunities from the knowledge created. The Research Program has the potential to save billions of dollars through reducing hospital and nursing home admissions, as well as to create new markets and an export industry for Australia. There is a need to support and build upon current research and innovation through providing the business and funding models for adoption and through demonstrating the benefits to inform the development of evidence based policy and investment.

There is a need to promote the adoption of assistive technologies and telecare leading to a reduction in the need for nursing home care. Overseas research shows that home care technology can reduce institutional care by 66% (West Lothian, UK) or 80% (Darkins report on the Veterans' Administration, USA), reduce hospital admissions by 19%, hospital bed-days by 25% and readmissions by 25%. SAIL is associated with an Australian project with preliminary indications showing that the care workforce productivity can increase by up to 10 times.

Core Aims

A well-funded programme for intelligent assistive technology should aim to:

- Research the benefits and barriers to adoption of intelligent assistive technologies and develop pathways of adoption that inform processes, governance, funding, policy and strategy
- Shape the sustainable adoption of assistive technologies through research and related tertiary level educational activities which help integrate technology providers, private aged care providers, consumers and families, public health, health funders, government, and university approaches to innovation, technology adoption and health care
- Source funding to support the adoption of intelligent assistive technologies
- Foster research and development collaboration between core segments of health care including different levels of government
- Build the leadership capacity in innovative approaches to technology adoption, knowledge transfer and innovation diffusion
- Provide current research informed advice to enterprises

Situation Analysis

Current Situation

There is a plethora of intelligent care technologies available and new technologies are emerging. These include home networks to provide reminders and ensure people are safe and have access to care and services.

The adoption of these technologies remains low while demands on the health and community care service systems continue to grow. Hospitals are under increasing pressure from the impacts of ageing societies. AIHW research[1] has shown that around 600,000 hospital admissions in Australia could be avoided; almost 30% of avoidable admissions were for people 75 years and older. Key factors in the number of avoidable hospitalisations are age, socioeconomic status, and remoteness. Other factors include individuals' own perceived health needs and their choices about seeking health care. Almost two-thirds of avoidable hospital admissions were attributable to chronic conditions, with large numbers from diabetes complications and circulatory and respiratory conditions. There is

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[1] AIHW (2009) Atlas of Avoidable Hospitalisations in Australia. Australian Institute of Health and Welfare, Canberra

a need to substantially lower hospital admissions through providing links between home and clinical care.

Challenges of ageing include increasing incidences of falls, social isolation, medication problems, cognitive decline and other needs. Many of these challenges could be reduced by intelligent care technologies in the homes of people with needs. Even a simple technology such as a home telehealth workstation for taking vital signs could have a major impact. Initial rollouts overseas of intelligent care technologies are showing up to 80% reductions in institutional care and up to a 10-fold increase in workforce productivity. There is a need to develop technology-supported solutions to improve the adoption of intelligent assistive technologies that will assist with the challenge of a growing ageing population and a pressured healthcare system. There is a need to work with researchers involved in the design and development of technology innovations and with other stakeholders in evaluation and the development of business and care models leading to widespread adoption.

Market Environment

Market Size

There are more than two and a half million people in Australia over 65 years of age. While most of these people are healthy and independent, utilisation of health services spirals from that age onward. Around one million people in Australia with special needs receive some kind of support in their own homes. The most basic telecare product is the Personal Emergency Alarm. PERSA (Personal Emergency Response Services Association) the industry association for companies providing Personal Emergency Alarms and support, estimates their members provide support for around 150,000 people. There are a very small number of people in Australia who are served by more sophisticated technologies than this.

Value Proposition for Key Stakeholders from a national programme for intelligent assistive technology

Health funders	Reduced demand
	Reduced costs
	Reducing the growth in costs
Public health	Earlier interventions with better outcomes and lower costs
	Reduced admissions, length of stay and readmissions
	Evidence for policy development
	Improving workforce productivity
Technology companies	Product design
	Growing the overall market
	Improving adoption and consumer acceptance
Private aged care providers	Improving workforce productivity
	Reduced needs for travel to consumers to provide care
	Reducing costs
Consumers and families	Delay or avoid moving to institutional care
	Greater security
	Greater independence

	Improved quality of life, and more control, empowerment and participation in their care
	Reduced need to travel for care
	Carer relief
Researchers	Research opportunities
	Access to sites for research
	Access to industry and government partners
	Partnership with world-class research teams
	Access to funding for research

Anticipated Research Outcomes

- Compelling evidence on social, clinical and economic benefits to inform policy development and resource allocation
- Business models and new services for the specification, selection, installation, maintenance and response
- Models of care to optimise the benefits
- User interface design to improve adoption
- Privacy & security – develop approaches that will ensure personal information is protected through secure exchanges of information
- Software design and development
- Interoperability and interface standards and software
- Maximising the advantages of the National Broadband Network (NBN)

Conclusion

The business case for a well-funded national strategy for intelligent assistive technology is evident in the high rates of adverse events, the known avoidable admissions to hospital, and other pressures of ageing populations that intelligent assistive technology would reduce. Exciting innovative technologies for home and personal care are increasingly available but their adoption remains low.

There is a need to raise funds for a collaborative research programme in this field with a particular focus on missing components including pathways to adoption, evidence on the benefits, business models, work-practice change, new models of care, user-interface issues and technology integration. There is a need to influence and defend policy development and resource allocation through compelling research on the benefits of intelligent assistive technology.

Recommendation

There is a need for Commonwealth funding and leadership of:

1. A national strategy with a vision of enabling consumers and the care sector to fully take advantage of intelligent assistive technologies and to enjoy benefits of reduced time spent in hospitals and other institutional care, relief for family carers, independent living, better clinical outcomes

2. A well-funded national Community Care Research Scheme for Intelligent Assistive Technology; this scheme to support projects that will produce outcomes resulting in improved adoption and realisation of the benefits.

3. Recurrent funding to be provided to the small number of university research centres in Australia that are dedicated to research in informatics for ageing and aged-care

4. The new programme to be supported by a dedicated team of professionals to be established in the Department of Health and Ageing.