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Government perspectives on housing, technology and support design within Australia's National Disability Strategy.

Author names

Libby Callaway^{1,2}

Dr Kate Tregloan³

Author affiliations

¹ Occupational Therapy Department, Faculty of Medicine, Nursing and Health Sciences, Monash University, Frankston, AUSTRALIA

² Neuroskills Pty Ltd, Sandringham, AUSTRALIA

³ Architecture Department, Faculty of Architecture, Monash Art Design and Architecture, Monash University, Caulfield, AUSTRALIA

Biographical notes

Libby Callaway is a registered occupational therapist. She is the director and principal occupational therapist at Neuroskills, a private occupational therapy practice. Libby is also a senior lecturer and researcher in the Monash University Occupational Therapy department. At Monash, Libby leads a national collaborative research program on housing, technology and support design for people with disability, funded by state injury insurance and federal government grants. She has contributed to a range of state and federal government consultations regarding disability and housing.

Dr Kate Tregloan is Associate Dean (Education) of Monash University's Faculty of Art Design & Architecture, a teacher and researcher, and a registered Architect applying her experience to collaborative and interdisciplinary research projects. She focuses on the contributions that creative disciplines and education can make to interdisciplinary activities. Kate has a particular research interest in brief development in design processes, and the intersection of qualitative and quantitative judgements that influence both design assessment and production.

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Corresponding Author Email ID: libby.callaway@monash.edu

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Abstract

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Australia's National Disability Insurance Scheme (NDIS) is a significant disability reform and part of a ten-year National Disability Strategy that aims to build wellbeing and inclusion of Australians with disability. Housing is recognised as a key determinant of health. Transition of state-funded supported accommodation to an NDIS, within the new Specialist Disability Accommodation framework, aims to deliver housing responses that positively influence NDIS participant outcomes.

Aims: This study aimed to gather perspectives of government disability and housing representatives on current opportunities and issues for Australians with disability. The study investigated four key research questions, relating to built design; integrated technologies; the relationship between housing and support provision; and community precinct design.

Method: Nineteen government representatives from seven of the eight Australian states and territories participated in a roundtable focus group in Melbourne, Australia (March 2017). Focus group data were audiotaped, transcribed verbatim and thematically analysed.

Results: Twelve themes were identified in response to the research questions identified. Key policy and practice implications were highlighted.

Conclusion: This research offers insights from government that can contribute to strategic housing, technology, support and community design decisions and Australia's National Disability Strategy, to deliver improved outcomes for people with disability.

Australia's ten-year National Disability Strategy (NDS) was signed by the Council of Australian Governments (COAG) in 2009 and commenced in 2010 (Department of Social Services, 2010). The NDS identifies an overarching vision of an inclusive Australian society that enables people with disability to fulfil their potential as equal citizens (Department of Social Services, 2010). This vision aligns with the United Nations Convention on the Rights of Persons with Disability (United Nations, 2006). The Strategy consists of six key outcome domains: inclusive and accessible communities; rights protection, justice and legislation; economic security; personal and community support; learning and skills; and health and wellbeing.

During the initial stages of the Strategy, the Australian Government asked the Productivity Commission to conduct an inquiry into disability care and support in Australia. This inquiry included consideration of a national disability care and support scheme (Productivity Commission, 2011b). The Commission sought public submissions and consulted with an Independent Advisory Panel, State and Territory governments, government agencies, the disability sector and other relevant experts and stakeholders as part of the inquiry. In its final report, the Productivity

Commission recommended and costed a proposed no-fault national disability insurance scheme (Productivity Commission, 2011a).

The Productivity Commission inquiry and final report provided initial direction for the major Australian disability reform now underway, including the introduction a new National Disability Insurance Scheme Act and associated \$22B no-fault National Disability Insurance Scheme (NDIS) (Commonwealth of Australia, 2013). Following trials in key geographical sites from 2013, full Scheme launch commenced in 2016 with a plan for national NDIS implementation by 2019-20 (National Disability Insurance Scheme Launch Transition Agency, 2017). The National Disability Strategy's second implementation plan, Driving Action 2015–2018, demonstrates ongoing intergovernmental support of the Scheme, and builds further on actions aimed at improved outcomes for people with disability (Department of Social Services, 2016). These actions include commitment to increased national effort focussed on NDIS transition to a full scheme.

A key component of Australia's new NDIS is transition of existing state-funded supported accommodation legacy stock into the national Scheme (Wiesel et al., 2015a, Australian Institute of Health and Welfare, 2007). This includes policies and pricing to stimulate market responses, including development of new Specialist Disability Accommodation (SDA) within the NDIS (National Disability Insurance Agency, 2016c). This approach aims to respond to the requirements of the estimated 28,000 NDIS participants with the most specialised housing and support needs (Bonyhady, 2016, Wiesel et al., 2015b), by stimulating a range of effective market-driven housing responses for those NDIS participants with very high support needs or functional impairment as a result of disability (Commonwealth of Australia, 2017b). As part of this approach, an SDA framework and price guide were released by the National Disability Insurance Agency in 2015-2016 (see National Disability Insurance Agency, 2016b). In March 2017, the NDIS SDA Rule was presented to Parliament (Commonwealth of Australia, 2017b). These legislative and policy documents provide directions for compliance, and for weighted pricing, relating to built design, technology enablement and community location factors.

The current study is part of a larger research project funded by the Department of Social Services within the second implementation phase of the National Disability Strategy (Department of Social

Services, 2016). This component involved a national government housing roundtable focus group, convened in Melbourne, Australia, in March 2017. The aim of the roundtable focus group was to gather perspectives from representatives of state government disability and housing bodies, and the National Disability Insurance Agency (NDIA), in relation to housing, technology, support and community precinct design.

Research objectives were to explore and discuss current key issues and opportunities in relation to:

1. built design for people with disability;
2. integrated technologies in specialist disability housing responses;
3. the relationship between housing and support provision, and separation of the same;
4. community precinct design to build inclusion of people with disability.

Each of the specified terms within the research aims (italicised font above) were defined by the researchers and provided in writing to study participants prior to the focus group (see Appendix One).

Methods

Research ethics

Human Research Ethics Committee (HREC) approval was secured from the authors' academic HREC prior to research commencement.

Inclusion criteria

Inclusion criteria required that each participant 1) was an employee of the NDIA or an Australian state or territory government disability, housing or injury insurance body; and 2) had nominated employment responsibility for policy, funding and/or practice relating to housing, technology and support design for people with disability in receipt of state government or National Disability Insurance Scheme-funded services.

Principles of selection

Representatives meeting the study inclusion criteria were identified. This identification was made via public domain records, government reports, existing government or other industry relationships

of the first author. Some recommendations were also made by the representatives approached for recruitment.

Recruitment strategy

Potential representatives were approached in writing by the first author and provided with a brief explanation of the research project, inclusion criteria and proposed roundtable focus group. They were invited to consider attendance in person or via video/telephone link, or to nominate other eligible representative/s. Nominations came from all eight state and territory government disability and housing departments, four of the six state injury insurance bodies, and the National Disability Insurance Agency. A peak body working with state and federal government on systemic advocacy and disability and housing policy was also invited to nominate a representative for the focus group. Each participant was provided with the HREC-approved explanatory statement. The statement noted that attendance at the focus group in person or via video/telephone link implied consent to participate in the research.

Sample size

A total of nineteen participants from seven of the eight state and territory government disability and housing departments, the NDIA, four state-based injury insurance schemes and the aforementioned peak body contributed to the focus group. This included eight representatives of six of the eight state and territory government disability and housing departments attending in person, two participants from one state government via videolink, and one government representative from another state via telephone link. Two representatives from the National Disability Insurance Agency (NDIA) and five representatives from the four state-based injury insurance bodies attended the focus group in person. The peak body also provided a representative for the focus group. Representatives from one Territory agreed to participate and nominated a representative; however, that representative was subsequently unable to join the focus group on the specified date.

Data collection

The roundtable focus group was held in March 2017 in a University meeting room in Melbourne, Victoria. In advance of the focus group, participants were asked to provide brief summary responses to four initial research themes via email. Participant responses were reviewed by the first and second authors, and initial commonalities and areas of difference were identified. These were

used to refine and finalise focus group questions and associated sub-questions/prompts for the roundtable event (see Appendix Two), and allowed participants to contribute and consider these themes prior to the roundtable event. Refined questions and summarised respondent comments were presented at the commencement of the roundtable discussion, alongside preliminary findings of the research group from national housing research fieldwork undertaken in the project.

The first and second author of this paper, an occupational therapist and an architect, co-facilitated the focus group and took reflective notes throughout the session. The two-hour focus group was chaired by the first author, and was audiotaped with participants' consent. This time included a brief introduction, conclusion and two short breaks. Equal time was allocated for discussion of each of the four refined research questions. A project research assistant also attended the roundtable event.

Data Analysis and Rigor

The research assistant who had attended the event transcribed data verbatim from the audio recording following the focus group, and checked the transcript against the audiotape for accuracy. Respondent names were de-identified at the time of transcription, prior to the data being analysed using Clark and Braun's six-stage approach to thematic analysis (Clark and Braun, 2013). The first author who facilitated the focus group completed the thematic analysis, with peer checking and input from the second author (see below). Given the scope and scale of this project and targeted research questions, analysis was completed by hand rather than via computer-assisted analysis (MacMillan and Koeing, 2004). Analysis of the collected data was undertaken over a period of six weeks, using a 15-point checklist of criteria for good thematic analysis, to ensure enough time was allocated to this process (Clark and Braun, 2013). For the purpose of triangulation, the researcher also reviewed reflective notes taken during the focus group (Krefting, 1991). Emerging data patterns were identified based on the research aims, with an initial set of codes developed (Corbin and Strauss, 2008).

After coding the data, the chief investigator examined patterns across the dataset, with consideration of preliminary themes that were both frequent but also meaningful in answering the research questions (Clark and Braun, 2013). An initial 14 themes were identified from coding, and then examined further using both the coded data and whole data set. Peer checking of initial codes and themes was undertaken with the associate investigator (second author) who had co-facilitated the

focus group to aid methodological rigor (Krefting, 1991). Peer checking provided a useful opportunity to discuss perceived discrepancies in the application of codes to themes. These were resolved via a negotiated consensus discussion (Bradley et al., 2007). Peer checking also allowed the first author to examine any potential for bias or influence on the research findings using reflexivity (Finlay, 2002).

Two themes were identified as being similar and with some overlap through peer checking and reflection. These were merged through consensus discussion. A draft written report of the thematic analysis and results was produced and focus group participants were provided a copy for member checking. The authors sought feedback on the perceived authenticity of the draft (Krefting, 1991, Lincoln and Guba, 1985). Participants were also asked to advise if they identified issues with the researcher analysis or interpretations (Clark and Braun, 2013). The remaining twelve themes were retained based on the findings of the member checking (see Figure One below).

Results

Figure One provides an overview of the final 12 themes identified relating to the research questions.

INSERT FIGURE ONE HERE

Results relating to each of these themes is discussed below.

Built form

Making all housing accessible

Several opportunities to take advantage of, and to stimulate, both accessible and adaptable housing supply and demand were identified through the focus group. Participant 5 stated, 'This is a conversation about housing for people with disability, not disability housing'. The need for a range of housing options, suitable for on-selling, has been identified in both current research and NDIS policy documents (National Disability Insurance Agency 2016c; Wiesel et al., 2015a). Participants further highlighted a need to design and build homes that

may be rented on the open market or on-sold, implying a requirement for housing models in addition to single houses.

Round table participants recommended a legislative approach to increase accessible housing supply. They felt this would ensure an increase in volume via inclusion of accessible design principles and relevant standards within regulations for all buildings (e.g., via the Building Code of Australia) and other regulatory devices. This was seen to offer benefits to people with disability as well as other community groups, such as aging Australians who want to remain living at home. It was anticipated that a relatively low cost impost would offer great community benefit, depending on the level of requirement established (e.g., silver-level Liveable Design compliance) (Livable Housing Australia, 2012). Participants suggested this approach may offer greater flexibility for any subsequent home modifications required for people with disability. Participant 7 summarised the need for further work in this area: *‘Making all housing accessible isn’t already a national level of discussion ... Liveable Housing design can be taken over [and incorporated] into the Australian Standards’*.

Achieving the concept of ‘ordinary’ in design

Integrating housing for people with disability into mainstream housing responses, and the opportunity to make personal housing choices, were seen as central aspects of the experience of ‘home’. Participant 8 stated, *‘It’s the concept of ‘ordinary’ ... so people who are living there get to make ordinary choices that are available within the limits that the rest of us experience’*.

Participants suggested that the personalisation of built design was necessary for the effective support of people with a range of needs, including differing physical and cognitive behavioural capacities, as well as life ambitions: *‘We need to customize to individual design level ...’* [Participant 1]. However, customisation was also identified as requiring additional resources (i.e. time and money). The opportunity to develop housing models suitable for future customisation (e.g., through flexible joinery installation) was seen by the group to offer a potential way forward; however, participants noted that developers and others will need exposure to examples beyond what has been built to date: *‘... it would be good to [show good practice examples] a little bit more because you’re all in your own little jurisdiction trying to work it out ...’* [Participant 4].

Providing housing where it is needed

Participants noted the geographic distribution of housing for people with disability was necessary to promote an inclusive community shared by all, and to avoid concentrations of disadvantage. Participant 1 stated delivered housing should be ‘not special, excluded or different from the *rest of the community ...*’. This position aligns with key aspirations of the National Disability Strategy, and the contemporary desires of people with disability and their families (Department of Social Services 2010; Wiesel & Habibis, 2015). A central theme of roundtable discussions was the potential to influence the delivery of housing options for people with disability at sufficient scale, particularly in regional areas or for groups who experience multiple disadvantage (e.g., indigenous Australians who experience disability), and to encourage private investment. Participant 11 stated, ‘*There’s actually a few interesting things evolving ... in remote areas [there] is a big social housing venture in the Northern Territory ... a need is definitely out there*’.

The group considered the size and footprint of dwellings for people with ‘robust’ or ‘fully accessible’ Specialist Disability Accommodation design needs presented particular challenges. In addition, access to smart home technology expertise in regional areas was also seen as an issue. Participant 1 stated, ‘... technology is hard to manage at the best of times in a metro setting let alone a regional setting (where) *there’s a lot less access to those supports and less variety of providers*’. While the purchase price of large land parcels may be prohibitive in sub/urban locations, regional or industrial areas that may offer these larger sites present different challenges related to community inclusion and access to public transport. This issue has been further identified in the second implementation plan of Australia’s National Disability Strategy (Department of Social Services, 2016).

Integrated technologies

Integrating technology to meet individual need

The group suggested the installation of integrated technologies (including communication and assistive technologies) offers many positive opportunities for people with disability. In addition to customisation of built design, the group identified that customisation of technology for an individual must also be considered. This may offer a cost benefit, as well

as support individual need. Participant 9 stated, *'It's really about how this technology is going to improve this person's life...it really does come back to the individual and what they want and how [technology] is going to make their life better'*.

'Where does the house end and person begin?' [Participant 9] emerged as a significant question raised by the challenges of traditional state government and new NDIS funding guidelines, particularly when certain interfaces may be crucial for independence. Delivering unnecessary technologies may not offer cost benefit, but people may need assistance to use, and also to move beyond, technologies provided. This requires an individualised and collaborative approach and may require input from health professionals or technologists for specific training and skill development. While this range of issues is relevant to all homeowners and occupants, it holds particular significance for people with disability who may rely on technologies and Internet capability for independent living, and also for personal safety and health support.

Ensuring dignity and rights, and managing risk

The introduction of technology may pose some necessary trade-offs between privacy and possibility, dignity and risk: We actually need to be considering the human rights implications of technology upfront in the early stages because certainly [technology] is pervasive and it is very easy to find that you have gone down a path with the best intentions but tripped up in terms of compliance [Participant 11].

Applications delivered via integrated or smart device technologies may allow an in-home system to 'predict' expected behaviours and raise an alarm if something is out of the ordinary. This is achieved by collecting data and 'watching all of the time'. Mobile technologies may allow tracking or 'following' of the person, and the transmission of data (potentially including streamed video) to staff mobile devices in any location. The recording of staff activity may also be included as part of data or image collection, posing a potential invasion of privacy but also potential value when managing behaviours of concern or other risks. Ethical considerations and safeguards regarding technology use in the delivery of support or home automation are not fully understood or documented at this early stage of burgeoning technology-enhanced environments. Further work may be valuable for this.

Technologies can allow individuals to engage with others and the world they inhabit in new ways. Informed choice by affected stakeholders is a necessary but challenging undertaking when data and its treatment is shifting rapidly and the potential for its use is not always clearly defined or fully known. Participant 14 stated: Dignity and risk comes into it and *people say ‘well I know that’s a risk with the technology I have but I’m willing to accept that with all the advantages it will afford me’ ...the person has to make that choice for themselves.*

Finding technology experts

Providing suitable space and home infrastructure for the installation and maintenance of assistive technologies is complex, calling for significant planning and preparation when technologies, suppliers and maintenance requirements are changing quickly. The collaboration of service, technology and housing providers, as well as researchers, was seen as central to innovation. Participant 3 highlighted this: *‘Find yourself a [housing] technology expert ... don’t let them go’*. The design of a base build to include provision for power and data cabling, control units, and multiple backup systems in case of power failure was seen as a complex challenge, with important considerations needing expert input: *‘So when you do have those systems in place and you’re thinking about everything from heat generation of that secondary power source and all the bits and pieces to make sure that there’s 10 different levels here, again, I can’t stress enough, find yourself an expert ...’* [Participant 3].

The relationship between housing and support provision, and separation of the same

Separating housing and support

The move from block-funded provision of supported accommodation towards the separation of housing and support can align more effectively with the UN Convention on the Rights of Persons with Disability (United Nations, 2006) and the aim to build tenancy rights for supported living. Participant 8 stated: *People with disability are diverse, have different needs and different aspirations ... there is a very big difference between being*

forced to live together because of block funding as opposed to a lifestyle choice which might be ... normal for the rest of the community.

Roundtable participants considered that new individualised funding structures offered through NDIS implementation allowed for separate provision of housing and tenancy from the delivery of daily supports. This is a view shared in current Australian literature (Wiesel & Habibis, 2015; Wiesel et al, 2015a). The group identified emerging evidence of this practice in Australia, including both benefits and challenges. Making this change requires effective communication, alongside skilled and enduring collaboration with documented roles, responsibilities and processes (including targets for response times for delegated responsibilities). In addition, a significant and ongoing investment of time is required from both the housing and the support provider(s), as well as other project partners, to maintain useful and effective working relationships. The group suggested that evidence of separation of housing and support should be documented with rigorous evaluation processes to inform the sector and improve future practice: '*...[the] NDIS is changing this environment so much that we've got learnings from the past but we don't know what's happening now and into the future ... I think we need to do a lot more evaluation*' [Participant 8].

Choosing a support provider

Focus group members discussed that, even with the more contemporary approach to separating funding of housing and support, the organisation delivering in-home support is often a single contracted provider. The use of one provider results from finite funding resources available, and restricts tenants' choice of care provider. Participant 19 stated, '*Choice [of housing and support] is the key and it's the thing that normalises built design for people with disability*'.

However, participants identified that an individual tenant's choice of support provider would be costly, as it would reduce opportunities to share supports. This may lead to loss of quality and coordination of direct support delivered as a result, especially if support workers from a range of agencies need to provide services at various times. Limited capacity to offer choice of support provider remains a tension in the new NDIS funding structure (National Disability Insurance Agency, 2016), and requires further attention: We need to look across

the spectrum – meaning education, engagement with people with disability, and regulatory mechanisms – to try and put things like separation of housing and support firmly in the middle of [service] delivery...’ [Participant 2].

In the context of an ongoing limitation of choice and control for tenants, roundtable participants agreed that tenants should be supported to participate in staff selection and performance reviews, to have choice regarding delivery of personal care supports, and to be supported to understand and enact grievance/complaint policies, wherever possible. Individual advocacy and/or support coordination, independent of the disability support provider, may be necessary for this.

Making assumptions about what people want

The group discussed ongoing national work to close the remaining large-scale institutions in Australia, and the transition of residents to smaller scale community living. Participants identified that multiple small scale group homes were not the only solution for community living and there was a need for developers to be encouraged to think broadly about housing solutions: ‘Some of what we are seeing is providers making assumptions about what people *with disability want and essentially building group homes...*’ [Participant 13].

Participants identified difficulties with provision of a more suitable range of sustainable housing and support options for people with the most complex cognitive behavioural support needs along with the need for some with very specific design approaches. Examples discussed included a butler’s kitchen to allow ‘graded’ access to food as a person develops skills to self-regulate food intake; larger housing footprints so people can interact but also have access to sufficient private spaces; and secure retreat spaces for support staff in the case that a tenant becomes verbally or physically aggressive.

Community precinct design

Developing socially inclusive communities

In the context of an effective National Disability Strategy, the group agreed that options for genuine and valued participation needs community engagement to extend beyond those of

access and location of people with disability. Roundtable participants noted the impact of the housing location and related community precinct on the experience and opportunities of people with disability. Several areas for action were identified that may broaden mainstream housing investment approaches, while offering a means to increase supply as well as demand of accessible design.

Models for intentional communities highlight the impact of community groups and family support to build successfully integrated homes. Roundtable participants identified that for NDIS participants, the design of the NDIS has been seen to positively affect individualised responses, choice and flexibility of supports, and alignment with personal goals:

‘... there will be people with disability and social housing and the mainstream community. People are putting these things together to build a community that is intentional but also a built environment around it that is accessible to everybody’ [Participant 17].

Ensuring transport is accessible

A lack of accessible, integrated transport was identified as a key barrier to community participation and inclusion: ... you could [live] further away potentially from the services you need to access if you had accessible transport ... at the moment, I have to admit, is we locate our developments very close to all the facilities and all of the services because it’s sometimes difficult to rely on transport...[Participant 1]. Accessible community precincts rely heavily on well-planned, accessible and reliable public transport and supports, perceived to be limited in Australia beyond major metropolitan centres. Participant 15 stated, ‘once you walk outside of really tight metropolitan areas you’re really struggling to find accessible transport, and that’s a big barrier’. Participants suggested that in the future driverless cars could increase personal transport options for people with disability.

Educating key stakeholders

Education and awareness raising for the Australian community, and for key housing development and investor stakeholders, was considered necessary to build inclusion: There is a need for awareness-raising in the community. This can be done in the work to reinvigorate the National Disability Strategy. One focus could be aimed at promoting an inclusive and accessible environment where housing is located [Participant 14].

Participants identified a need for education of developers and other stakeholders. Education, built on good research and evaluation was seen as necessary to effectively consider and inform design and siting decisions in relation to transport networks, topography, employment opportunities and community supports. Education may also expand a range of innovative partnerships to include private developers, housing associations and intentional communities. New approaches may leverage existing changes to local government planning provisions and higher density models as well as support for aging in place:

'Government has a role in terms of adopting broad principles of inclusionary zoning to facilitate that outcome and that gives clarity that industry and others are looking for ...'
[Participant 9].

As a result of an increase in volume, and broader distribution of housing options across the community, the group reflected that inclusive communities would become increasingly more possible.

Discussion

This research brought together government representatives from seven of the eight states and Territories for a national roundtable event, in the context of the ten-year National Disability Strategy and major disability reform now underway in Australia. Participants provided government perspectives on current issues and opportunities for people with disability in relation to built design, integrated technologies, the relationship between housing and support provision, and community precinct design. A total of twelve key themes emerged across these four research areas, offering further direction for the second implementation phase of the National Disability Strategy and Specialist Disability Accommodation within Australia's National Disability Insurance Scheme (Department of Social Services, 2016, National Disability Insurance Agency, 2016c).

Study findings and the ensuing discussion should be considered in light of limitations of the current research. To ensure both disability and housing representatives from each of the state governments and the NDIA were represented in the focus group, it was necessary to have a minimum of two people from each agency. The rare opportunity to seek input from all states and the NDIA in one focus group was integral to the research aims. However, this led to a relatively large focus group

potentially risking balanced contribution by all participants. The benefits of this approach were seen to outweigh the limitations inherent to the larger group size. A range of pre-focus group activities were undertaken to address this issue and have been detailed above. The role of the researcher in facilitating the focus group, and ensuring a balance of contributions by participants, was also important and reviewed through the transcript.

This research focused only on the perspectives of government representatives in relation to housing, technology, support and community design. It is anticipated that there will be varied and valuable perspectives across stakeholder groups that warrant further investigation. Future research is required to explore the perspectives of a broad range of stakeholders. Stakeholders involved in the delivery and/or use of housing, technology and support include tenants and their families, access consultants, designers and health professionals, and builders and developers.

The implications of research findings are discussed below, while acknowledging these limitations,.

In terms of built design, participant perspectives lent further weight to current discussions to amend the Building Code of Australia to incorporate minimum standards for accessible housing design (Commonwealth of Australia, 2017a). Such amendments offer potential to stimulate the supply of housing suitable for a range of populations within the community, including people with disability as well as aging Australians. It is necessary to build the evidence base of adaptable and accessible housing design practice to inform decision-making by people with disability and their families, developers and other stakeholders. This evidence could also influence the level of market demand, and inform future accessible housing design. Although there has been some research investment in this area, further work is required (Department of Social Services, 2016, Wiesel and Habibis, 2015).

Roundtable findings also highlighted the need for capacity building for people with disability and their families to understand and consider the range of housing options possible within the NDIS. This need is embedded in the NDIS SDA operational guideline. In part, it may be delivered through the use of support coordination to examine housing options and preferences (National Disability Insurance Agency, 2016a). Skilled accommodation planning and capacity building to facilitate successful transition for people with disability across housing is also required, and will need to be

considered closely within NDIS planning processes for those participants with high daily support needs (Commonwealth of Australia, 2017b, Wiesel and Habibis, 2015).

In relation to the use of integrated technologies in housing, a key learning from this research was the need to include minimum standards for provision of wiring/capability for future technologies and backup systems within building design guidelines. The National Disability Strategy and the second implementation plan point to the potential of a National Broadband Network (NBN) (Department of Social Services, 2010, Department of Social Services, 2016). Effective expansion and delivery of Australia's NBN is likely to increase opportunities for people with disability, and other Australians, to access high speed, reliable Internet access and Internet-enabled smart home and communication solutions. In addition, this research pointed to the further need to invest in research and policy development to safeguard and build privacy and security of technology solutions used in housing by people with disability and their support networks (Lazar et al., 2017). Consideration of industrial relations and employment conditions of disability support workers, in relation to the use of technology in housing, is an area that is yet to be formally examined but was seen by participants as already raising potential privacy issues for both tenants and the support workforce.

In terms of the relationship between housing and support, this research further highlighted the need for service innovation to develop flexible support models, funding streams and policies that build greater choice regarding where a person lives and how and by whom support is delivered (Wiesel et al., 2015b). Investing in research and evaluation regarding both housing and support design, particularly in relation to effective options for people with the most complex support needs, is necessary to ensure evidence of good practice is shared, replicated and further advanced. Within the NDIS planning process, individual advocacy and/or support coordination to assist NDIS participants to plan and effectively enact housing and support separation and coordination should be considered. Documented evidence of effective separation of housing and support, and the application of rigorous evaluation processes, could allow the sector to be better informed for future practice and its improvement.

Finally, when considering community precinct design, implementation of the NDS should include a strategic review of accessible transport planning, infrastructure and investment. This may broaden

the range of suitable sites for accessible housing (Australian Human Rights Commission, 2015). Evidence of siting decisions for housing, and approaches to community precinct design that build community inclusion and participation should be documented and shared to educate and inform stakeholders and improve future practice. Participants were united in their view that further education and community partnership is enabled by government leadership, policy and action. However, they also identified that advancing the inclusion of people with disability in society is the responsibility of all Australians.

Australia is currently within the 8th year of a ten-year National Disability Strategy. The findings from this research recognise the considerable work already undertaken as part of the delivery of outcomes under the NDS, and also challenges and opportunities of the second implementation phase. Progress has been made towards key outcomes domains, but more work is needed to ensure the Strategy vision is realised, and our nation delivers ‘an inclusive Australian society that enables *people with disability to fulfil their potential as equal citizens*’ (Department of Social Services, 2010).

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Appendix One: Definitions of key concepts relating to research questions

Built form includes the internal and external designed spaces (planning and layout, joinery, fixtures and fittings, passive and active environment control systems) of housing for a specific tenant, as well as shared spaces that a tenant may use in a multi-dwelling development (e.g. car parking; shared recreational spaces or facilities onsite; access to common areas, including lifts).

Integrated technologies include home automation, communication, and passive technologies. These may allow for environmental control, flexible or remote delivery of support, monitoring of changes in activity or health patterns, prompts or guidance to complete specific tasks, and/or the capacity for tenants to build autonomy. This also includes necessary connectivity (Internet and telecommunications capability) and support for its use (i.e. human services required for successful prescription, delivery and ongoing use of technologies).

The relationship between housing and support provision, and separation of the same refers to paid human supports delivered within housing to tenants with high daily support needs, and the potential to separate this from capital supply and tenancy arrangement (versus traditional approaches of block funding of housing and support).

Community precinct design includes the physical, attitudinal and social environment of the community in which housing is located. It may include physical access to street infrastructure (footpaths, crossings), public and other vehicular transport, and local amenities. The attitudinal environment includes the level of integration of the housing provided into the broader community precinct, and the social community (e.g., intentional communities or clustered housing linking to specific services or groups).

Appendix Two: Focus group questions

Question 1

What are the current key issues and opportunities in relation to built design for people with disability?

- What works well in housing solutions for people with disabilities and their families? What do communal vs private spaces offer?
- How might housing solutions scale to address current demand, leverage investment and consider the significant lead-time required for new builds?

Question 2

From your perspectives, what are the key issues and opportunities in relation to integrated technologies in specialist disability housing responses?

- What is your experience of integrated technology provision, including the pros and cons of base build vs. retrofit, technology innovation and stakeholder training?
- How might issues of safety or privacy regarding technology be addressed?

Question 3

What are the current issues and opportunities that exist in relation to the relationship between housing and support provision, and separation of the same?

- How do you evaluate or what are the key aspects of ‘good’ housing and support provision?
- What practice frameworks or principles might build effective interaction and collaboration between housing and support providers?

Question 4

What are the issues and opportunities related to community precinct design to build inclusion of people with disability?

- What is your experience of effective distribution of housing responses (‘salt and pepper’ arrangements) to build community inclusion?
- What possibilities do you see to improve transport options within the communities in which people live?

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