

EXECUTIVE SUMMARY

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Impacts of new and emerging assistive technologies for ageing and disabled housing



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Executive summary

Key points

Key findings include the following:

- Smart home Assistive Technology (AT) has the potential to improve quality-of-life, reduce reliance on care and reduce the cost of care for those with functional limitations associated with ageing or the onset of disability.
- Smart home AT may potentially indirectly support a range of ongoing benefits, including extended independent living, smart home energy efficiency, safety and security, physical and mental activity and healthcare monitoring.
- Most end-users reported overall high satisfaction with their smart home AT. Satisfaction was higher for assistive technology devices, and lower for services.
- Average smart home AT costs over five years were approximately \$700 to \$800, with variations ranging from greater than \$1,000 to below \$600. This is an emerging market with considerable variation in product ranges, specifications, functionality, quality and cost.
- An information gap exists, characterised by lack of clarity about the role of funders, housing designers, housing providers and for individuals with functional limitations in their knowledge and skills concerning what can be done and what is safe, sustainable and effective.
- Lack of coordination, regulation, guidance and the absence of an evidence-base about what works for who, in what context, exacerbates the existing apathy and confusion around smart home funding guidance.

- **Commercial aged care and disability housing providers reported uptake of smart home AT policies where a market advantage was perceived, whilst social housing agencies found smart home AT out of scope and unaffordable.**

This research sought to explore the potential for smart AT to reduce the need for support services, and to measure in economic terms if so, how, and to what extent. Smart home AT can be defined as ‘any device that helps a person with a disability achieve a more independent and productive life ... using generic smart home technology’ (Pennsylvania Assistive Technology Foundation (PATF) 2021).

Key findings

Smart home AT has the potential to improve quality-of-life, reduce the reliance on care and facilitate autonomy for those with limitations of function. The research indicates smart home technologies support improved independence, activity, social and community connectedness and, as a result, improved physical and mental health outcomes. Quality-of-life measures indicated improvements consistently across all dimensions, including independent living, mental health, relationships, and senses.

Early adopters of smart home AT are predominantly self-funders and whilst there is high variation and limited data there is evidence of potential cost-efficiencies. With smart home AT being an emerging segment of AT there is a high variation in product ranges, specifications, functionality, quality and cost. Smart home interventions cross over multiple technologies that are dynamic and developing quickly. The actual devices have a physical focus, but the ubiquitous expansion of cloud-based platforms underpins low-cost integration of applications and devices and novel flexibility in the building of virtual smart home environments. The value of smart home AT is implicitly driven by the ability to customise the technology and design systems that meet individual goals and needs. Despite high variation in smart home AT costs between respondents, the data was indicative of cost-effectiveness in terms of reduced care. Whilst the sample size was limited, our results established that the average smart home AT set-up costs per household over a five-year period were around \$700 to \$800, with the variation ranging from above \$1,000 to below \$600.

This project identified a sustained gap in piloting and development of smart home AT government policy, previously recommended through initial Australian research in 2012. This has resulted in a limited consumer base for economic evaluation of smart home AT and a corresponding gap in published literature. The lack of clear policy frameworks and insufficient coordination has resulted in an ad-hoc and piecemeal implementation practice with many who could potentially benefit not having the skill, knowledge or financial ability to invest. In this context, the frameworks to promote the deployment of smart home AT are lacking or are confusing. There is a critical lack of clarity about the role of funders, housing designers, housing providers and individuals associated with smart home AT.

Existing AT policy is vague about deliverables, and typically mainstream services and supports (e.g., smartphones, tablets and ‘apps’) are considered as being outside of the scope of government funding. Currently, there is no strategy for predicting how more innovative and sophisticated devices and software developed for the disability sector will emerge or be integrated into housing. A plethora of technologies and rapid technological advancements present challenges for both policymakers and clients in the decision-making process, including identifying and evaluating appropriate technologies, and providing flexible funding schemes that support customisation and ease of procurement. AT, housing design and care need to be considered holistically. This presents enormous opportunities for innovation that can better support a better quality-of-life outside the more traditional institutional and group accommodation models.

Policy development options

The potential economic and social benefits of policies and practices within Australia for smart home AT are unclear. A better understanding of these benefits will facilitate an evidence-base for the development, adoption and uptake of smart home AT that is useful and cost-efficient. The development of policy in smart home AT is important; it will provide an overarching vision and outline resourcing priorities. The digital revolution is already well underway, and the planning for, and investment in, evidence-based guidance should be a key policy initiative. Current policies must be reviewed in relation to smart home AT for older people and those living with a disability if Australia is to increase uptake and leverage economic and cost benefits, whilst improving outcomes. This is especially important in avoiding the risk of a wider digital and technological divide for those with less disposable income in social housing and rental accommodation.

Across both the disability and aged care sectors, there is the need to increase transparency for practitioners and end-users on eligibility and availability of AT interventions. Importantly, policy needs to establish and support ongoing education to facilitate competency development in this area for housing practitioners, AT suppliers and NDIS and Regional Assessment Service (RAS) and Aged Care Assessment Team (ACAT) assessors. Pooling resources through innovative financing, such as co-financing, should be investigated. This may decrease the existing fragmentation of available resources, whilst facilitating demand.

On the supply-side, if practitioners were willing to share their knowledge and preferred products, this would increase market transparency and collaboration, and may strengthen procurement for context-appropriate smart home AT whilst decreasing the fragmentation. The lack of collaboration and guidance are major barriers to fostering a climate of innovation and efficiency that can maximise the gains from this AT.

There is also a lack of data to build better evidence-based practice guidelines. The practitioners we interviewed understood that transformational change also meant addressing the market and better understanding the supply and demand-side barriers such as costs and the issue of who pays. Nevertheless, the adoption of smart home AT needs to be supported by broad consultation designed to maximise existing knowledge, increase awareness, strengthen systems, and improve service delivery outcomes. Accomplishing this requires a cross-sector partnership acting as a catalyst for change. Importantly, practitioners need to actively generate policy proposals that are technically, economically, and politically feasible, grounded within the language and value system practised by the policymakers. A national round table discussion on the way forward may be a good step in this direction.

Further, better articulation of smart home AT product profiles targeted for defined eligibility may improve the most efficient targeting of funding and servicing whilst maximising smart home AT net benefit into the future. This could include an independent national education model and a specialist advisory group that can bring together and coordinate the necessary agencies responsible for policy and practice.

The study

This research was undertaken in the context of both aged care and disability reforms, aimed at improving consumer choice whilst maximising safety and independence in housing or accommodation that is fit for purpose and that can maximise or compensate for losses in functional capacity. This research was guided by the following questions:

- What are the current and emerging directions in the development of AT globally and nationally?
- What are the current policy directions in disability and aged care in Australia and internationally for smart home AT?
- What factors enable or constrain the use of smart home AT to support independent living in practice?
- What are the potential economic and social benefits of policies and practices to support the development and adoption of smart home AT in Australia?



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