SLÁINTECARE INNOVATION FUND (SIF)

B-CONNECT

THE ALONE | SIF PILOT PROJECT

An Evaluation

June 2021

Prepared by:

Rodd Bond Service Innovation
Dundalk, Ireland

ACKNOWLEDGEMENTS

The B-Connect pilot project described in this document has been made possible through a grant under the Sláintecare Innovation Fund as part of the Irish Government's action plan for health service transformation. The project grant has been administered by Pobal, the Irish Government's community support agency.

ALONE CLG undertook the delivery of the project in partnership with Beaumont Hospital, the Dublin North Integrated Care Team for Older Persons, operating within the CH09, and Northside Home Care Services. The delivery partners were supported by the Institute of Public Health and the National Disability Authority. The older persons, and their families and carers who participated in the project were not just research subjects. They co-designed their plans, and explored technologies while they were struggling to manage difficult health conditions, all within a milieu of systemic pandemic shock.

A particular thanks must go to the teams that designed and managed the delivery of the project, and that provided expertise and insight to the project as an advisory board. The members of the project management team were:

Caroline Muller	Befriending Network and Community Coordinator
Ciaran Gilligan	Service Manager CHO 9, ALONE
David O'Rourke	CHO 9 Support Coordinator, ALONE
Kimberley Dempsey	Head of Services, ALONE
Marianne Healy	Head of Clinical Governance, Northside Homecare Services CLG
Owen Farag	Technology Engagement Office, ALONE
Patrice Reilly	Social Work Team Leader, Dublin North Integrated Care for Older Person's Team
Pauline Rooney	Project Officer
Ronan Rooney	CEO, Tinteán
Rodd Bond	Evaluator, former Director NetwellCASALA

The members of the project's advisory board were:

Seán Moynihan	CEO, ALONE
Des Mulligan	Service Improvement Manager – National Integrated Care Programme for Older Persons
Eamonn Dunne	Chief Executive Officer, Northside Homecare Services CLG
Ger Craddock	Chief Officer of the Centre for Excellence in Universal Design
Karen Horgan	CEO, Age & Opportunity
Máiréad Lyons	Head of Service, Social Care CHO10
Maurice O'Connell	Chair of Dublin City Age Friendly Alliance
Paula Keating	General Manager, Older Persons Services, HSE CHO Dublin North City & County
Prof. Roger O'Sullivan	Director of the Ageing Research and Development Division, Instituteof Public Health
Rachel Simons	Director of Nursing/Manager for Clinical Strategy & Development Older Persons, CHO DNCC
Ronan Rooney	CEO, Tinteán
Samantha Rayner	National Planning Specialist Older People Services, HSE National Office

The results of the work discussed in this report would not have been possible without the passion, commitment, mutual collaboration and support of all these stakeholders working together. They have come together with the shared goals of improving the lives of older people and those who care for them, and of enhancing the opportunity for older people to remain living at home in the community for longer. This has been a very valuable endeavour from which everyone should take great satisfaction.

CONTENTS

1 EXECUTIVE SUMMARY

B-CONNECT is one of several projects supported with a grant through the Sláintecare Innovation Fund (SIF). Sláintecare is the ten-year programme to transform our health and social care services. It is the roadmap for building a world-class health and social care service for the Irish people.

The B-CONNECT project demonstrates significant partnership working across the healthcare and social spheres. Through the role of support coordination, the service works with clients to help them develop their non-medical health and well-being plans, and to help direct their access to community and voluntary resources in the locality to provide an array of supports, formal and informal. The SIF funded B-CONNECT project is testing the extent to which Active and Assisted Living (AAL) technologies can play an important role to supporting self-management, address risks of isolation, engender a greater sense of safety and security, and provide digital tools to promote greater connectivity and social engagement. AAL is a general term applied within Europe to identify technologies to support independent living for older persons. AAL includes smart devices, wireless networks, software applications, computers, and medical sensors, many of which may be connected to the internet.

ALONE have undertaken the delivery of the project in partnership with Beaumont Hospital, the Dublin North Integrated Care Team for Older People in the CH09 area, and Northside Home Care Services. The delivery partners were supported by the Institute of Public Health and the National Disability Authority. Projects of this type require the significant proactive involvement of their targeted clients. A core principle of the Integrated Care approach is that it is person centred and that it is ***'designed with' rather than 'for'*** the older adult. Participants co-designed their plans, and explored technologies while they were struggling to manage difficult health conditions, all within a milieu of systemic pandemic shock

The project was structured around 3 primary action areas:

- Project governance
- Enhance the technology platform and test with participants
- Improve the community's capacity to meet the growing needs of older people

This evaluation study is primarily oriented towards describing and exploring the learning from the pilot testing with participants. However, the interwoven nature of this innovative service, and its future scalability and sustainability, has vital inter-dependencies with the capacity of the community to work together to meet needs. Several community actions are touched upon in this report, to help give a more complete picture.

In section 3 the report positions the B-CONNECT approach within the Slaintecare programme as community-oriented practice and process, set within a social model care. It describes the nature of the B-CONNECT support model centred on support coordination and technology prescribing and its role in strengthening networks of community supports in local areas.

Section 4 looks to the literature to frame B-CONNECT as a context-specific fusion of both support coordination (similar to social prescribing) and AAL (active and assisted living) technology engagement. It provides a brief overview of some recent developments and evidence in Support Coordination/Social Prescribing and AAL technologies in academic and grey literature as it relates to older people. Of particular interest are the mPower project, a recent HSE study on the evaluability of social prescribing, and a study in London examining the role of digital tools.

In section 5, the report outlines the theoretical approach to the report as a 'realist synthesis'. The key principle of a realist approach is that the context in which an intervention takes place, largely determines whether the intended outcomes are achieved. It helps to identify 'what works, for whom, in what respects, to what extent, in what contexts and how?' rather than merely 'does it work?'. The planned operational context before the arrival of the pandemic is described, and a logic model is presented to establish a train of links from inputs to hoped for

outcomes. Key data and measures that are currently informing implementation are introduced.

Section 6 documents the key findings of the project with a focus on what changes have been detected that may be attributable at some level to the B-CONNECT service. It steps through

- A discussion on the composition of the participants
- A look at the assessment patterns of the participants as the joined the project
- A look at the participants assessment patterns towards the project end
- An overview of participants experiences and identification of key themes
- An exploration of these key themes
- A brief look at some organisational considerations

In section 7, the report discusses some of the project activities that were running in parallel with main pilot initiative. These include:

- Community Networking: Improving the Community capacity to meet the growing needs of older people
- Develop a universal design guideline procedure for technology procurement
- Equitable Access to Technology
- Economic and business model considerations

Section 8 forms a discussion on the project and includes some tentative recommendation for further development. While recognising a range of provisos and qualifications, the reports highlights the key outcome effects for the participants that are achieved:

- There are significant reported improvements in individual/family resilience. (77% - 20 out of 26 reported)
- There are significant reported improvements in the reduction of carer stress burden. (92% - 24 out of 26 reported)
- While overall change in QoL for the group declined by 7.8%, this was almost entirely attributable to reported loss in autonomy (87%). There was almost no deterioration in QoL as it related to control, self-realisation and pleasure.

The following key outcome effects for the health system/services were achieved:

- In conjunction with Beaumont's A&E pathfinder programme, 5 ED presentations were avoided representing 29% (17 referrals related to Hospital)
- In conjunction with Beaumont's FIIT programme and wards, 12 clients had a timely discharged to the ALONE programme (70%)
- Only 4 across the full cohort of 48 (8.3%) transferred to a long term care (LTC) or palliative care pathway. During COVID, LTC has not been considered as an appropriate destination for older people by many of their families – due to the high risks of infection and the enforced social isolation. As such, B-CONNECT helped to enable alternative preferences for clients and families.

Based upon some key insights into the B-CONNECT trial, the section briefly highlights some areas for future consideration as the organisation, service model and technology platform evolve. The project has identified how B-CONNECT is strengthening its alignment with the '10 Step Integrated Care Framework for Older Persons, and in parallel with developments and experiences during COVID, are now challenging ALONE to better position B-CONNECT and related technologies within the organisation and community. As such, recent developments are tending to position technology as a set of empowering resources embedded as an integral part of evolving relationships with clients and partners, and as an enabler for building sustainable eco-systems of support.

When proposing the B-CONNECT project to SIF for consideration during 2019, ALONE documented an ambitious plan based upon partnership. That the project sustained and delivered during a period of global pandemic is a testament to the quality of the collaborative, situational 'leadership-in-practice' that was evident across the project consortium and its team members working together. At it's

heart B-CONNECT is a collaborative endeavour. In this pilot in North Dublin with frail and 'at risk' older people, it has been demonstrated to work for family members, and through them, to provide benefits to those who they care for. It works with stakeholders to reinforce the community capacity to support ageing-in-place, and to help avoid or delay negative outcomes and unwanted admissions to more costly, and sometimes inappropriate services. It is neither an alternative form of caring nor a substitute for home care services. Rather, it represents a new way of working together that can strengthen resilience, and reduce the burden of stress on strained family members and carers. It can lighten up lives, change moods, in-still moments of joy, and at times provide a sense of purpose in peoples' lives. It represents a social and digital infrastructure that can present as a seamless part of integrated community health and well-being supports. Over the coming period, as the ALONE model grows and embeds as a cornerstone of the HSE's strategy of enhanced community care (ECC), it is hoped that the learning from this SIF supported initiative will continue to resonate, echo and inform some of the ways forward.

2 INTRODUCTION

2.1 ABOUT THE PROJECT

B-CONNECT is one of several projects supported with a grant through the Sláintecare Innovation Fund. Sláintecare is the ten-year programme to transform our health and social care services. It is the roadmap for building a world-class health and social care service for the Irish people.

The 2019 Sláintecare Action Plan established the building blocks for a significant shift in the way in which health services are delivered in Ireland. It seeks to deliver on the vision of the Future of Healthcare Committee of a health system in which care is provided in the right place, at the right time, by the right person.

The Irish Government Budget of 2019 provided €20 million for the establishment of a ring-fenced Sláintecare Integration Fund to test and scale how services can best be delivered. B-CONNECT is a response to this call, proposing a pilot service for innovation funding with focus on prevention, community care and integration of care across all health and social care settings. The B-CONNECT service is situated within CHO9 in the Fingal / North Dublin and while spanning settings, its specific goal is to help older people with complex conditions to remain living at home with the support of assistive technologies. The project was implemented during 2020, and due to the pandemic, further extended for 3 months into 2021.

The B-CONNECT project demonstrates significant partnership working across the healthcare and social spheres. Through the role of support coordination, the service works with clients to help them develop their non-medical health and well-being plans, and to help direct their access to community and voluntary resources in the locality to provide an array of supports, formal and informal. B-CONNECT is testing the extent to which Active and Assisted Living (AAL) technologies can play an important role to supporting self-management, address risks of isolation, engender a greater sense of safety and security, and provide digital tools to promote greater connectivity and social engagement.

ALONE have undertaken the delivery of the project in partnership with Beaumont Hospital, the HSE's Integrated Care Team for Older People in the CH09 area, and Northside Home Care Services. The delivery partners were supported by the Institute of Public Health and the National Disability Authority. Projects of this type require the significant proactive involvement of their targeted clients. The older persons, and their families and carers who participated in the project were not just research subjects. A core principle of the Integrated Care approach is that it is person centred and that it is ***'designed with' rather than 'for'*** the older adult. Participants co-designed their plans, and explored technologies while they were struggling to manage difficult health conditions, all within a milieu of systemic pandemic shock.

2.2 PROJECT STRUCTURE

The overall project structure and the completion of its deliverables are documented in appendix 1. The project was structured around 3 primary action areas:

- 1. Project governance
- 2. Enhance the technology platform and test with participants
- 3. Improve the community's capacity to meet the growing needs of older people.

Couched as a governance task, this evaluation study is primarily oriented towards describing and exploring the learning from the pilot testing with participants. However, the interwoven nature of this innovative service, and its future scalability and sustainability, has vital inter-dependencies with the capacity of the community to work together to meet needs. Several community actions are touched upon in this report, to help give a more complete picture.

3 B-CONNECT: WHERE 'IT FITS' AND WHAT 'IT IS'

3.1 HEALTH SYSTEMS CONTEXT

In-line with the Sláintecare Innovation Fund (SIF) themes, ALONE have been developing B-CONNECT as a community-oriented innovation that can:

- Promote the engagement and empowerment of citizens in the care of their own health and wellbeing
- Scale and replicate as an example of best practice and processes for frailty, chronic disease management and the care of older persons, and
- Encourage innovations in the shift of care to the community, or provide hospital avoidance measures.

eAs such, B-CONNECT fits as community-oriented practice and process, set within a social model care. To use a traffic light analogy, it is situated in the 'orange zone' promoting measures that can reduce pressures on acute and residential services and resources in the 'red zone', and promoting measures that can enable and support well-being, self-management and personal empowerment at home and in the community in the 'green zone'. Figure 1. Systems and service context, illustrates the services positioning of the project, as a social approach to promoting and sustaining health and well-being at home. It's resources are not just 'in the community' – they are the community' - and a primary function for the model is to assist the person and the community to operate together more effectively and more purposively as an eco-system of mutual supports. In no-clinical terms, it can be thought of as a 'dance' – and the project's interventions as 'community choreography'. A key enabler to this person-community engagement is the role of digital technologies for Active Assisted Living (AAL).

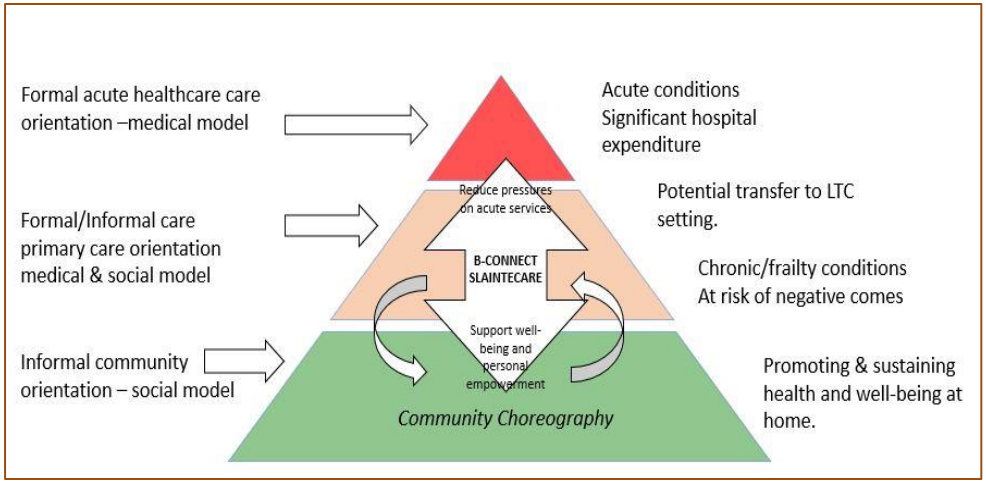

Figure 1. Systems and service context

3.2 THE GENERIC B-CONNECT SUPPORT MODEL

A generic view the ALONE model is illustrated in in Figure 2. Generic B-Connect support model. Reading the diagram from left to right, it highlights 4 key nodes of activity along the pathway. These are:

- The source referral mechanism – for the SIF project, these were restricted to the Beaumont Hospital, The North Dublin (CH09) Integrated Care Team for Older Person, and North Side Home Care Services.
- Initial engagement with Support Coordinator. This is focused upon assessing the client's needs and developing an individualised well-being plan – including a specific plan objectives and outcomes (SPOs).
- The body of the support model is connectivity to, engagement with, and/or attachment to, one or more community-based supports, assistance or aids – generally provided by local community groups.

- The applications and/or negotiations with statutory or private service providers, such as housing, utilities, care services etc. A unique aspect of the B-CONNECT model is the prominent role that AAL technologies play within the overall support services milieu.
- When support services are in place, ALONE provides on-going engagement with follow-up monitoring and support through the Support Coordinator. Information about the engagement is registered and maintained in a CRM/MIS system. This provides an opportunity to review progress or change in health and well-being status, and to adapt or update well-being plans accordingly.

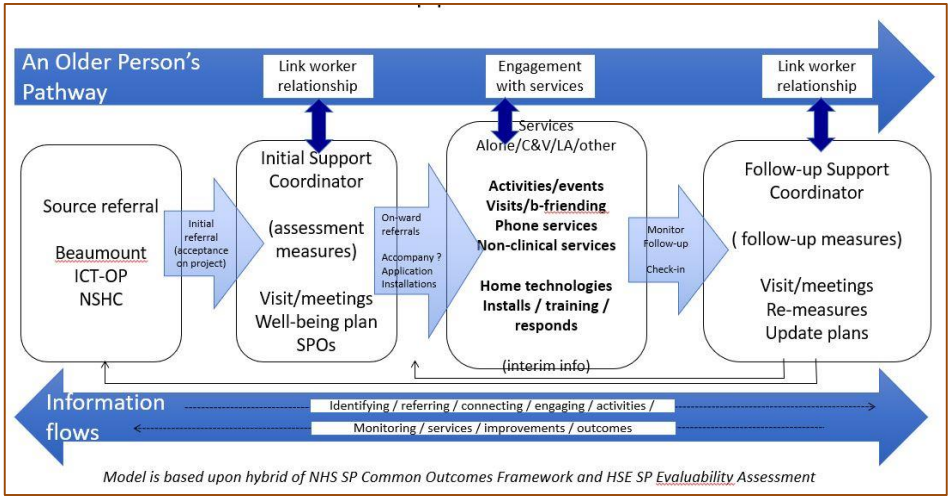

Figure 2. Generic B-Connect support model

3.3 NETWORK OF COMMUNITY SUPPORT ORGANISATIONS

While the focus of this report is to explore how the AAL technology aspects of the B-CONNECT model works through the examination of a pilot implementation with 50 older persons in the CH09 area, a very important parallel strand of the SIF project was to undertake tasks to support the project's 3rd action area – namely to improve the community's capacity to meeting the growing needs of older people. This action area undertook to:

- Spatially map areas within the service area where older people are likely to need supports;
- Identify and map the provision of services and social activities currently available to older persons in the service area;
- Identify gaps in service provision and support services to align to the needs of older persons;
- Support the adoption of a common model of service provision to older persons;
- Create an on-line directory of supports and services;
- Design a data management process to ensure the directory is up to date.

Many of these tasks have scope beyond the project's timeframe boundary and are now elements of embedded activities that are being sustainably implemented as part of ALONE's on-going service. As such, they are continuously under review with further development and refinement. Their current status at the time of writing is reported in the appendix. An important part of this community-oriented network development work was a series of collaboration events with local groups, which led to several targeted follow-up capacity development training events. This engagement with local groups is documented as part of this report.

4 LITERATURE REVIEW

The B-CONNECT generic model represents a context-specific hybrid and fusion of both support coordination (similar to social prescribing) and AAL (active and assisted living) technology engagement. Before delving into the specific context and mechanisms of the B-CONNECT project, this section provides a brief overview of some recent developments and evidence in Support Coordination/Social Prescribing and AAL technologies in academic and grey literature as it relates to older people. It should be noted that this is not a systematic review.

4.1 SOCIAL PRESCRIBING IN THE LITERATURE

A central role in ALONE's B-CONNECT service model is the 'Support Coordinator'. While this role has been well framed within the National Disability Insurance Scheme (NDIS) in Australia[1], in Ireland and the UK, alternative names are being used to describe this emerging role in the community services landscape. Role terminology such as link worker, community navigator, community connector, community advocate, case worker, service broker and cultáca have all emerged in projects over the past 20 years, describing activities in which a non-pharmaceutical intervention is recommended or provided to people with a non-clinical need such as loneliness, social isolation or low-level depression or anxiety. In Ireland, these terms are sometimes differentiated through their specialist allocation to community services targeted at different population cohort domains such as disabilities, mental health, homelessness, family services, youth services and older persons. In relation to the ALONE's service oriented towards older persons, the role's name is now strongly anchored as 'support coordinator', undertaking 'support coordination' activities and functions including social prescribing.

The commitment in the current NHS care development plan in England to promote and accelerate the wider adoption and the uptake of 'social prescribing' has drawn a lot of attention to an activity that is defined by the King's Fund as*: 'a means of enabling health professionals to refer to a range of local non-clinical services. The referrals generally, but not exclusively, come from professionals working in primary care settings. Recognising that people's health and wellbeing are determined mostly by a range of social, economic and environmental factors, social prescribing seeks to address peoples' needs in a wholistic way. It also aims to support individuals to take control of their own health'*.[2] Schemes delivering social prescribing can involve a range of activities that are typically provided by the voluntary and community sector. These include volunteering, arts activities, group learning, men's sheds, gardening, befriending, cookery, healthy eating, physical exercise and sports. A unique aspect of ALONE's B-CONNECT service model is to include access and engagement with digital AAL technology-based services as part of the social prescribing service mix – essentially a form of technology engagement prescribing.

Of the wide range of related studies to draw on, of particular interest are:

- The on-going mPower project[3]
- The HSE's Social Prescribing Evaluability Assessment[4]
- The London study on Social Prescribing and the Digital Landscape[5]

4.1.1 mPower – Midterm Evaluation (2020)

While larger in scale and cross-territorial complexity, the mPower programme has many similar characteristics to the ALONE|SIF B-Connect project. mPower is a Northern Ireland, Ireland and Scotland programme supported under the EU's InterregVA programme managed by the Special EU Programmes Body (SEUPB). The programme aims to deliver social prescribing and eHealth interventions to older persons across the three jurisdictions to promote health, wellbeing and self-management.

Within the mPower programme, social prescribing takes the form of a guided conversation with a Community Navigator – resulting in the co-production of a Wellbeing Plan for the beneficiary. This plan contains a set of actions that the beneficiary agrees to undertake following their initial meeting with the Community Navigator. The beneficiary may receive varying levels of on-going support from the Community Navigator in order to engage fully with the actions contained within their wellbeing plan. The mPower mid-term evaluation report[6] suggests that the

most common positive impacts of social prescribing within the general population, and summarised by Chatterjee et. al.'s (2018)[7] systematic review are: *'…increase in self-esteem and confidence; improvement in mental well-being and positive mood; and reduction in anxiety, depression and negative mood'.*

Themes that have emerged through the mPower interim study literature review highlight:

- The paucity of before/after evaluations of social prescribing outcome measures (Elston et al 2019)[8]
- The value of social prescriptions for creative and participatory arts-based programmes, such as 'arts on referral' (Redmond et al 2019[9], Waddington-Jones et al., 2019[10])
- The benefit of social contact and reduction in social isolation (Thomson et. al.'s 2018)[11]
- Arts on prescription for older people; specifically those living with sensory impairment and experiencing social isolation. (Vogelpoel and Jarrold (2014)
- Interactions with nature, particularly gardening or walking outdoors. (e.g. Evans et. al., 2019).
- The pivotal role of the person in a 'Community Navigator' post, noting that "co-ordinators played a valuable key-worker role, improving the continuity of care, reducing isolation and supporting carers" - and that social prescribing programmes may have greatest impact on health and social care usage/cost reduction if targeted at specific groups around the middle of the Kaiser Permanente 1 risk stratification pyramid (e.g. supported self-care) (Elston et. al. (2019)
- That success requires that the role acts as a "boundary-spanner" and "develops referral pathways and collaborative relationships through networks - and the importance of the relationship between service provider/commissioner (usually the health service) and the organisations that provide the social prescription activities (often the third sector). (Baker and Irving 2016)

There was a general sense that the period of time for an 'social intervention' to be implemented, embedded in a person's practice, and start to deliver outcomes was in the order of 12 months.

4.2 HSE Social Prescribing Evaluability Study (2019)

The evaluability study of social prescribing in Ireland undertaken by Elemental looked at 12 pilot social prescribing projects focussed on Mental health and wellbeing. Common to most of the projects reviewed where the following:

- Taking a wholistic approach across social, economic and environmental factors
- Acknowledging that the Role of link-worker is central – addressing initial assessment and follow-up meetings. There is a sense that the roles provide psychosocial and therapeutic value in themselves – looking to uncover root causes, undertaking motivational interviewing, and fostering goal setting and wellbeing planning.
- The importance of providing clear referral pathways, a holistic view of needs and aspirations, and providing an intense level of link-work supports.
- The improvements were linked to the quality of the relationship and exchange between the link-worker and person, as well as community services.
- A general belief that improvements result in reduction of demands on the system.
- There can be a significant variation in level of intensity of the link worker role.
- That it was difficult to determine to what extent any positive 'change' is attributable to the link worker or the community service(s).
- That self-referral mechanisms may demonstrate pre-existing motivations for positive change.

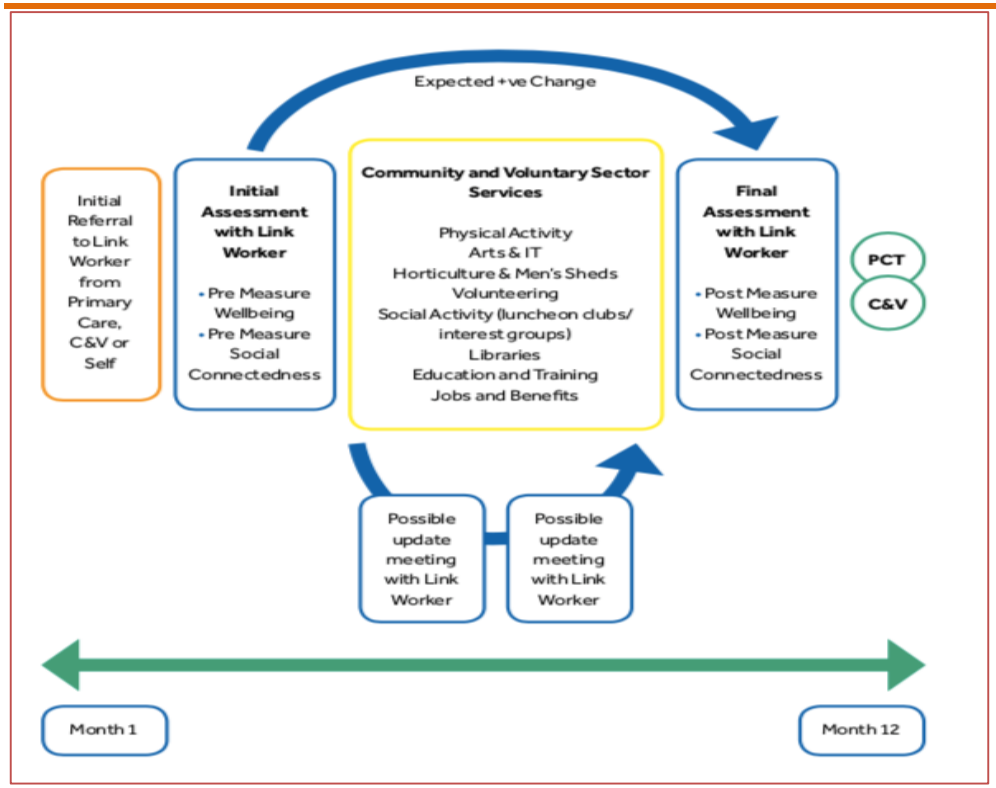

Figure 3. Social prescribing evaluability model.

4.3 Social Prescribing and the Digital Landscape in London.

As part of an overall assessment of social prescribing in London, Elemental Software with the Martin Bell Partnership undertook a report into digital and information technology and how it can help social prescribing. The study took 'digital' to mean *'any digital solution, technology, information, computer or electronic system that enables social prescribing to support the people it serves. This covers ' a referral management platform, an app, a web-site, a wearable, a simple database, an on-line directory of services, a system used by a provider delivering social prescribing style services – it is very much a broad definition, unconstrained'*[12]. This report highlighted that while smart phones are increasingly providing pervasive connectivity to the internet, *'as we look more deeply into digital to support social prescribing (in London), to ensure equity of access .. we may need to consider ensuring that access to basic digital 'tools' is not a barrier to increased digital support for social prescription – one might even say that in some cases, the digital could become a social prescription in itself if it was felt needed'.*[13]

The report went on to highlight *that 'It will be important to ensure face to face support, even if those support workers (e.g. link workers, health and wellbeing coordinators, community connectors etc) themselves are digitally enabled, is available in all arenas so as not to exclude sizeable parts of the community that are also some of the more likely groups to need supported assistance via social prescribing'.*[14]

Some of the possible obstacles to digital health engagement raised in the report include:

- People are not motivated to use digital health services until they are ill themselves.
- People are concerned about their privacy and confidentiality being undermined online.
- Clinical recommendation and NHS assurance of digital services are important factors in digital services take-up.
- People are not sufficiently aware of the potential of digital health services to promote wellbeing, illness prevention and improved self-management of long-term conditions.
- Many hard-to-reach patient groups will need support to be able to realise the full range of benefits of digital health services.
- People are not sufficiently aware of the digital services that already exist.
- Culturally, many people are uncomfortable about losing the face to face relationships with their clinicians.

Community-oriented models of social activity provision can involve a complex process of sharing information across an eco-system of partners, service providers and stakeholders. The report highlights *that 'if we consider this (security and privacy) in a social prescribing context, with a multitude of organisations potentially involved in delivering the overall eco-system of services, ensuring a safe and secure movement of information between partners, with people consenting to use that information, especially the vulnerable or those with essentially sensitive data, is critical both for legality, but perhaps more importantly trust.'*[15]

4.4 TECHNOLOGY FOR HEALTH & WELLBEING IN THE LITERATURE

The 'digital' dimension of the B-CONNECT model applied in the ALONE|SIF project comprises a range of technology elements to address:

- process/workflow and client relationship management, (i.e. capturing assessments, managing client engagement etc) – operational systems
- and a broad suite of in-home digital technologies and services to support clients, and their families to connect, participate, learn, self-manage and live active and healthy lives – Active and Assisted Living (AAL) technologies.

AAL and e-Health technology interventions can be defined as any use of digital technology to promote health, wellbeing, social participation, self-management of long-term conditions (LTCs), or the efficient and appropriate use of statutory or private healthcare services.

4.2.1 Home Alarms

A review of home alarms within the mPower mid-term evaluation[16] highlighted the following themes:

- Much of the academic literature in this area is concerned with the accuracy of falls prediction and monitoring (e.g. Chelli and Patzold, 2019; Kangas et. al., 2015).
- Home alarms are cited as contributing to enabling older people to live at home, and as independently as possible, for as long as possible (Pritchard and Brittain, 2015).
- Alarms have been shown to be effective in instigating timely assistance in the event of a fall or medical emergency (Miguel et. al., 2015), where such timely assistance can mitigate against costly hospital admissions or long-term care (Nyman and Victor, 2014).
- Some sociological investigations have raised concerns about an association between alarm pendants and "feelings of dehumanisation" (Pritchard and Brittain, 2015).
- It's also been suggested that they can be limiting because they tie feelings of security to the home and not to spaces outside it (Aceros et. al., 2015).

As noted in the mPower study – *'these types of social barriers to pendant use may help to explain the findings of Nyman and Victor's (2015) analysis of the English Longitudinal Study on Aging that showed that only 6% of adults living in the community, aged 65 or over, and reporting "difficulties of mobility or activities of daily living", reported using a personal call alarm. This leads Nyman and Victor (2015) to conclude that "personal call alarm use may be markedly lower than the 30 percent annual incidence of falls among community-dwelling older people'*[17].

Despite the need for more systematic evidence to examine the links between use of communications technology and social isolation in older people (Baker et. al., 2018; Chen and Schulz, 2016), individual studies suggest that social and communications technologies do have a role to play in reducing social isolation (Chopik, 2016), highlighting the link between increased social connection (through technology) and physical and mental health.

5 EVALUATING B-CONNECT

5.1 THEORETICAL APPROACH – REALIST SYNTHESIS

The project team applied a 'realist synthesis' approach to evaluating and monitoring the project. The key principle of a realist approach (Pawson and Tilley, 1997) [18] is that the context in which an intervention is taking place, largely determine whether the intended outcomes are achieved. With a focus on supporting decision-making, it identifies 'what works, for whom, in what respects, to what extent, in what contexts and how?' rather than merely 'does it work?' This approach moves beyond a view of the project as the unit of analysis, to examine the underlying integrated care programme theory(s) (change, integration, self-management) that can support future scaling and sustainability of the innovation. Evaluation is not an external parallel process to the programme development but an integral part of the learning and decision-support processes within the project.

There are several important facets to undertaking a realist approach:

- ***Mechanism and context:*** With enquiry oriented towards: "What works, for whom, in what respects, to what extent, in what contexts, and how?" – it is necessary to identify both the underlying 'generative mechanisms' that explain 'how' the outcomes were caused and the 'influence of context' – essentially: Context + Mechanisms = Outcomes
- ***Programme theory:*** how a programme is expected to lead to its effects and in which conditions it should do so. It is therefore crucial to have a clear and explicit understanding of the intended aims and outcomes of a programme from the outset (Pawson, 2013). This is set out in the project's logic model.
- ***Project actions and decisions:*** Whether or not an intervention works is due to decisions actors make in response to the intervention. In this project, actors form a complex milieu of interactions spanning referrers, support coordinators, technology engagement officers, families, and individuals. Decisions are dependent upon the awareness, motivations, capabilities, resources and opportunities provided across the intervention implementation space at a point in time. (Pawson and Tilley, 1997).

The mPower project noted that realist synthesis has previously been applied to both eHealth/AAL interventions (e.g. Bartlett et al. 2014) and social prescribing (e.g. Bertotti et al., 2017) where the approach aligned with their multi-stakeholder nature of social prescribing spanning health care providers, the NGO/CSO sectors, clients, families and support coordinators.

It is anticipated that the evaluation will help inform a future business case for scalability, transferability and sustainability.

While not available for reference at the time of designing the ALONE|SIF project proposal, the B-CONNECT project is very well aligned with the recent and evolving 'Common Outcomes Framework (COF) for Social Prescribing', being developed by the NHS in England.[19] Recognising it as a vibrant social movement, early studies identified that different schemes were measuring different things and that there was a need for consistency. In the UK, the emerging COF for social prescribing is looking for impacts in three key areas as follows:

- Impact on the person
- Impact on Community Groups
- Impact on the Health and Care System

This type of triple-win strategy has animated the design of the ALONE|SIF project and points towards an evaluability framework for digitally enhanced support coordination going forward. The measures employed in this project represent some initial markers that can be refined as the approach evolves, embeds and matures.

5.2 PLANNED OPERATIONAL CONTEXT

The application of 'change theory' to the ALONE|SIF project is centred on whether the B-CONNECT model ('the intervention') is making a positive difference in outcomes for:

- Clients / participants
- Their informal carer eco-system, family or next-of-kin (NoK)
- Local community service providers
- The health and care system (the hospital, primary care and maybe housing)

The core elements of the B-CONNECT model that forms the intervention or the underlying 'generative mechanisms' include:

- The core roles -specifically the support coordinator (SC) (aka social prescriber) and the technology engagement officer (TEO)
- The processes and information flows – spanning referral, consent, comprehensive assessment, preparation of wellbeing plan including the identification and agreement of specific plan objectives (SPOs)
- The range of AAL technologies – devices and applications that are implemented and handed over (installed, trained, monitored and supported) in the clients' homes
- The range of non-technological support services identified and provided either by ALONE or by referral to other local community service providers (i.e. befriending, good-morning phone-calls, mends sheds, arts and leisure groups and classes etc)
- The on-going follow-up services and relationship management provided by the SC and the TE as well as alarm monitoring by 3rd party service providers.

To gain insight into any social, economic and environmental factors that may influence successful outcomes the model needs to be sensitive to variations in:

- Age and gender
- Living situation
- The quality of a person's support network
- Health and wellbeing status as it may affect functioning and capabilities

In assessing how, to what extent, and for whom the B-CONNECT model is working, the team have sought to capture:

- Any detectable changes over time for some key indicators
- Client and family engagement and acceptance of the interventions – particularly the digital elements (devices and apps)
- Contextual aspects influencing resources, efforts, barriers and catalysts
- Overall service effectiveness - including design aspects such as simplicity and redundancy (particularly in relation to data flows).

An overview of the operational model is illustrated in **Error! Reference source not found.**.

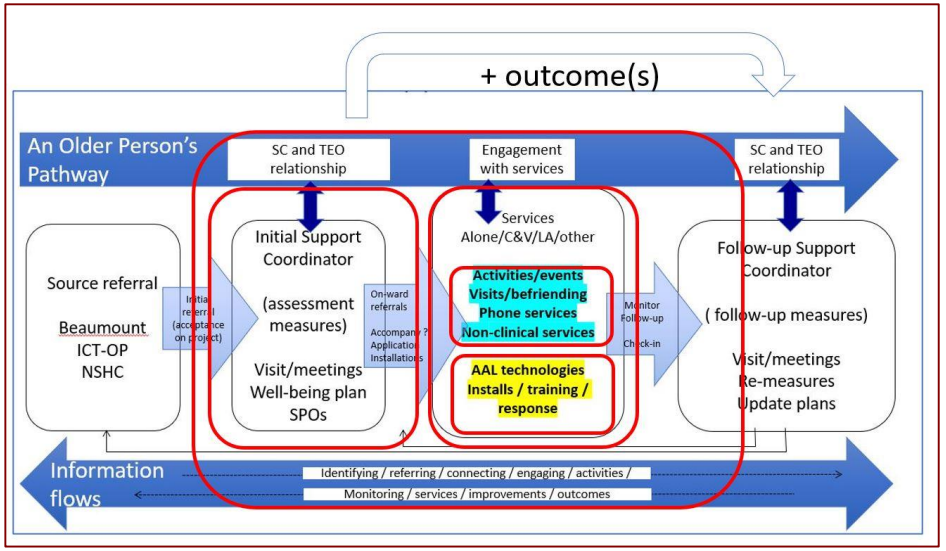

Figure 4. Theory of Change - Operational model for B-CONNECT project

Linked to the findings in the HSE's evaluability study, the overarching question is whether the B-CONNECT model should be understood:

> as an integrated, wholistic community-oriented response spanning support coordination (social prescribing with a link worker relationship) and engagement with local services, (including relationship between link worker and person/family, the community support services, the digital technologies and apps)–
>
> or can specific improvements be attributed to particular elements, or mixes of elements, of the model? (i.e. the psychosocial and therapeutic aspects of the support coordinator relationship, visiting services, the AAL technologies, specific technology components etc)

5.3 THE LOGIC MODEL AND TARGET OUTCOMES

The initial logic model for the B-CONNECT project is illustrated in Figure 5. The inputs can be characterised as:

- A target of 50 participants meeting minimum entry criteria (aged 65+, living in the CH09 area and where possible, to have an informal carer or next-of-kin to provide support throughout the project.

- the three partner organisations activating referral pathways as:

    - Beaumont Hospital's Frailty Intervention Therapy Team (FITT), wards discharge team, and ambulance pathfinder programme – referring clients at risk of delayed discharge due to social, safety or environmental factors at home, or amenable to admission avoidance through the pathfinder programme.
    - The Dublin North Integrated Care Team for Older Persons (DN-ICTOP) referring clients with age-related or chronic conditions, at risk of admission to acute or long-term care due to social, safety or environmental factors at home.
    - Northside Home Care Services (NHCS) – referring and servicing clients with cognitive impairment including early stage dementia and in receipt of homecare services from NHCS.

- ALONE human services covering support coordination/social prescribing, visitation and befriending services, good-morning call telephone support and technology engagement advisory services.

- A wide range of digital technologies and apps – including iPAD tablets, Alexa/Echos, emergency alarms, wearable devices, smart home sensors, and smart door access systems.

The primary activities undertaken to form the mechanisms of the intervention covered – referral review and consents, comprehensive assessment using ALONE's aggregated assessment tool, development of well-being plans including the identification and agreement of specific personal plan objectives (SPOs), the implementation of the SPOs coving both referral and attachment to social activities, and the provision of agreed digital devices and apps.

While the outputs have enumerated numbers of clients supported as linked to their referral pathways (15 through Beaumont, 15 through DN-ICTOP, and 20 through NHCS,) the key outcomes are more oriented towards overall effects for the person and their families/NoK, and the effects for the health system.

As with the COF, the outcomes in the logic model are very similar, with effects linked to impacts on the person and impacts on the health and care system. Due to COVID-19, many of the support groups could not function directly during the period – so the project's impacts in that regard were more oriented towards capacity building rather than their service delivery involvement in the pilot project aspects. However, due partly to both the nature of the cohort, their frailty and cognitive limitations, and the COVID environmental constraints, the project did highlight particular impacts for family members and next of kin (NoK).

Figure 5. The initial logic model.

5.4 DATA & SOURCES

In reviewing the choice of instruments to use, the project team sought a balance between those they had some familiarity with, and those that might support future

complementarity and data comparison studies with resources such as TILDA and ELSA. As a result, the following self-report measurement instruments were used:

For loneliness and isolation:

- The UCLA Loneliness scale[20];
- The Lubban Social Network Scale[21]:

For health and well-being:

- The Tilburg Frailty Index[22];
- CASP(QoL)-19 (11 item scale used)[23];

Resilience:

- Wagnild & Young Resilience[24];
- Burden Scale for Family Caregivers[25];

These instruments were integrated into ALONE's comprehensive assessment form. These data were gathered by the Support Coordinator as an enhanced part of ALONE's normal initial assessment (T-Start). It was also planned to gather these data a second time at a client review (SIF project end – T-end).

Additional qualitative data about the clients' and families' experiences using the AAL technologies was collected through phone interviews by the Service Coordinator. This survey was more conversational, and used a qualitative hybrid version of the Technology Acceptance Model[26]: The Modified Technology Acceptance Model (TAM): Gagnon et al. (2012)[27].

Additional sources of information included direct information relating to project progress. This was gathered from participation in regular project meetings, and review of minutes and documents presented as part of project management process. These data were augmented though intermittent informal phone conversations and discussions with project partners throughout the project implementation.

5.5 IMPLMENTATION – GENERAL AND EXCEPTIONAL (COVID-19)

At initial project design, it was planned that there would be 3 Information gathering touchpoints at T-Start, T-Middle, and T-End. T-Start and T-End would gather all the measures, while T-Middle would gather the qualitative TAM experiences.

Due to the COVID-19 effects discussed below, In the final project implementation, touch points were reduced to two occasions, T-Start and T-End. The T-Middle survey was applied at T-End at the same time as the outcome measure. The time between T-Start and T-End varied with the longest gap being 32 weeks and the shortest gap being 7 weeks. The average gap was 19 weeks. While getting start and end data was a significant achievement within the operating context of the project, an intervention of this type could really benefit from a longer interim period – generally in the region of 12 or more months.

The project endured and sustained during COVID-19. The pandemic directly affected:

- The lives and lifestyle patterns of the participants
- The working patterns within and between the project delivery partners
- The nature and character of interaction between the partners and the participants

There was a huge reduction in face-to-face contact and physical contact was largely restricted to installations, where ALONE developed and applied a visit/install protocol based upon HSE guidelines.

Factors affecting the rationale to reduce the volume and frequency of data collection included:

- The data capture burden on clients, families and carers (NoK)

- Number / length of scales/tools / duration
- Nature of interaction – phone
- Scheduling availability for client/NoK
- Seasonal re-adjustment - to winter months

It is important to note that due to the creative response of all involved, the entire project was executed within an overall umbrella of digital tools support. As such, technology became not only a key subject for the project (i.e. how does the AAL technologies work and effect client and family outcomes, service processes etc), it also became a vital enabler of the project (i.e. almost all project actions/interactions have been dependent on technology -zoom, teams, phone etc). While much of the face-to-face contact was put on hold – it was remarkable how many traditionally 'human contact' processes and services migrated to 'digital delivery' and sustained some level of service continuity.

5.6 INTERVENTIONS AND SUPORTS: DEVICES & APPLICATIONS

Of the 53 clients that were referred and accepted into the project, 47 were able to actively engage. Details of the project's participants are described in section 6. Following approval and consents to participate, clients and family/NoK, worked with the service coordinator to complete the ALONE assessment form. Following a review of client needs gathered from the assessments, the support coordinator worked with the clients/families to agree targeted and highly personalized well-being plans. These personal well-being plans take the form of specific planned objectives (SPOs). During the project, 269 specific plan objectives (SPOs) were identified for action. The anticipated or expected outcomes for these SPOs were as follows:

- 30 - Improved emotional well-being
- 41 - Improved living conditions in the home
- 2 - Improved mental health
- 10 - Improved mobility in the home
- 32 - Improved quality of life
- 88 - Improved safety & security in the home
- 8 - Increased financial independence
- 13 - Increased social independence
- 15 - Increased social participation
- 4 - Reduced financial anxiety
- 16 - Reduced loneliness
- 9 - Support to maintain independence
- 1 - Support to Sustain Tenancy

Overall, these SPOs pointed to the following types of interventions supports:

- 214 AAL Technology related
- 12 Finance
- 22 Visiting / Befriending
- 3 Social groups
- 25 Housing
- 8 Personal care
- 6 Physical health and mobility
- 8 Telephone support

For the AAL technology interventions, over 186 devices and applications were provided over the course of the project. The distribution of these were varied as follows:

- Average/median no. of devices - 4
- Minimum no. of devices - 1
- Maximum no. of devices - 8

Rather that identify a small number of devices to support in the project, the team adopted the strategy to evaluate as wide a range as might be necessary to address the issues raised through the SPOs. The technology engagement team reviewed COTS (commercially off the shelf) technologies, and following in-house testing,

determined a range of AAL products/services that might meet the diverse that could arise. At the time of writing, the following range of devices were in-place:

- 29 Amazon Echo / Alexa (speaker and touch)
- 19 Tablets
- 14 Smart sockets
- 22 Amazon Ring - Smart doorbells,
- 20 (Smart Things) Home/door sensors
- 13 Phones (Doro 12 / Smartphone 1)
- 10 Mini-finders
- 7 Emergency response (pebble)
- 11 Watches (GPS/activity 8, ECG – 3) (Omron and Withings)
- Provide internet - 9 / wifi - 3

A short catalogue of these devices in included in the appendix.

Partially due to disrupted supply-chains as a result of COVID-19, an implementation challenge that arose related to logistics – the varying time delay between identifying and ordering devices, receiving them, and having them ready for installation. As a result, there were a few instances where an installation may be delayed, or split into two visits, to to meet needs incrementally. This has effects for both delivery resources and also for client disruption, learning and assimilation. This area of logistics, stock control/storage and JIT (just in time) delivery will warrant further consideration in the future, as in situations where timely-discharge or ED admission avoidance is a driver,B-CONNECT time responsiveness may become a critical factor. Scale and volume may alleviate some of this potential pressure into the future.

A topic for further in-depth study into the future will relate to the time inputs by the different roles supporting the service. Over and above the capital resources (devices and applications), the two key direct human resources supporting the service are the support coordinator (SC) and the technology engagement officer(TEO). The TEO indicated that resource effort/ client was in the order of 3.5 to 5 hours depending upon complexity. This covered planning in response to SPOs, supply fulfilment, and in-home installation and training. However, better understanding the SC resource commitment will require further exploration. While efforts in relation to initials assessments and well-being planning are largely predictable, and coordination activities for technology prescribing are containable, there is significant variation in resource demands to address non-AAL technology oriented SPO supports. This is often a function of both the nature and volume of the extrinsic environmental issues to be coordinated (both social and physical) but also the intrinsic capacity of the client to self-manage. Here, the relationship between the SC and the client/family is vital, not only for its objective, but for its psycho-social and therapeutic value, based upon trust and empathy. This aspect of the service coordinator role will require further study.

6 FINDINGS

With the B-CONNECT project being approached as both a pilot test as well as a service improvement initiative, the project has put in place activities that are continue to develop and sustain beyond the timeframe of the SIF investment. While many of the findings reported in this section are based upon data gathered at points in time, the ALONE, and their partners, continue to develop, refine and scale these services in response to growing needs. In reporting on findings, this section is organised as follows:

- A discussion on the composition of the participants
- A look at the assessment patterns of the participants as the joined the project (T-Start)
- A look at the participants assessment patterns towards the project end (T-End)
- An overview of participants experiences and identification of key themes
- An exploration of these key themes
- A brief look at some organisational considerations

6.1 ABOUT THE PARTICIPANTS

6.1.1 Engagement and referral

The participant's referral and engagement history and trajectory within the project is as follows:

- 53 were approved for participation and engaged with the project team
- 48 were able to complete assessments and SPOs providing good T-Start Data
- 6 participants died during project
- 4 participants were transferred to LTC or palliative care during the projecy
- At end-of-life, one participant's AAL support plan was transferred to their spouse
- There was 1 well-being plan that resulted in no AAL technology interventions
- 6 participants have not responded to multiple follow-up calls
- 30 participants engaged in follow-up interviews and provided assessment data at the end of the project period (T-End).

The sources and quantity of the original 53 referrals from the project partners were:

- 20 - North Side Home Care (community-based dementia services)
- 16 - Dublin North Integrated Care Team for Older Persons (DN-ICTOP)
- 17 - Beaumont Hospital comprising
  - 5 Pathfinders project (Ambulance-based ED avoidance service)
  - 5 FIIT (Frailty Intervention Team)
  - Others / Wards / Social Worker

The following sub-sections give an overview of the profile composition of the initial 48 participants providing data at the T-Start timepoint.

6.1.2 Gender/Age

Of the 48 clients, 31 were females and 17 were males. Ages ranged from 64 to 100. 30 participants were in the range between 80 and 90.

Table 1. Gender and age profile

AGE BAND	Female	Male
65-70	2	0
70-75	0	3
75-80	4	2
80-85	11	5
85-90	9	6
90-95	4	1
95-100	1	0

6.1.3 Living arrangements

Of the 48 clients, 44 were owner occupied while 4 were living in social housing provided by the local authority or approved housing body (AHB). 34 participants were living ALONE and 14 were living with a companion, be it spouse, family member or friend.

Table 2. Living arrangements

Arrangement	Owner Occupied	AHB/LA
Living Alone	31	3
Spouse/Partner	9	1
Daughter/son	3	
Other family	1	

6.2 PARTICIPANT ASSESSMENT PATTERNS AT T-START

6.2.1 Assessment measurements summary

The two instruments use to assess loneliness and isolation were the Lubben Social Network Scale and the UCLA Loneliness scales (3D version). The measures evaluated were:

Lubben Social Network Scale (scale range 0 – 30)

- ≤ 12 is at risk – i.e. a weak social network
- The average in the cohort was – 12.3
- Of these, 22 (47%) > 12
- 22 (47%) ≤ 12 are at risk

3D UCLA Loneliness (scale range 3 – 9)

- ≤ 5 is lonely
- Average in cohort 5.2
- 18 (38%) > 5
- 26 (55%) ≤ 5 are lonely

The two instruments use to assess health and well-being were the Tilberg Frailty Scale and the shortened (11 item) version of the CASP-19 quality of life (QoL) scale (Control, Autonomy, Self-realisation, Pleasure). The measures evaluated were:

Quality of Life (CASP-11: range 0 – 33)

- Average in OA in Ireland 42.7 (Tilda – CASP-19 – maximum is 57)
- Average for CASP-11: 24.78 (inferred proportionally)
- Average in cohort - 19
- 37 (77%) ≤ 25 (below average QoL)

Tilburg Frailty Scale (range 0 – 15)

- 5 is threshold for frailty
- Average in cohort – 6.7
- 10 (21%) < 5
- 38 (79%) ≥ 5 are frail.

The two instruments use to assess resilience were the Wagnild & Young Resilience scale and the Burden Scale for Family Caregivers. The measures evaluated were:

Carer Stress (scale range 0 – 30)

13 (28%) mild stress (0 – 10)
13 (28%) moderate stress (11 – 20)
21 (45%) high stress burden (21 – 30)
(Average 17.4)

Resilience Scale (range 0 – 175)

0 high resilience (147 – 175)
3 (7%) mid range resilience (121 – 146)
44 (94%) low resilience (< 121)
(Average 93.7)

6.2.2 Cohort characterisation

It is difficult to visualise what the overall cohort characterisation looks like as a whole as each scale has its own range and boundaries. By re-calculating the scores as a percentage of their maximum value, they can be assembled into the composite illustration in Figure 6. Composite of measures at T-Start as a % of their ranges. The range on the y axis has been recalculated to show values in relation to their maximum value of 100%. The numbers along the x axis are the IDs of the participants. This diagram looks at frailty, QoL, carer stress and resilience

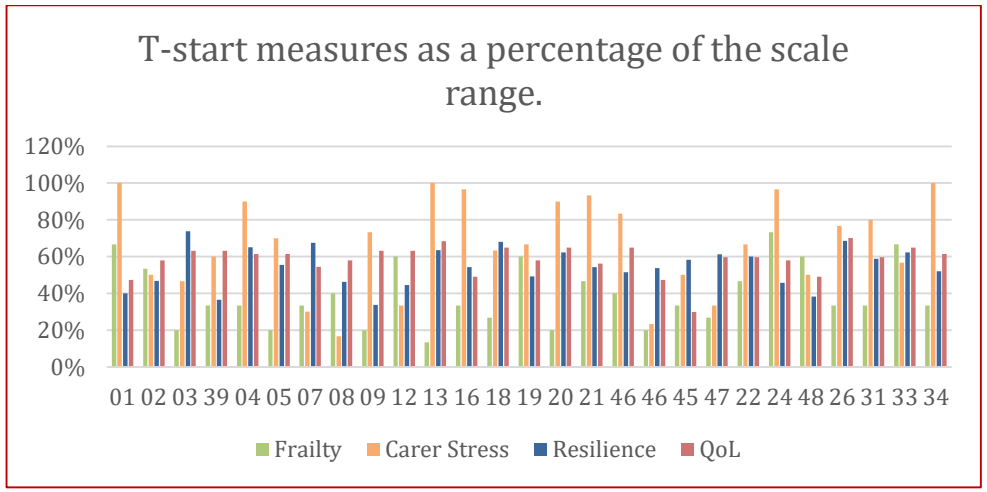

Figure 6. Composite of measures at T-Start as a % of their ranges.

Overall, the family cohorts can generally be described as very stressed, with low resilience, frail, and with below average QoL.

6.3 PARTICIPANT ASSESSMENT PATTERNS AT T-END

6.3.1 Overview

For the reasons outlined in section 5.5, and the project engagement patterns in section 6.1.1, 30 participants were in a position to contribute a reduced set of data measures at the completion of the project (T-End). Of these, 26 contributed scale scores for resilience, carer stress and quality of life.

6.3.2 Resilience

The difference in the resilience scores between the start and end of the project is illustrated in Figure 7. Changes in resilience scores between start and end.

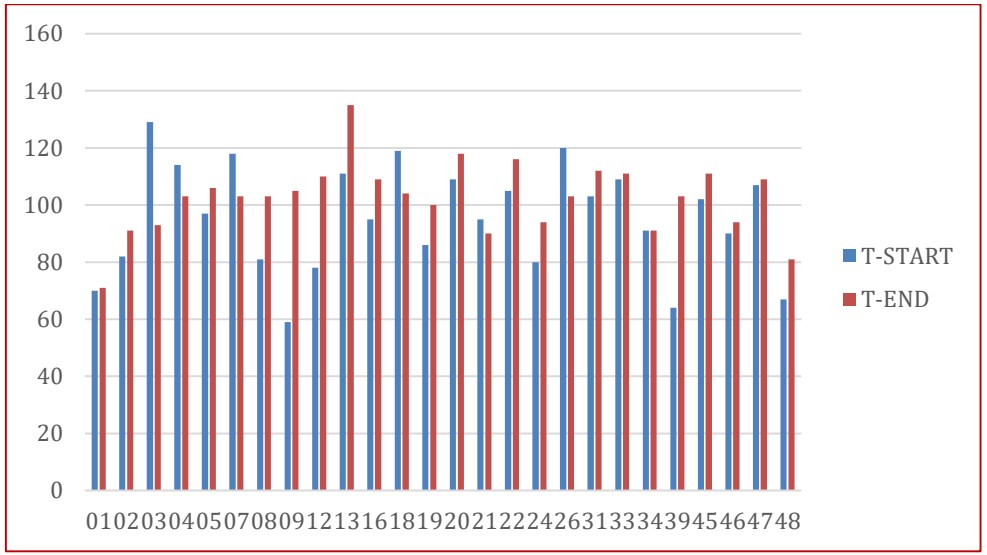

Figure 7. Changes in resilience scores between start and end.

Of these, 20 of 26 (77%) reported improvements in resilience. The improvement range from 1 to 46 with an average magnitude of improvement of 7.

6.3.3 Carer Stress

The difference in carer stress scores between start and end is illustrated in Figure 8. Change is Carer Stress between start and end.

Of these, 24 of 26 (92%) reported significant improvements in carer stress. The improvement range from 1 to 18 with an average magnitude of improvement of 8.5.

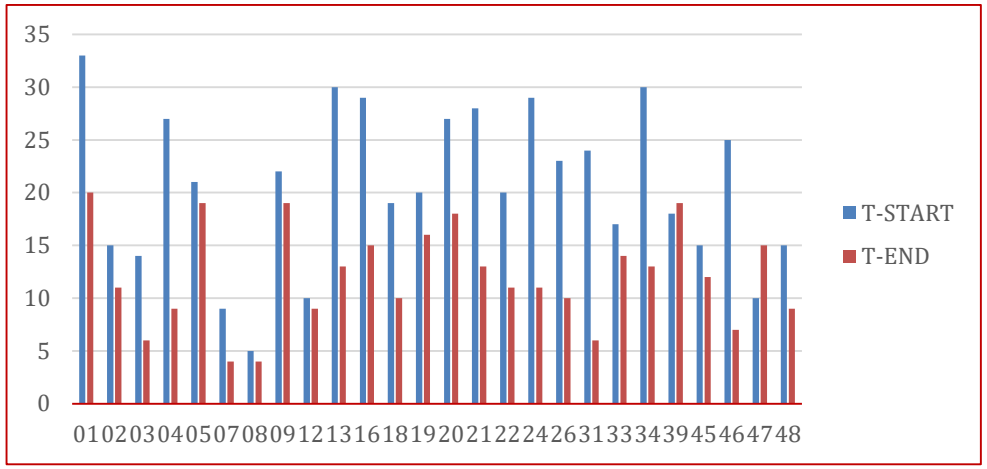

Figure 8. Change is Carer Stress between start and end.

6.3.4 Quality of Life

The change is reported QoL using the CASP-11 scale is illustrated in Figure 9. changes in QoL between start and end. For this group, changing QoL paints a more complex picture, as all but 2, where reporting is complete, have declined to some degree or another (18 of 20). The average decline is -2.6 on scale to 33 equating to a -7.8% change.

With a cohort as frail as that in the study with significant cognitive impairments, and the overall operational context of project within a period of pandemic, the goal may be more appropriately oriented towards delaying QoL decline (as noted in the original logic model) rather than reversing of improving it. As QoL is likely to be an important measure going forward (separately from which scale is applied), it may be worthwhile to examine further the constituent elements of the CASP scale elements. Within the overall QoL scale deficit of (-2.6) almost all (-2.3) is accounted for by change/loss in reported autonomy. The other elements, control, self realization and pleasure have all remained almost constant. This is visualized in Figure 10. Variation in CASP QoL components. It should also be noted that in most cases, this data is being reported by the family member/NoK. While loss of autonomy might be an expected trajectory for a cohort of this type with the on-set of dementia, it would be interesting if B-CONNECT did actually have a contributory stabilizing effect on autonomy, self-realisation and pleasure. This could be looked at in a further study of greater scale and with controls.

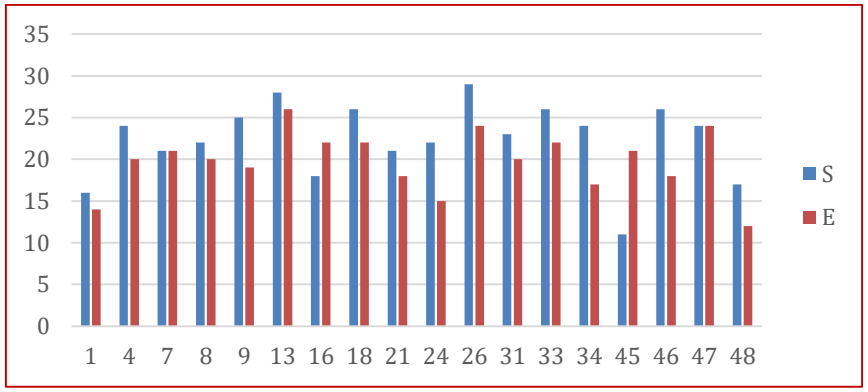

Figure 9. changes in QoL between start and end.

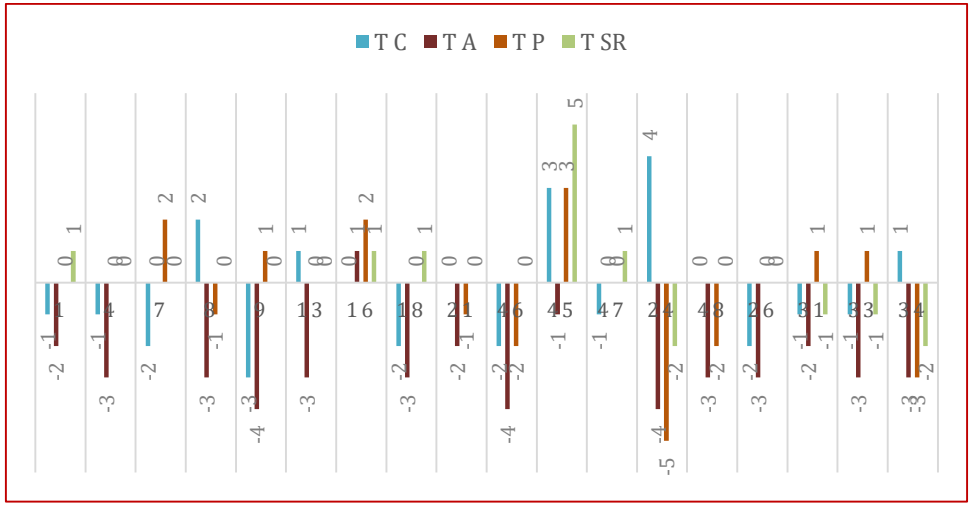

Figure 10. Variation in CASP QoL components.

6.3.5 Measured Outcomes: Changes in Scores

The changes in outcome across the three scores for resilience, carer stress and QoL are illustrated in Figure 11. Composite changes in scores between start and end.

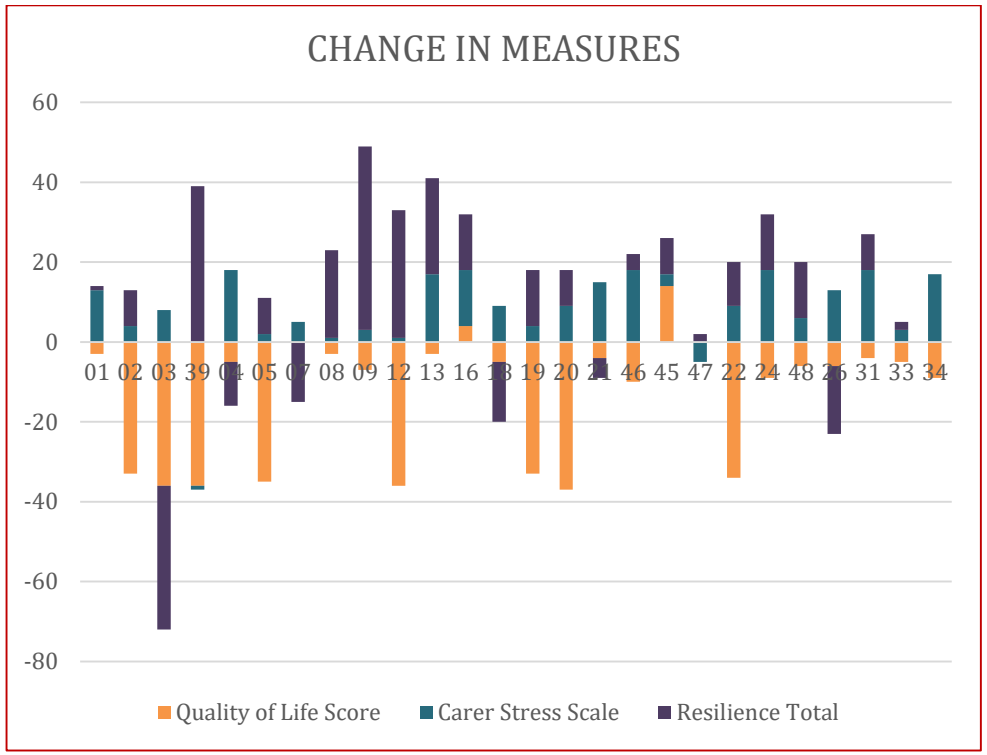

Figure 11. Composite changes in scores between start and end.

While outcomes are further discussed in section 7, with provisos and qualifications, at a first look, there is evidence that the following key outcome effects for the person and family were achieved within the cohort reporting at start and end:

- There are significant reported improvements in individual/family resilience. (77% - 20 out of 26 reported)
- There are significant reported improvements in the reduction of carer stress burden. (92% - 24 out of 26 reported)
- While overall change in QoL for the group declined by 7.8%, this was almost entirely attributable to reported loss in autonomy (87%). There was almost no change in QoL as it related to control, self-realisation and pleasure.

The following key outcome effects for the health system/services were achieved:

- In conjunction with Beaumont's A&E pathfinder programme, 5 ED presentations were avoided representing 29% (17 referrals related to Hospital)
- In conjunction with Beaumont's FIT programme and Wards, 12 clients had a timely discharged to the ALONE programme - 70% (It's currently unclear if B-Connect could contribute to accelerating discharge pathways)
- Only 4 across the full cohort of 48 (8.3%) transferred to a long term care (LTC) or Palliative Care pathway. During COVID, LTC has not been considered as an appropriate destination for older people by many of their families – due to the high risks of infection and the enforced social isolation. As such, B-CONNECT helped to enable alternative preferences for clients and families.

6.4 PARTICIPANT EXPERIENCES AND KEY THEMES

6.4.1 Technology Acceptance Model

Qualitative data from the participants was collected through a series of phone interviews between March and May 2021. 30 interviews were undertaken over the period that lasted between 10 to 30 minutes each, and were recorded through a mobile phone app. Scheduling participant availability was sometimes constrained due to the COVID environment. The interviews were undertaken by the Support Coordinator as part of the work programme at the same time as T-END data measures were being gathered. These recordings were transcribed manually with computer assistance using the 'transcribe.wreally' service. They were analysed using qualitative data analysis QDA methods based upon the Nvivo framework.

The aim of the interviews was to get an understanding of the participants experience of the 'digital interventions' and the extent to which participants are finding them helpful or useful. Due to the range of equipment installed across both households and the group at large, the approach was to get a sense of the experience of the 'suite of tools' provided rather than an individual analysis of each device/service separately. However, during the discussions, participants did provide insights into specific devices that were particularly helpful. The design of the initial interview format was based upon qualitative hybrid of technology acceptance model. (Gagnon et al. 2012)[28]. Due to large number of self-reported quantitative tools being used across all the instruments in the project, it was felt that this part of the project might provide an opportunity to allow the participants talk more freely about their experiences and to allow the team to get richer feedback from participant's technology engagement. Appendix X contains a description of the initial inquiry protocol. The general organisation of the questions are highlighted in Table 3. Organisation of extended TAM model. In practice, questionnaire interaction was quite conversational, and gravitated towards discussions on their situation, what was going well, what might be better, views on its further promotion and areas forimprovement.

Table 3. Organisation of extended TAM model.

What and how are they using the technology?	CQI
Perceived usefulness?	TAM Model
Perceived ease of use?	TAM Model
Habit and intention?	Extended TAM
Individual context?	Extended TAM
Organisational context?	Extended TAM
Areas of improvement?	CQI

6.4.2 Initial Word Cloud

When the aggregated text from all the interviews was processed in a word-cloud service, it generated the illustration in Figure 12. Initial word cloud. This very cursory look at the text highlighted several interesting lines of inquiry for subsequent exploration – must notably the propensity of positive verbs around action and capability, and the surprising dominance of the Alexa echo device.

Figure 12. Initial word cloud

6.4.3 Exploring an interaction model

While participant feedback highlighted a wide range of experiences across the project group, the idea of 'acceptance' pointed to an interaction model that needed to recognise 'who is accepting' and 'what are they accepting' as being useful and/or usable. In the project the 'user model' is complicated by the fact that it includes the client or participant, and, then in most instances, one or more family members who are often referred to as 'next of kin' (NoK). Due to the physical and cognitive frailty levels of most of the cohort, the family member(s) have played a vital role in the project. As such, the client and the family member (the users) can, and did, have separate and distinct engagement patterns with the technologies, and sometimes for different purposes and gains. In Figure 13. Proactive interaction between users and tools., the diagram illustrates a particular users interaction pattern with the digital tools.

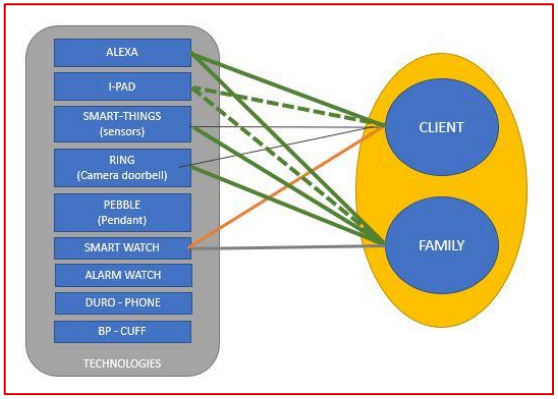

Figure 13. Proactive interaction between users and tools.

It shows, a client interacting with, and getting good benefit from Alexa and the iPAD (with help from family member – dotted line). The client is passive in relation to the sensors, and the door bell, but has expectation of future value from smart watch.

It also shows the family member helping the parent with the iPAD, and getting active value from the Alexa, sensors, and RING doorbell.

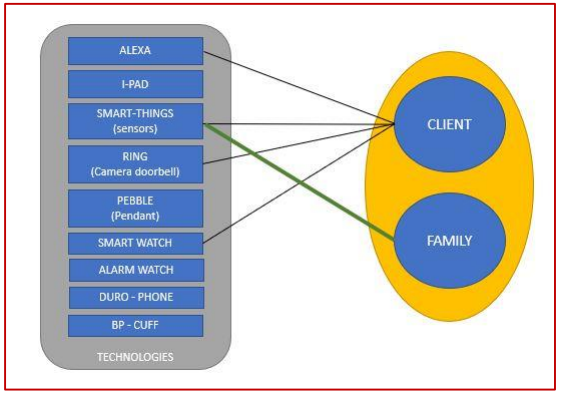

Figure 14. Weak interaction between client, strong for family

In Figure 14. Weak interaction between client, strong for family , the diagram illustrates that the client is getting little direct value from the technologies – with little awareness and capacity to interact. However, the family member is only getting benefit from the smart-thing sensors – re-assurance knowing that parent is active at home.

6.4.4 Theme Extraction

Building upon this type of exploitation pattern, we have adopted a dual user generic interaction model as a basis for further exploration. (see Figure 15. Generic interaction model.) While this model could also be extended to examine interaction with other stakeholders, in the case of this project and its execution within the period of the pandemic, and the nature of the tools deployed, it is suffucient to focus primarily on the digital tools as they relate to the client and the family.

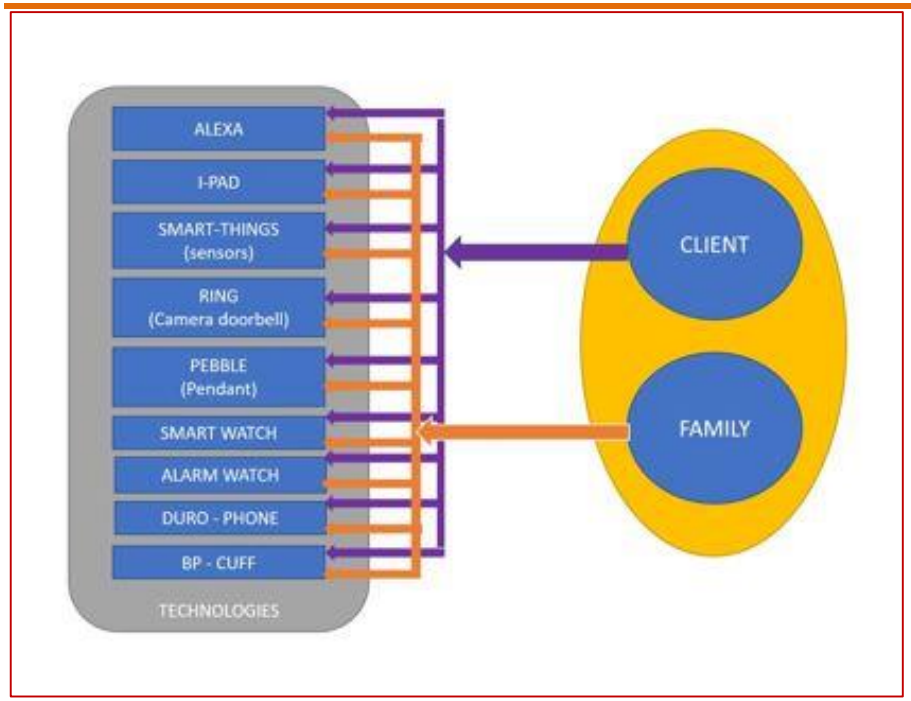

Figure 15. Generic interaction model.

With that in mind, they key themes that have emerged through an analysis of the qualitative data are centred upon:

- Benefits and usefulness
- Useability and ease of use
- Visibility v privacy (the issue of intrusiveness)
- Extensibility (responsibility and inter-operability)
- Scaling – replicability and sustainability
- Reliability
- Awareness
- Ageing in place – being and becoming

These are exported in more detail in the following section.

6.5 EXPLORING KEY THEMES

As noted in section 5, the themes discussed here span the experiences of both clients and family members. In almost all cases, the data was reported by the family member.

6.5.1 Benefits and usefulness

The benefits and usefulness of the home-based digital tools provided within the B-CONNECT project provided many of the following benefits:

- ***Communications:*** Alexas, tablets and phones provided enhanced communications between clients and close family members with caring responsibilities, and also with extended family members living remotely and overseas. The multi-media (voice and video) nature of these communications tools, and their ease of use, provided an enriched mode of digital connectivity and helped in situations where clients found standard and smart mobile phones difficult to operate.

  'Alexa is a God-sent - especially because she can see me and I can see her - you see I live in Drogheda and she's in Dublin - so it's a visual contact - she wouldn't have been great on her mobile phone - she couldn't see the buttons - so now she can use the Alexa which is amazing'.(P24)

  'The tablet is great - we have great conversations to Arizona (my son) on a Sunday evening. Last Sunday it was like we were all sitting in the one room. It was lovely.'(P28)

- ***Entertainment & Leisure***: Along with communications, clients and family members found Alexas and tablets very worthwhile where they could set-up and listen to music, access and reminisce over photos of families and places, play on-line games and puzzles, including jigsaws, and access news, weather and sports information. While some clients were able to engage on their own, in many cases these were combined and shared endeavours.

  'But the Alexa she likes for the music. She listens to her favourite songs. She had been in hospital for 2 or 3 weeks and while she was in the hospital she didn't have Alexa with her. So she said she missed her Alexa. It's 100-percent beneficial. It's like a new toy. And now that the summer's coming in she sits outside and listens to the music from Alexa with her friends.(P49)

  'The iPAD - we're getting there! We been using it to show things - my mum is originally from Wickow - so I found some historic videos and photos and shown her that - she also can use you-TUBE and go through the rosary with the Bishop as well'. (P33)

- ***Health and well-being:*** Several specific technologies such as BP monitors, and watches that support activity and physiological data such as steps, ecg, sleep and heart rates were deployed. Varying levels of success with these devices were attributed to interest and motivation at one level and usage complexity at the other. As for general technologies such as Alexas and iPADs participants also mentioned that through interaction with their services, they made positive contributions to improved mood at points of time.

  '.. The watch she uses every single day - the watch never comes off her - so she can track her steps - she tracks her heart - we run and ecg because of her a-fib - and that has made a massive difference to her - because she a lot more content about her heart now - I used to often see her put her fingers up to her neck - but she doesn't do that anymore because she knows that if she feels anything - she can just run an ecg on it. (P26)'

  '.. on a good day she might sit down with me and say there was this song and could we find it on the iPad. When we would find it she'd get very excited and she'd sing along with it. It would lift her mood and that would be fantastic. Definitely there were times when she might be very low in herself and she was in a lot of pain for a long time - and the music would help lift her soul'. (P1)

  'I use the watch regularly I have an irregular heartbeat and I use it for that and I keep an eye on the steps.' (P48)

- ***Companionship / Isolation***: While the project was not in a position to activate face-to-face befriending due to the pandemic, and that overall social distancing was restricting physical social interaction, some participants reported on how the technologies helped contribute to a greater sense of companionship and reduced isolation. While not picked up clearly in the assessment tools, family members highlighted the opportunity for their parents to connect with family and friends during periods of lockdown.

  It's like company - no one is far away - this voice activated equipment is really paramount. (P28)

  'She's so interested in it and so appreciative of it. - she uses it every single day - she comes from the bedroom every morning with the iPAD under her arm and her rest for the iPAD - they both go everywhere with her. It has changed her - it has helped with the loneliness … she doesn't have my Dad (any more) - she's missing him dreadfully - and this all takes her mind off it … it's great for her. It's a huge difference.(P26)

- ***Safety & security:*** The technologies contributed to an enhanced sense of safety and security and formed a major part of the perceived benefit gained. While devices such as door-bells, door cameras, and alarms provided direct benefits, the use of ambient presence sensors to detect motion played an important part is keeping remote family members informed of activity in and around the home of their parent. This sense of safety and security also extends to devices such as the mini-finder with position determination services that can help keep track of peoples' location at home and in the neighbourhood.

  'the interactive door bell - the ring system - that gets the most use - were using that every day - which is fantastic - so we can keep an eye on who's coming and going … great for security -it give her the benefit of knowing we can keep an eye on things - she feels a bit more secure with that as well. It's the way forward .. give both ourselves and herself peace of mind - great benefit all around really. ((P45)

  '… but there is a lot of minding in mum since she's been sick - there was a very serious time once when I went to find her and I actually forgot about the Pebble - and I was frantically going around - and then suddenly it dawned on me - and I rang and I got her location immediately - That was really really helpful.'(P35)

- Environmental sensing & control: For environmental sensing, some participants installed fire and smoke detection devices, while for control and service activation, several clients benefits from using Alexa to both control lighting and turn on and off the TV.

  'She rang me to tell me that she couldn't switch the telly off - until she said Alexa turn off the telly and it did - so then she was delighted.' (P49)

  'The light switch - she just tells Alexa to turn on and off the lights'.(P26)

- ***Stress reduction and peace of mind***: This benefit is strongly oriented towards carers and family members. Several participants reported that while they thought the digital tools were not of direct help to the client, they were a great resource for the family members. Terms such as 're-assurance' and 'peace of mind' were mentioned often.

  'There's been a couple of times when I've tried to ring him - and he's not there - but I can tell - look a t the last motion in the kitchen - that he's gone out the back. So I find them really good help. Especially when it's just the sensors - cause they just sort of do it – they're set up in the all the places where he is'. (P20)

  '..at least now when we're phoning her - in the past we could only hear her - but now we can see her too. Earlier, when the weather was cold - I could ask her in the morning - is the house warm.... Why don't you turn the heating on - at least now I can see her go and turn it on - and I know it's on. If it was an old-fashioned phone call - by the time it was ended it would be forgotten. This way we can see it's turned on'. (P31)

- ***Time management***: A related family benefit is that through remote monitoring and the sense of security and re-assurance it can engender, family members can feel less pressure to have to visit their parents' home as a response to 'events causing anxiety or panic'. Visits can now be more planned and proactive – and be more oriented towards time being together rather than 're-active' to real, or perceived risks or threats.

  'We cut down now - we only go over now - because we do dinners as well for her - we go over every second day with dinner for her fridge. But for the days when were not over there - I can just pick up the phone - even 3 times a days - a few minutes is all I need -to see her and for her to see me. It's breaking up the day as well for her'. (P46)

  'He's in Bayside and I'm in Skerries – I'm the only one here - If I can't get him on the phone I panic. I've to get into the car and drive over – cause I'm worried somethings happening. He'll leave the phone off sometimes so you can't get to him. But now - with the sensors - I can see he's OK - that he's in the house and moving around'. (P20)

6.5.2 Useability and ease of use

Technology may be useful and beneficial, but if it is difficult to use, these benefits may not be realisable. This is of particular concern for older persons where age-related decline or one or more health conditions may impinge on a person's ability to use technologies. While section 6.9 discusses how recent developments in universal design and its alignment with conceptual advances in theory and practice around healthy ageing and functioning can advance technology provision and procurement, this section outlines some of the usability experiences and issues that were reported during the pilot project.

- ***Physical interaction:*** There was a wide variability in how participants reported on the ease of physical interaction with the ranges of devices and services provided. The ease with which people can interact with the Alexa through 'voice' and 'no hands needed' control contrasted with some of the dexterity issues around using tablets and phones. While most interaction challenges were linked to cognitive capacity, some participants noted the size of buttons on phones and remote TV controls. A particular interaction challenge was skin irritation around the neck caused by a neck-worn pendant where the client's skin condition was very sensitive. This highlights the importance of 'fit' between a person's specific characteristics and functioning and the 'features and attributes' of the supporting technologies.

- ***Cognition:*** Due to the nature of the cohort in the project and the high level of users with the early on-set of dementia, family members often referred to dementia as a limiting factor underpinning the difficulties encountered by their parents to use the digital tools. Conversely, several family members alluded to the interest and motivation demonstrated by their parents and the extent to which they assimilated the technology tools.

  '(The iPAD) Mum wouldn't be very cognitive so she wouldn't be able to turn it on herself '(P1)

  'She wouldn't know where the voices are coming from' (P2)

  '..the only difficulty that we have - mum will be 80 shortly - so her technical abilities aren't great! So we did try to give her shorter tutorials on how to use the Alexa - so she uses it in a reactive way - she doesn't have the ability to make calls from it - she can only receive calls from us. So that's the only limiting factor - if we had it in before the memory loss - before it started deteriorating to the extent it is - she might be a little more of a wizard on it!'. (31)
  '..but because she's so interested in the iPAD - interested in her health - interested in Alexa and with the camera outside. Once she's interested in something -she will learn it. But with the TV – It's too complicated.'(P26)

- ***Sensory experience:*** Eyesight deterioration and hearing loss were highlighted as aspects of age-related decline that have affected some participant's ability to use some of the digital tools. This has highlighted the value of devices and interfaces that can use multiple modes of communications simultaneously.

  'Her eyesight has deteriorated quite a bit with dementia so even the controls for the telly would be a challenge. We got controllers with the biggest buttons you can get but she still couldn't see them'. (P1)

  I think the watch is a great thing - but my Dad's not able to use it - If he could use it - but he's beyond it. Daddy can't hear - I mean his hearing is really bad - so phone calls aren't as helpful now as they were. (P8)

- ***Skills, learning, autonomy and support***: Improving the digital ability of clients was highlighted as an important action to close the gap between digital tools and services, and their useability by older persons. While developing skills to enable autonomous and independent use was discussed, several participants indicated that progress can also be made when family members or others were present to help support and prompt usage. Linked to this was the importance of having the devices and services installed correctly so that smooth interaction wasn't stymied by set-up or configuration difficulties.

  'I suppose in relation to the blood pressure cuff I have needed a little bit more help. With the likes of that you probably need a bit more instruction. I wasn't 100-percent sure and I try and play around with it a bit but I wasn't able to make progress.' (P1)

  But it needs to be assisted and prompted with my mum. Her using the iPAD only on her own - we won't get too far with that - to be honest. (P33)

  She's not really aware - With Alexa we try to get her engaged to sing along to a song - we're asking about the news and asked about the weather and she talked to us while we're there, but she wouldn't use it on her own without being prompted. Okay? And it's to do with here level of dementia. You know she's just not aware (P2)

6.5.3 Secondary Themes

A range of secondary themes also emerged from analysis of the feedback. These data can be looked at in additional follow-up studies and service improvement initiatives in the future, but are identified here to highlight the breadth of experiences captured to inform future service design.

Extensibility (responsibility and inter-operability): This relates to peoples' ability to participate in the process of accessing, procuring and installing AAL technologies to support family members. Issues raised included:

- Awareness to support planning and decision making
- Adding devices - extending coverage
- Configuring alarms and alerts
- Motivating skills development to move beyond digital literacy to include initial levels of configuration, customisation, integration and service choreography.

Visibility monitoring & privacy (the issue of intrusiveness): While must families positively engaged with AAL technologies that were monitoring their parents' location and movement, they were sensitive to the trade-offs between improving visibility to support better care at a distance, and achieving levels of privacy intrusion. Issues raised included:

- Gaining re-assurance and 'peace of mind' for everyone
- Levels of intrusion and pragmatism and sensitivity about what and where monitoring is happening.
- The implications of having formal carers within the home-monitoring milieu – i.e. both the roles where carers and contribute and the cases where they too are being monitored.

Scaling – replicability and sustainability: Participants were aware that they were 'experimenting' within a pilot project, and as such their actions and feedback might be aggregated to help inform service improvement going forward. While their time with the AAL services was generally short (7 to 26 weeks), and couched underneath an umbrella of pandemic shock, the following issues were raised as factors that might contribute to enhancing future take-up of these types of services:

- Raising greater and earlier client and family awareness of the types of AAL solutions and options available.
- Improving earlier access to the digital literacy and digital skills of older people at risk of experiencing digital exclusion, so that they are better positioned to be able to take advantage of AAL technologies when the situation arises.
- The families' readiness to absorb more work introducing technologies while caring and managing evolving caring pressures.
- Strong family commitments to maximise the opportunity for parents to stay living at home and to avoid nursing home admittance.
- The value of the B-CONNECT service being integrated into the Pathfinder project to avoid presentation at A&E, and to raise awareness of the Pathfinder initiative.
- The perceived sense that economically, homecare services with AAL technologies and community-oriented services can provide a supportive environment that is more cost effective that the cost of alternative nursing home care.
- For older person with the levels of frailty evident in the project group, AAL technology solutions will be provided, and will operate, in a milieu of formal and informal care services, and the that the link between the technologies and home care services should be further examined.
- These types of technologies are becoming more pervasive -and their lowering costs, availability and easier use should support facilitate their wider take-up.
- With the project operating during a period of restricted access for physical befriending visits – several participants highlighted that with improved digital communications – it might be possible to re-image befriending and visiting services and a hybrid of both physical and virtual visits and connections – which together might provide richer encounters for both clients and volunteers.
- Several families discussed the challenges they had to encourage their parent to engage with the AAL technologies. In several cases they felt that they needed to 'sell' the proposition. They mentioned that if there were more 'use cases' or 'usage senarios' documented that better described the range of benefits, and how they technologies worked together, this might help encourage wider adoption.

Reliability: While overall, participants trusted the technologies, several experienced disruptions to their use or lack of service for one or more of the following reasons:

- Internet quality: Local broadband coverage and/or quality of service was sometimes highlighted as cause for interruption. As services develop and become more 'mission critical' this will affect confidence in service continuity. *'It wasn't used an awful lot - the internet used to go down a bit in the house' (P1)*
- Power connectivity and management was often a concern. Several participants reported that their parents had a habit of un-plugging everything at night – so devices and routers would get disconnected and services would stop. This was frustrating as night-time montoring cover was a key service they required. Another challenge was to develop a pattern of use so that mobile devices would get charged regularly. *'I just have to remember to charge it'!(P2)*
- A few participants highlighted sensor sensitivity as an issue - where dependent upon setting – background activity or noise would interfere with normal operation' *'also we're on a very busy road and even though*

it's set on person detection only - every time a car or a bus goes by it picks up something.(P2)

- Possibly due to un-familiarity with these types of services, several participants were unsure if they were always getting the correct behaviour from some of the sensors and that in some cases they were getting false readings. In most instances, due to the 'experimental nature' of their engagement the services – most participants worked their way through this. However, confidence and trust in the performance and operation these services is vital so mechanisms to verify behaviours and readings would be helpful.

Awareness and attitudes: Overall, there was a very positive attitude from participants towards engagement with the AAL technologies within the project, and all indicated that where their parent was still able, they would continue to use, and get benefit from the AAL tools. They all felt that services of these types should be made generally available to older people and families where there was an emergent need, and that they would encourage wider take-up. At an implementation level, the following was apparent:

- Several participants highlighted the value of being more aware of the availability of, and access to, these types of solutions so that they could plan earlier for their introduction, and maybe encourage digital skills development for their parents while their learning capacity was still strong. *'.. but for people who are aware. Alexa could be great for company. Even six months ago - my Mammy might have been able to use the phone but it's too late now' (P2)*
- For this particular cohort, were the on-set of dementia is playing such an big part in home life, families may sometimes have a view that their parent is beyond technology engagement. This might not always be the case, and closer alignment with programmes such as the HSE's memory resource units may be able to devise learning and take-up programmes that are able to gently orient an older person with dementia towards a more positive engagement with digital services and tools. *'It's not just the dementia - it wouldn't suit her. She wouldn't have been comfortable prior to having dementia - and now that she has dementia there's no teaching her anything. It's for us to monitor her and to make sure she's safe and well. - but not for my Mam to interact directly.' (P3)*

Ageing-in-place – being and becoming. Finally, within and across all the narrative contributions from the participants was a wider sense of the AAL technologies 'settling in', or 'nestling within' and 'connecting across' their homes, and that it was less about using technologies, and evolving towards 'dwelling with' technologies. This sense of 'being together across a distance' may go some way to technologies bridging spatial separation and may contribute to the augmentation of ageing-in-place to encompass both physical and virtual space. There is a sense of the AAL devices as *'great company' (P28*), as them being *'part of her day' (P26*), and with a degree of both personalisation and personification *'It's now her best buddy'(PX)*. There was also a strong sense of the future - albeit uncertain - both in terms of what clients and families may be facing down the line as they deal with their caring situation – and also what a future might look like for others.

'In these situations - things can happen really quickly and there is a lot to deal with – it's great to have someone there who can step in and advise you on these things. It's really important. It's all worked really well - I suppose the more people that can benefit - and the more people are aware of the services – that's really important. I definitely think technology is the way forward - in helping with that. And carers of course - they play a vital role. It's the two together - carers can't be there all the time - so the two together – really, really ensure a better peace of mind for the person and the family which is key for keeping someone at home and safe for as long as possible.' (P45)

6.6 ORGANISATIONAL CONSIDERATIONS

The participant experiences, discussions with project team members, and observations from related projects, suggest that some of the following service characteristics might be considered when advancing the B-CONNECT service design and implementation roadmap.

Referral flexibility:

Increase accessibility pathways: no wrong door, service awareness at every door, pervasive awareness for the public

Simplifying assessment and the well-being plan:

Reduce duplication my maximising what data can be shared, reduce data to what's essential and acted upon, examine what can be discarded, strengthen client/person-centred orientation and shared ownership.

Who and what is assessed:

Value of insight into household/home orientation. – person, family, social network, place.

Digital readiness and capabilities. From intervening to developing, motivating re-assuring.

Never too early to engage:

From 'help, I'm at risk' to 'improve now before risk – and strengthen for the future'

Align with digital inclusion/digital skills development initiatives

Widening the net:

Serving clients and households outside the 'orange lights'. Enriching and adapting the model to address diverse situations and contexts - 'many shades of orange and green' – and responses for 'early red'.

Reinforcing person-centricity within family-centricity:

Maintaining a sharp focus on the interests, integrity and privacy and dignity of 'the person' – particularly where autonomy is very challenged.

Support coordination and technology prescribing:

More than a gateway, hub and part of a referral pathway. There seems to be a strong 'psycho-social and therapeutic value' in the relationship built with the 'support coordinator'. There's a re-assurance established that may be helping with resilience and stress reduction.

Strengthening the support network.

Build upon establishing awareness and connectivity and continue to support the development of core CSO management skills and capabilities through community network services.

Work to strengthen growth and sustainability through on-going co-operation, co-ordination and collaboration with stakeholders and partners.

7 PARALLEL STRANDS

While the core thread of this evaluation report has been to examine the B-CONNECT pilot implementation, there have been several parallel project strands that are designed to strengthen the impact, quality and sustainability of the approach going forward. These include:

- Community Networking: Improving the Community capacity to meet the growing needs of older people
- Develop a universal design guideline procedure for technology procurement
- Equitable Access to Technology
- Economic and business model considerations

Developments within these parallel strands will be drawn upon within the discussion and recommendations section.

7.1 COMMUNITY NETWORK CAPACITY BUILDING

7.1.1 Data to support communities working together

The B-CONNECT support coordination function has a high dependency upon the availability of local community services and groups to work with and support older people in an area. As part of the project, team members undertook the following activities, many of which aligned with the ICPOP 10 Step Framework:

- Mapped areas where older people were likely to need support (aligned with step 2)
- Mapped the available services and social activity for older people (aligned with step 3)
- Identified gaps in service provision (steps 2 & 3)
- Created a GIS-based on-line directory (steps 2 & 3)
- Developed a common model of service provision (step 7)
- Designed a data management process to help keep directory up to date. (step 9)

7.1.2 Community Networking

As part of this action area, ALONE in partnership with the Dublin North Integrated Care Team for Older Persons ran two collaboration and networking events for all community groups supporting older people and healthcare workers.

The design of the networking events, specifically the breakout rooms, were based on the success of a speed networking event facilitated by the DN-ICTOP in CHO9 prior to the Slaintecare project. The speed networking approach was proposed in response to a consultation that was held, in collaboration with the national ICPOP, with older persons and service providers in CHO9. The consultation feedback raised the issue of:

- older persons not knowing what services are out there,
- services not knowing each other,
- services not communicating with each other.

This was leading to older persons having to repeat their stories/services, tasks being duplicated and a lack of collaboration/ integrated care within and between services across community, acute, statutory, voluntary, public and private services.

This prior DN-ICTOP work formed the basis for the Alone/HSE virtual networking aspects of the events, providing an opportunity to build on the support that the national integrated care programme has for the speed networking initiative to be rolled out nationally. (There are now planned presentations that Alone and DN-ICTOP aim to facilitate with social workers at a national level to roll out the virtual networking events).

In keeping with the aims of ICPOP/Slaintecare and the ICPOP 10 Step Framework, the aims of the HSE/Alone networking and collaboration events were to facilitate participants to:

- Build relationships within and between services across acute, community, statutory & voluntary
- Increase attendees' knowledge of local & national services and supports to live well
- Improve care and referral pathways across services and sectors
- Ultimately, empower older persons &/or their carers through having a better understanding of services to aid social prescribing
- Come together in a 'Social and Fun Way' to consider how to collaborate and collectively address the needs of older persons they work with
- Better understand Integrated Care and their services role in the move towards integrated care
- Better understand the Alone services and how Alone can support older persons they work with

As such, the networking events were framed within the context of ICPOP, the 10 Step Framework, and the pilot coproduction speed networking event held in CHO9, endorsed by ICPOP, and described *in 'ICPOP Implementing Integrated Care for Older Persons in Ireland: Early stage insights and lessons for scale up (2018: 63)'.*

The speed networking events also aimed to address a number of the 10 Step Framework components particularly:

- Aiding services and users to identify supports to live well (step 8)
- Supporting services to develop relationships and improve care pathways (step 4)
- Encouraging services to develop new ways of working together in partnership (step 5)

Due to COVID-19, the events took place online using the software Zoom. The primary purpose of these events was to create a space for community groups and healthcare workers to network with one another and discuss ways in which they could work together to support older people in their areas. Invitees were also informed that these events would assist them with hearing about other services available to older people during Covid 19; provide them with the opportunity to speak to others about their own services and learn about the supports available to them.

'Supporting Older People in the Community Together' Event one:

- Took place on the 15th of October 2021, from 10am to 11.30am.
- Covered the areas of Balbriggan, Lusk, Rush, Skerries and Swords.
- Total 62 people signed-up to attend the event.
- Approximately 50 in attendance on the day.
- 3 speakers in total - 2 from ALONE and 1 from DN-ICTOP.
- Primary focus on 2 networking and collaboration sessions where attendees were divided into small groups of approximately 5-6 others.

'Supporting Older People in the Community Together' Event two:

- Took place on the 11th of March 2021, from 10am to 11.30am.
- Covered the areas of Baldoyle, Donabate, Howth, Oldtown, Portrane, Malahide, Portmarnock, Sutton and Swords.
- Over 80 people signed-up to attend the event.
- Approximately 53 were in attendance on the day.
- 3 speakers in total – 2 from ALONE and 1 from DN-ICTOP.
- Primary focus of event 2 networking sessions where attendees were divided into small groups of approximately 9 others.

Along with learning about each other's activities and services, an important element of these sessions was to help community groups situate their own work within the wider context of Sláintecare and integrated care (IC). At these sessions, participating groups got to understand that the ultimate goal of IC is to facilitate

the older person to lead an independent life, with dignity, at home in their community. Improved QoL and better outcomes. They learned that IC embodies a move from episodic, acute, unplanned care, to a more holistic pattern of person centred care at home that can be: anticipatory, planned, joined up, coordinated; timely communication; the experience feels seamless to the user. The sessions highlighted that IC is about the right care, in the right place, at the right time, and that it is person centred & 'designed with' rather than 'for' the older adult.

The sessions along helped the groups get to better understand of the range and scope of services for the elderly (CoE) centred around Beaumont Hospital (see Figure 16. Beaumont Hospital Services for Older Persons), and also the scope of the Fingal's age-friendly county programme, based upon the WHOs age-friendly cities and communities framework. (see Figure 17. WHO EU model for age-friendly environments.)

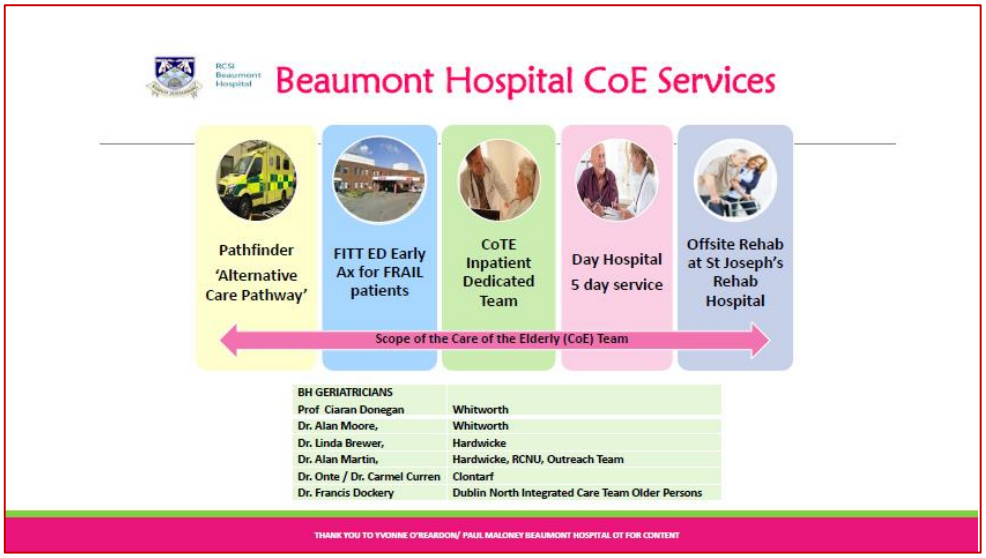

Figure 16. Beaumont Hospital Services for Older Persons

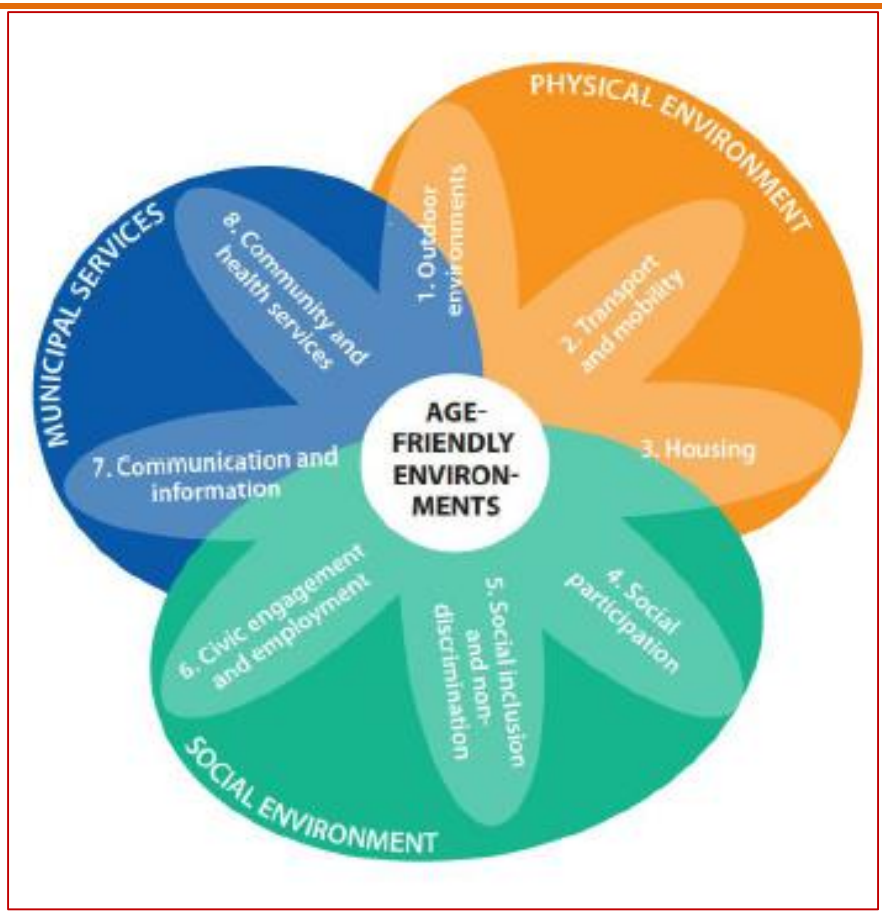

Figure 17. WHO EU model for age-friendly environments.

The sessions also provided an opportunity for local groups to understand the range of services provided by ALONE and the role of the support coordinator. This is illustrated in Figure 18. ALONE's Support Coordinator Role.

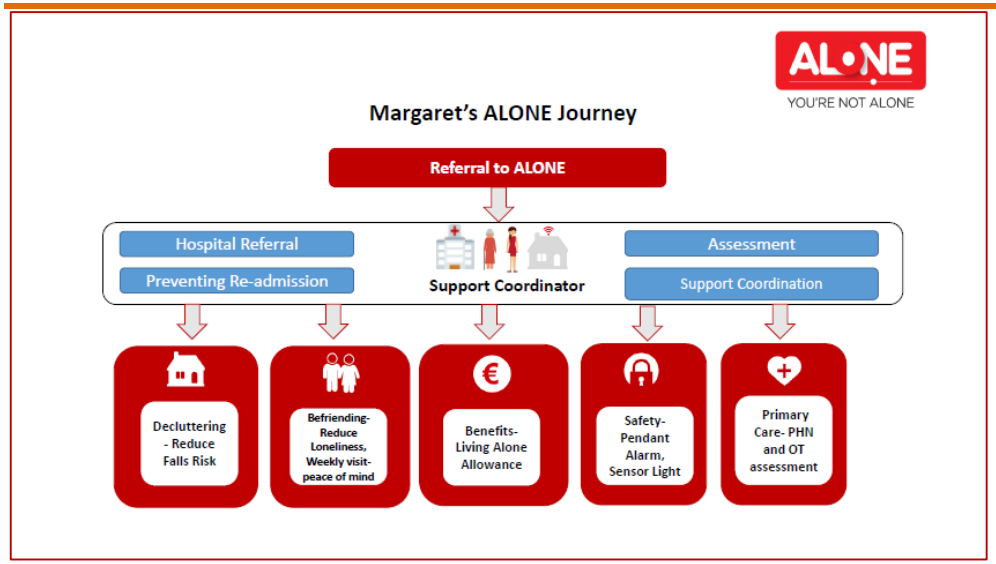

Figure 18. ALONE's Support Coordinator Role

After both events attendees were asked to complete a feedback survey which provided valuable information both in relation to content, but also in relation to event format and guidelines for similar events when needed to delivered on-line. While the overall results from this survey are included as separately, the following is highlighted:

- 96% though the right amount if information was provided
- 81% felt the duration was just right
- 85% it was helpful or very helpful for networking
- 66% thought it helped find opportunities for collaboration
- 95% thought it verry good or good working with Zoom
- 95% would like ALONE to host more similar events
- 82% felt the frequency for events should be between 4 and 6 months
- 82% suggest a mis of networking, shared learning and training.

The organisers of the events noted that here were several challenges encountered along the way with the events. Most of these were Covid 19 related.

- Limitations to networking online: although they managed successfully to facilitate networking and collaboration online, they could not replicate the larger numbers of individuals that people would meet in an in person session.
- Smaller community group engagement: it was challenging to attract smaller community groups to attend both events. The reasons for this are unclear but it may that many of these groups were not running due to Covid and did not feel it was appropriate to attend.
- Availability of healthcare staff: there were several concerns about inviting healthcare staff to attend due to the pandemic. Concerns were largely due to the inability of healthcare staff not having the capacity to attend events during peaks of the pandemic. This led to the events being pushed forward several times.
- Technical issues: there were some technical issues with both events in particular at the second event.

As part of the capacity building action area, ALONE ran 5 training sessions for community groups from the 23rd of February to the 25th of March 2021. The topics for the training sessions on were:

- How to promote your service
- How to collect and use case studies
- How to motivate volunteers
- How to manage difficult calls
- How to write grant applications

Each of the training sessions was 1.5 hours in length and ran over the software Zoom. Overall 11 organisations and community groups attended the training sessions. Feedback on this training and the training slides are available separately.

7.2 EQUITABLE ACCESS TO TECHNOLOGIES

In parallel with the pilot action, a small project sub-group, supported with informal guidance from the IPH, considered what downstream actions might be helpful to promote more equitable access to technologies for older persons. The recommendations are grouped into themes that cover:

- Accessibility
- Affordability
- Digital Skills
- Use
- Community Support/Network

Many of these themes also emerged from discussions with participants about their experiences. The commentary and recommendations in this section are the result of the sub-group's reflections.

7.2.1 Accessibility

7.2.1.1 Targeted free internet access for older people

Internet access really is the critical factor in ensuring equitable access. A mobile network 3G/4G router would be provided that collects network signal to create a Wi-Fi network in the home. Potential targeted criteria to avail of free internet access:

- Over 65s (637,567, 2016, CSO data)
- Medical card holders (70% of over 65's, approx. 446,296)
- Living ALONE Allowance (approx. 221,000, Department of social protection).
- A factor in having access to internet or not, depends on if you live ALONE. In a 2020, Irish LongituDinal Study on Ageing (TilDa) report on internet access, the study found that just under a third of adults aged 50 and older who live ALONE do not have internet access, with those living in urban area are more likely to have access.
- Similar model to Telephone support allowance, provided to assist communication, qualified for if in receipt of the fuel allowance and living allowance. (Approx. 126,000)
- Over 70s get free Wi-Fi as part of the Household Benefits Package.

Example of a country where free internet access exists:

In Scotland, they are running a project called 'Connecting Scotland' whereby a MiFi devices (mobile wifi) with sim cards were provided to older (aged 60+) and/or have a disability, are digitally excluded and on a low income. There was no means test per se, an individual applied via a local organisation, local council, Support Worker or local or national Community and Voluntary Organisation. 'Connecting Scotland' also provides iPad, Chromebook and support to families with similar criteria and process to the programme for older people. Free internet access for families in need should also be considered.

7.2.1.2 National website to showcase the best assistive technology

This national website would showcase the best assistive technology available with video series, tutorials etc. This will help family, friends, organisations that support older people and the older person themselves decide what devices might best suit their need. The Citizens Information Board's website Assist Ireland (assistireland.ie) provided information about aids, appliances and assistive technology but was discontinued due to resource constraints in 2019. This could be similar to the ADAM project in Scotland run by Alzheimer Scotland. (www.meetadam.co.uk)

7.2.1.3 Publicly list of agencies providing device, support and training

A government department should maintain a list of all agencies and organisations providing devices, support and training. Their role will be clearly defined. Support will be available as community based support predominately, but there will be the option of home based support through Garda-vetted Digital Support Volunteers via organisations that offer this. Communication devised to ensure people are aware of this list available.

7.2.2 Affordability

7.2.2.1 Grants for assistive technology for over 65s

The Senior Alert scheme is a successful subsidy driven scheme currently offered to over 65s in Ireland enabling older people to call for support with the use of an emergency alarm. There are older people with cognitive impairment or living with Dementia who do not remember to press bells, therefore assistive technology in relation to Sensors needs to be available.

An additional scheme to support older people to live independently at home with technology suitable to the needs would reduce carer stress and could increase the individual's quality of life living in their own home.

Potential criteria:

- All over 65's suitable for Senior alert scheme. Self-referral and informal caregivers plus any advocate for an older person can refer in addition to Health Professionals and health service providers

7.2.2.2 Device donation programs

Device donation programs similar to the Great British Tech Appeal . There would need to be resources available to ensure the phones, iPad etc were fit for passing on to a new individual.

7.2.2.3 Home Support Funding:

This funding currently only funds in-home care. There needs to be a broader look at how this funding is utilised and that takes account older persons achieving social inclusiveness within their community. Technology provision is one of the options for improvement of quality of life of older persons, reduction in family carer stress and increase in resilience. Consumer Directed Home Care could support such provision.

7.2.3 Digital Skills

7.2.3.1 Digital Skills Programme

Digital Skills Programme available online for anyone to access, such as family and friends of older person, informal carers to help them support the older person in their life. Easy to follow content with all content reviewed by Centre of Universal Design and all in plain English. All content available to download. This content will be the basis of Digital skills training groups that will be held across the country in the coming years.

7.2.3.2 Transition Year Student Engagement

Further roll out of Age Actions *Getting Started in Schools where* Transition Year students supports an older person with their digital skills for a full school year (using the platform above). This programme is funded by the Department of Communications, Climate Action & Environment. The student and older person should be carefully matched to ensure the best learning outcomes.

7.2.3.3 Training and education opportunities

Age-appropriate training and education opportunities in Community Hubs should include peer-to-peer learning and support and support from peers both in-person and offline. The community hub should always have someone available to give one on one support to use any device.

7.2.4 Use

The following initiatives are proposed to promote greater digital take-up and use:

- ***Nationwide Technology Roadshow***: Showcase Technology Roadshow across the country. Technology partners would be involved in this.
- ***Online workshops showcasing technology***: Online workshops showcasing technology available for family and friends (and the older person)
- ***Loan or Take-Home Technology***: Libraries to introduce Take-Home Technology where the older person can have use of the technology for at least 8 weeks. This gives the option to test technology before buying. Local libraries could host information sessions similar to 2).

- ***Older people engaging in online content:*** Get older people interested in getting online by offering them direct access to content, groups and meetings that interest them. In the UK, through a partnership with Zoom, older people have access to Social Virtual Cafes, virtual tours, guides, meeting (based on topics of interest). Accessing content once a week (free), unlimited: is £1 p/week.
- ***Focus group to test new devices***: Focus group of older people to test new devices. Formal feedback from older people on devices. Partnering with technology companies to get this information and for it to be shared within the network mentioned below.

7.2.5 Community Support/ Network

The following initiatives should be considered or further strengthened:

- ***Assistive Technology Network:*** Assistive Technology Network to be formed whose purpose is to share knowledge. Group to include National Disability Authority (Centre of Universal Design), Memory resource rooms, HSE Digital Transformation representatives, Assistive technology suppliers / developers, Living Labs and Community Groups. Open call to join, shared across networks. Membership encouraged through promotion and creation of workshops, online events, podcasts, website, Social media marketing etc. There is a need for a sub group of community groups specifically.
- ***National Technology Support Line:*** This would be open to anyone.
- ***County Digital Skills Targets***: County specific targets for basic and intermediate digital skills amongst older people
- ***National Technology Week or Digital Skills Week:*** Localised events with local authorities involved. Communications will be national, regional and local with community support available highlighted alongside 1 to 1 help.
- ***Volunteer Capacity:*** The Befriending Network of Ireland, a group of 68 organisations nationwide that have volunteers visiting the homes of older people each week will have access to the digital skills programme can share their knowledge with the older person they visit. Organisations with a large volunteer base such as ALONE, Age Action that works with older people will be offered training on digital skills which will enable them to give one to one training. They can then be matched with an older person to support them with digital skills specifically.

7.3 TECHNOLOGY STANDARDS, ACCEPTANCE & PROCUREMENT

Within the ALONE|SIF project, in parallel with the pilot testing of the B-CONNECT model, there was an action to consider: 'Applying a Universal Design approach to address user needs in provision and procurement of technology'. This strand of the work was led under the direction of the Centre of Excellence for Universal Design (CEUD). The end result of this work is a set of procurement guidelines that are documented separately in *'Guidance on Procurement of Technology through Application of EN 301 549'*. The commentary in this section is based upon an interim presentation prepared by CEUD, and is included to 'close the loop' by seeing how ICT provision, development and procurement, should evolve to meet the types of challenges and experiences described by the project's participants.

The steps for the universal design (UD) strand included:

- Host a workshop for ALONE and project team – covering the New EU Accessibility Act (ICT), the New EU Process standard and ICT procurement Standard.
- Work with the ALONE Team and technology partner to develop a framework to integrate these standards and technology accessibility assessments into the project
- Evaluate the implementation of assessment tools and procurement standards - what is working well and what needs to be improved.
- Produce guidelines for the procurement of technology and services for the HSE and Dept. Health and other relevant Gov. Dept. (DRCD)

The overall goal was is to describe 'a process to choose(procure) appropriate technology for people to stay at home for longer'. With a focus on considering

required features of the technology, the approach is to model and examine the quality of 'fit' between users' needs as described in ISO Guide 71, and technology requirements as described in the new standard EN 301 549 / ICT Procurement Guidelines.

Underpinning this framework is a paradigm shift from a focus on accessibility (providing basic access and usability of facilities, products and services for people with disabilities) to a universal design perspective (enabling independence and social participation for all through continual improvement) as promoted in the World Disability Report 2011. The drivers for change include:

- UNCRPD (UN Convention on the Rights of People with Disabilities)
- EU Accessibility Act
- EU Web Accessibility Directive
- EU Procurement Directive
- Equality Acts (Irish legislation)
- Disability Act (Irish legislation)
- Statutory instruments transposing directives

The first EU Standard on Universal Design is EN 17161:2019 and it:

- Specifies requirements that enable an organization to design, develop and provide products, goods and services so that they can be accessed, understood and used by the widest range of users, including persons with disabilities.
- Specifies requirements that can enable an organization to meet applicable statutory and regulatory requirements as related to the accessibility of its products, goods and services.

User needs, abilities and characteristics are defined in ISO Guide 71:2014 which provides:

- Terminology to describe human abilities and characteristics - closely aligned with WHO-International Classification of Functioning, Disability and Health (ICF)
- Guidance for developing and writing appropriate accessibility requirements and recommendations
- Strategies for addressing user accessibility needs and design considerations

Within ISO Guide 71:2014, based on WHO-ICF, clause 7 provides a framework for examining human abilities and characteristics as:

- Sensory abilities and characteristics: Seeing functions, Hearing functions, Touch functions, Taste/Smell functions
- Physical abilities and characteristics: Body size, Movement: Functions of the upper body, Movement: Functions of the lower body, Muscle power & muscle endurance, Voice and speech
- Cognitive abilities: global mental functions, specific mental functions
- Contexts: Activities, environment and participation

The new European Standard EN 301 549 – Accessibility requirements for public procurement for ICT products and services in Europe' is used for defining functional requirements of technology. These are centred on 'Functional Performance Statements' that describe at a high level the capabilities the technology must have so that it can be used by persons with disabilities. The identified 'user needs' can then inform the relevant Functional Performance Statements such as:

- Usage without vision,
- Usage without perception of colour
- Usage without hearing
- Usage with limited hearing
- Usage without vocal capability
- Usage with limited manipulation or strength
- Usage with limited reach
- Minimize photosensitive seizure triggers
- Usage with limited cognition
- Privacy

This strand examined the application of EN 301 549 for evaluating the suitability of technology products in projects such as this ALONE Sláintecare project and recommended the use of EN 301 549 :

- for specifying accessibility in a precise and testable way in the procurement of ICT products, and
- for general guidance on considering accessibility during all stages of a procurement process.

The NDA-CEUD/ALONE study demonstrated how EN 301 549 can be used to conduct a quick and simple exercise to assess if a technology product may meet the accessibility needs of a particular individual.

A more common application of EN 301 549 is to specify accessibility in a precise and testable way in the procurement of ICT products. Although this was not within the scope of NDA-CEUD's role in the ALONE Sláintecare project, the use of EN 301 549 in procurement is described here as it may be applicable to future iterations of this project and/or have wider applicability to the procurement of more mainstream ICT products or services by ALONE or the HSE. It also provides more general guidance on considering accessibility during all stages of a procurement process.

The conclusions and recommendations for using EN 301 549 in procurement of ICT are as follows:

- The Functional Performance Statements of EN 301 549 are useful for identifying user needs and defining technology requirements.
- It is recommended to use EN 301 549 to specify the requirements of a technology product in its procurement.
- It is recommended to use ISO Guide 71 / CEN Guide 6 as a reference in recording a user's abilities.
- The use of EN 301 549 and its Functional Performance Statements provides a way to assess the suitability of different products for certain users and provides a means to focus on choosing and procuring a suite of products that will meet the widest range possible of user needs.
- NDA should engage with the Office of Government Procurement on integrating reference to EN 301 549 in its guidance material on procurement of ICT.
- NDA should engage with the HSE, government departments and public bodies to raise awareness of their obligations in relation to the procurement of ICT, and promote and support their use of EN 301 549 in meeting those obligations.

8 DISCUSSION & RECOMMENDATIONS

8.1 CONTEXT, MECHANISMS & RELATIONSHIPS

At it's outset, the ALONE|SIF project was set within the programmatic context of the Sláintecare innovation initiative, closely interfaced with the Integrated Care Team for Older Persons in CH09. With an orientation towards service effectiveness, this also connected the pilot to the admission and discharge facing services with Beaumont Hospital. And with a sensitivity towards frailty linked with cognitive decline, it further connected with Northside Home Care Services, providing homecare to people with early on-set, and/or mild dementia. Within this operating context in the Fingal, North Dublin area of CHO area 9, the B-CONNECT mechanism under experimentation and investigation is a fusion of ALONE's support coordination service with AAL technology engagement. While support coordination could activate a wide range of supporting community and social services and supports, the focus of the project was oriented towards the effectiveness of the AAL technology interventions.

Over the course of the project's duration, the operating context was radically transformed in response to the constraints imposed nationally to manage and contain the COVID-19 pandemic. The effect here was twofold. While it forced almost all project activities, communications and participant interactions to move to virtual on-line platforms, in parallel, ALONE saw significant growth as their community oriented services scaled up digitally to provide a national call service to handle inquiries across the country. Over the period, what started as elements of the B-Connect pilot technology engagement platform, transformed into the 'ALONE Model' referenced as a delivery component for Enhanced Community Care (ECC) with the HSE 2021 Service Plan. Over the period, it has continued to mature as a community service platform enabled by a diverse suite of AAL technologies.

8.2 OPPORTUNITIES TO REPLICATE AND SCALE

The project's positive results are informing ALONE's current post-COVID strategic review process, driving the intent to scale and replicate the approach nationally. The strategy is informed by recent trends and commitments that include:

- explicit identification within the HSE Service Plan (2021) of the ALONE model for further roll-out as part of the Enhanced Community Care (ECC) programme
- growing policy innovation for social prescribing, community navigation and service coordination with technology support for integrated community health/social services provision for older persons, evidenced by programmes such as mPOWER to which ALONE is contributing

On-going steps in building capacity for scalability are:

- Internal growth (increases to staff (to 150 by 2024), new training programmes for community groups and more volunteers (up to 9000 by 2024)
- External collaboration support to the C&V sector in all CHO areas we service building upon the community engagement activities piloted in this project.

Discussions to co-fund further technology platform development towards more pro-active AI/ML services are well advanced, and ALONE have recently been included as a community-oriented living lab within the HSE's Digital Health Living Lab programme.

8.3 OUTCOMES

The B-CONNECT project has been steered by its project team towards improving service delivery and meeting the needs of its beneficial participants, clients and their families.

The B-CONNECT approach is framed within the WHO's model of healthy ageing directed at 'functional ability' - the intrinsic capacity of the individual, relevant environmental characteristics, and the interaction between them. The ALONE project focuses on using support coordination services and ICT/AAL technologies to improve older persons' social and environmental 'milieu'. It the ALONE|SIF project it met these needs by:

- empowering older people and their close informal support network to self/co-manage their home-oriented living/social situations and social functionings – with over 275 technology/service needs (SPOs) addressed spanning safety and security (alarms/cameras/monitoring), communications (phones / tablets / connectivity apps), information, and content delivery services (tablets / alexa / media services), health monitoring (BP monitoring), and the identification, negotiation and access to over 20 types (>125 instances) of local community services and supports.

The project contributed to improved service delivery by:

- building a supported network to facilitate local community groups (over 30 organisations and 60 participants) to enhance their capacity to work together within the context of local integrated care pathways, so that services can be more person-centred, effective, streamlined and sustainable. Network supports have included GIS-based local service directories, on-line event meetings and training sessions for collaborative service improvement.

In considering project outcomes, the following provisos should be acknowledged:

The B-Connect|SIF project has been undertaken in an unprecedented environment of pandemic shock. While this has altered every aspect of the project's implementation and delivery – the core elements of the B-Connect model have sustained and contributed to positive outcomes.

B-Connect does not operate as a stand-ALONE intervention. It is interwoven into a complex ecology of individuals, families, home support carers, primary care, community organisations, the hospital, care pathways, and related innovations. While B-Connect positively contributes to the reported outcomes - they cannot be solely attributed to a technology intervention. The technology represents both an indivisible component of, and a catalyst for, improving the living and caring environment.

As a result of the pandemic - much of the ***data underpinning the project has been provided by family members*** rather than clients directly. Good quality start and end data has been available for 56% (26) on the participants that started the project.

The following key outcome effects for the person and family were achieved:

- There are significant reported improvements in individual/family resilience. (77% - 20 out of 26 reported)
- There are significant reported improvements in the reduction of carer stress burden. (92% - 24 out of 26 reported)
- While overall change in QoL for the group declined by 7.8%, this was almost entirely attributable to reported loss in autonomy (87%). There was almost no change in QoL as it related to control, self-realisation and pleasure.

The following key outcome effects for the health system/services were achieved:

- In conjunction with Beaumont's A&E pathfinder programme, 5 ED presentations were avoided representing 29% (17 referrals related to Hospital)

- In conjunction with Beaumont's FIT programme and Wards, 12 clients had a timely discharged to the ALONE programme 70% (currently unclear if B-Connect prevented any delays to discharging)
- Only 4 across the full cohort of 48 (8.3%) transferred to a long term care (LTC) or Palliative Care pathway. During COVID, LTC has not been considered as an appropriate destination for older people by many of their families – due to the high risks of infection and the enforced social isolation. As such, B-CONNECT helped to enable alternative preferences for clients and families.

8.4 STRENGTHENING THE EVIDENCE BASE

Despite the cloud of the pandemic affecting almost all aspects of life and healthcare delivery for much of the project period, over the course of the project, there have been a range of related and complimentary initiatives against which to calibrate progress. These include:

- the cross-border mPower project (RoI, NI and Scotland) promoting the implementation of support coordinators (Community Navigators) and the deployment of e-health interventions,
- the HSE Social Prescribing Evaluability Study, and
- the Common Outcomes Framework development work in the UK.

These are all pointing towards the need to, and also the complexity of, building a stronger information and evidence base to underpin growth in this emerging area that encompasses enhanced community care (ECC), and integration into care pathways (IC) and local community eco-systems of services and supports, all enhanced and enriched by AAL technologies. On-going and continuous evidence development is required to refine the proposition, improve service quality and performance, smooth service evolution, transition and transformation, and build sustainability through innovative financing and practice-led-leadership.

The paradigm shift from 'what we'll do for you' to 'what matters to you ?' is a move to build upon personal resilience and community assets. It's a question that shouldn't be asked too late, and early enough so that people have the capacity and time to channel their interests and motivations to 'do what matters', either directly, or though relationships and togetherness with their informal and formal eco-systems of care and support. While we now know that technology can make a difference, we also know that there is a digital divide which can mitigate against inclusion if the digital literacy and capability gap isn't filled in time. This is not just a problem for our health service but leans also on our local supports for community development, equity, social inclusion and intergenerational solidarity.

Twelve months is too short a window, 50 is too small and experimental group, and one community/county is too small a geographical territory to properly undertake the type of 'social and health' policy experimentation that is necessary to truly get under the bonnet to explore how service coordination with AAL technologies can work to deliver outcomes at scale for clients, local support groups, public services. Wider, larger and longer studies, possibly in parallel across different cohorts (ageing, mental health, ID and youth) could yield richer evidence base to support the nascent movement towards a sustainable model of truly community-based collaborative health and well-being services for all – energised by empowered citizens, choreographed by support coordination, and underpinned by pervasive AAL technologies.

-

8.5 TOWARDS A PROGRAMME FOR IMPROVEMENT

The ALONE|SIF project was conceived as a pilot initiative to test the evolving B-CONNECT model, and it was implemented as a service improvement programme to explore how ALONE could strengthen and enrich it's attachment and inter-connectivity with the on-going Integrated Care programme and pathways developing in North Dublin. As such, it has acted as both an experiment in a particular context, and as a continuous quality improvement and capacity building initiative. It has done both under the cloud of a nationwide pandemic. While the project's success in delivering positive outcomes for participants and the health service are important, a key outcome is the extent to which project learning can be translated into the future development of ALONE's model, so that it is economically sustainable and operationally efficient. Most of all it needs to add to overall health system effectiveness and be attractive and responsive to the needs and aspirations of the older persons it serves. Based upon extracting some key insights and aspects of this B-CONNECT trial, the following sections briefly highlight some areas for future consideration as the organisation, service model and technology platform evolve.

8.5.1 Functional

This table takes a functional perspective looking at people, core activities and key relationships.

AREA	ASPECT	CONSIDERATION
PEOPLE	Orientation generally towards close personal eco-systems (NOKs) more than individual self-management. Central roles of the support coordinator and technology engagement office.	Ensure service offerings are broad and inclusive, and can range from the autonomous younger old pursuing pro-active strategies to foster their well-being through to less independent older old who may be frail and managing complex conditions. Consider the extent to which the support coordinator can span both social and technology prescribing, along with its vital functioning as a social and therapeutic relationship
ACTIVITIES	Areas of benefit: safety & security / audio-visual connectivity / sharing leisure time – peace of mind / mental health & well-being The assessment processes and preparation of well-being plans.	Based upon the evolving model of 'fit' between needs and features, explore the application of the 'procure/choose' framework emerging from the CEUD work, and how it might address Maslow's hierarchy – from the physical and sensory to the spiritual. Continue to streamline, personalise and simplify the screening, assessment and well-being planning activities, and provide supports to enhance feedback and monitoring loops.
RELATIONSHIPS	Support at a distance / sharing responsibilities / Trust / someone to call and fall back on / working together. Quality of relationships and shared leadership across the partners in the project.	Build on the recognition that the interventions are not an end in themselves and that they contribute to putting in place trusted relationships that older persons and their families can lean on, and fall back on, if necessary. While the technology puts in place a digital infrastructure to support connectivity, co-operative and sustainable eco-systems feed off shared leadership and mutual trust and respect. Fostering collaborative leadership-in-practice across groups and agencies will require human and financial investment.

8.5.2 Form (product/service design)

This table takes a form and useability perspective of the service and products devices looking at component elements, the situational environment and overall quality.

AREA	ASPECT	CONSIDERATION
Elements	Variable issues around usability and complexity for users – 'not able for it' – particularly when multiple interactive devices	Extending the usefulness and useability of the in-home digital services will require a multi-pronged approach involving earlier development of digital skills, earlier implementation and deployment 'when people have ability to assimilate', improved design, and better 'matching' – helping people find the products/services that match their requirements. (The emerging CEUD guidelines can assist here).
	Channelling and processing information – monitoring, responsiveness and emergency response services.	The current technologies are still largely 're-active to events, triggers and thresholds'. There is now both momentum and capability to move towards more preventative and behaviour change (recommend and motivate) services – based upon the application of AI/ML to more integrated data. This will require deeper home technology aggregation and integration with MIS.
Environment	Some issues around reliability and availability – risk of devices being un-plugged / disabled at night. Poor broadband coverage.	As we seek to accommodate people who are at greater risk of negative outcomes due to the complexity of their conditions, the in-home technical environment for devices and services (power and broadband) will need to be more reliable, resilient and fault tolerant.
	CRM/MIS platform managing assessments, well-being plans, SPOs and product delivery and installation logistics.	There are opportunities to widen the orientation of the current MIS/CRM environment to provide wider eco-system services to partners centred around the support coordination component – both upstream for partners referring inwards (including self-referrals) and downstream for outward referrals to community groups and local services, including service co-ordination and choreography. Widening reach will make it easier to measure outcomes.
Quality	Tendency for devices / services to provide varying value to different users – monitoring for family / alexa services for client – and impacts on QoL in different ways.	QoL is a key, but complex outcome measure. While aiming to improve, for some it may be to delay decline, or to provide an alternative trajectory to an unwanted transfer to a LTC setting. While some measures are better for comparability, ALONE need to adopt an approach to QoL measurement that is couched in the principle of 'what matters to you ?'.
	Service quality and effectiveness.	The B-CONNECT project has been an extraordinary journey in organisational capability maturity – a journey that was tested and almost exhausted in the cauldron of the pandemic. This commitment to continuous quality improvement must be acknowledged and celebrated as it is the key to future success. It permeated all the partners within, and around the project, and is situationally unique.

8.5.3 Economy

This table takes an economic perspective on the project looking at budgeting/funding, costs and life-cycle benefits. This is not an economic appraisal. ALONE continue to fine-tune the economic pillars of the approach in discussion with stakeholders so that it is replicable, scalable and sustainable going forward. This work is affecting how ALONE develops on-going project proposals for support coordination services and hubs in the CHO areas, and also how these services can be embedded in proposals for 'Housing with Supports'. Items included here are inputs for consideration as ALONE continues to refine its business model for the B-CONNECT platform.

AREA	ASPECT	CONSIDERATION
Budgeting/Funding	Project innovation, home support, self-directed care, hospital avoidance.	The project has been funded through a one-off grant from the Sláintecare Innovation Fund. Like many pilot innovation projects with a beginning, middle and end, they run the risk that future funding for sustainability and growth needs to be accessed from alternative sources. During the course of the project, the ALONE model, of while this project is a specific exemplar, has been identified in the HSE 2021 Service Plan under the Enhanced Community Care initiative. This provides an opportunity to find an identified mainstreamed, budget line against which to allocate funding for the project's further growth.
Costs	Scale will matter - Significant cost variability for both capital (range of of kit), installation, and support coordination time (assess / plan / follow-up)	The costs for services such a B-CONNECT can be itemised as the direct labour costs (support coordination and technology engagement roles), intervention costs (the technologies – devices and apps, broadband access costs), the local community and voluntary services costs, training costs, and general business support, administration and transactional costs along the referral pathways. There is significant variability in relation to the AAL technology costs, which may be augment by private purchase. While the labour costs are often fixed, there can be significant variability in relation to the resource efforts of support coordinators on a client-by-client basis due to case complexity. There are significant opportunities for cost/performance improvements linked to scale and spatial cohesion (closeness of services).
Life-cycle cost/benefit	The model represents an effective mechanism to support independence and community dwelling for 'at risk' people for as long as possible.	Operating in the 'orange zone' with a foothold in 'green' and 'pathways back from 'red', B-CONNECT's value contribution spans health and well-being promotion and maintenance, injury and disease prevention, reablement and self-management. While valuable in its own right in contributing to better individual and community outcomes, economic value is often considered more in terms of avoidance of greater burden, be it consumption of primary care costs (including medication), admission to long term care, or hospital resource utilisation, including avoiding delayed discharges. However, its cost/benefit performance is highly interwoven within an eco-system of complimentary service providers and its economic impacts are really only accrued over a longer time-frame, linked to life-style patterns behaviours. Strengthening and scaling evidence is an important next step.

8.5.4 Time

This table takes a temporal perspective looking at how time dimensions, past, present and future may affect service design and improvement.

AREA	ASPECT	CONSIDERATION
Past	Earlier introduction and technology take-up may help usage/familiarisation – before the on-set of challenging conditions – promotion & prevention.	Beyond the experiences in the project, it is likely that many clients of B-CONNECT services will have some level of cognitive decline. There is a significant role for digital technologies to access archives of rich media (music, photography, film, and archives) to form part of the content that can activate memories and emotions that may help form momentary common presence for clients and families – where the past can help make the present alive. Familiarity is also an important attribute of human-device and person-place interaction. The extent to which older people 'can be' and 'can become' – to use devices they know how to use, in places they know as home – this will form an important contribution to our goals for inclusive successful ageing-in-place.
Present	Supply chains and delivery logistics warranted multiple serial installations. Examine trade-offs between multiple installations and assimilations	While many people can come to B-CONNECT on their own terms and timelines, for new clients being introduced as part of a hospital discharge pathway, success will be closely linked to the speed at which support coordinators can respond, and the installation time for technologies. As such there is need to explore optimum approaches to inventory management and logistics so that most technology configurations can be assembled rapidly. Brexit and COVID have currently disturbed supply chains and it is not clear if Just-in-time will be sufficient for all cases. Risks associated with stocks may be mitigated through increased scale and demand.
Future	Technology rate of change / new products /versions release schedules etc need to be explored for sustainable procurement policies	The development and increased roll-out of Sláintecare and IC is a long stepwise transformational project, and the current rate of take-up of e/m-health interventions in the community is slow as larger, foundational IT infrastructural projects are prioritised. In contrast, the growth and rate of change of devices and applications continues to accelerate. There is an opportunity for ALONE to enhance and re-purpose the MIS/CRM system layers towards a wider service integration platform (for both some home and 3rd party referral systems). This could provide both resilience and agility to respond at different speeds to on-going changes in home-oriented technologies and partner service platforms.

8.6 B-CONNECT ALIGNMENT WITH SLÁINTECARE AND ICPOP

A goal of the project has been to examine to what extent the B-CONNECT approach can align with the HSE's 10 step Integrated Care Framework for Older Persons (ICFOP). Figure 19. The HSE Integrated Care Framework for Older Persons illustrates the framework as house with the steps arranged as building elements, pediment, pillars and podium. B-CONNECT has touch points to all the ICFOP as follows:

- The B-Connect model is centred on supports to live well. (8)
- The model aligns well with a population planning approach based upon risk stratification, and it offers an opportunity to widen applicability across risk groups. (2)
- The platform (and this project) contribute to maintaining mapping of local/neighbourhood community resources . (3)
- Support coordinators undertake their work based upon awareness and connectivity to HSE service and care pathways. (4)
- B-CONNECT is centred on the development of support coordination / technology engagement (social and technology prescribing) roles – to work closely with new HSE roles such as case management. (5)
- B-CONNECT helps link and align 'social/community hubs/networks' with the HSE's 'multi-disciplinary clinical network hubs'. (6)
- B-CONNECT contributes to strengthening complimentary non-statutory enablers – particularly volunteering / community networking / and ICT and AAL digital technologies (9)
- B-CONNECT can help contribute to transitioning towards person-centred and person-directed care including support for planning and delivery (7)
- B-CONNECT can help harvest community-oriented CRM/MIS data to inform continuous service improvement (10)
- Team leadership can proactively contribute to local governance structures (1)

Figure 19. The HSE Integrated Care Framework for Older Persons

8.7 ALONE AND DIGITAL SERVICES

The ALONE|SIF project, in parallel with developments and experiences during COVID, are now challenging ALONE to better position B-CONNECT and related technologies within the organisation to address future needs and opportunities.

While earlier views might have seen technology as another service pillar or as a layer between human services and clients, recent developments are tending to position technology as a 'set of empowering resources embedded as an integral part of evolving relationships with clients and partners'. As such, technology is emerging as 'an enabler for building sustainable eco-systems of support'.

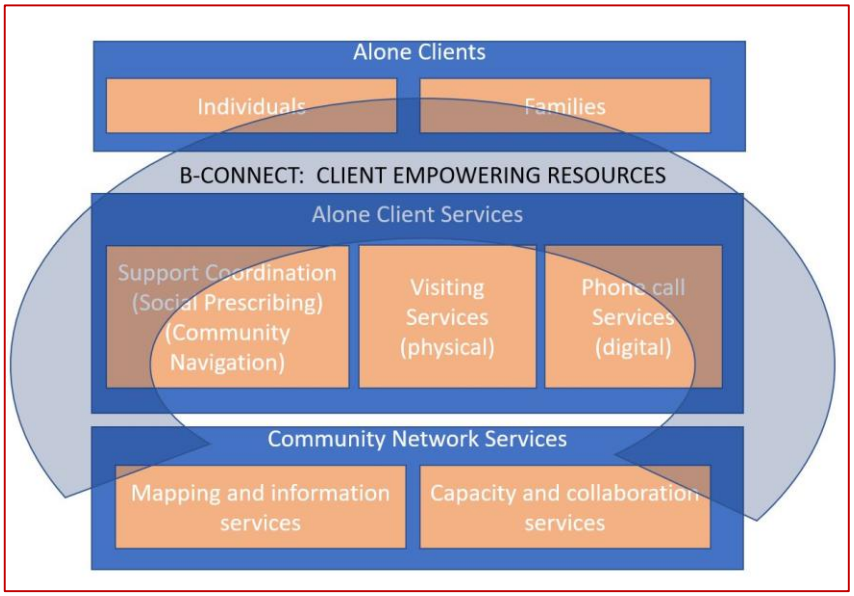

Figure 20. Digital tools enveloping ALONE's services

9 CONCLUSION

When proposing the B-CONNECT project to SIF for consideration during 2019, ALONE documented an ambitious plan based upon partnership. That the project sustained and delivered during a period of global pandemic is a testament to the quality of the collaborative, situational 'leadership-in-practice' that was evident across the project consortium and its team members working together. At it's heart B-CONNECT is a collaborative endeavour. In this pilot in North Dublin with frail and 'at risk' older people, it has been demonstrated to work for family members, and through them, to provide benefits to those who they care for. It works with stakeholders to reinforce the community capacity to support ageing-in-place, and to help avoid or delay negative outcomes and unwanted admissions to more costly, and sometimes inappropriate services. It is neither an alternative form of caring nor a substitute for home care services. Rather, it represents a new way of working together that can strengthen resilience, and reduce the burden of stress on strained family members and carers. It can lighten up lives, change moods, in-still moments of joy, and at times provide a sense of purpose in peoples' lives. It represents a social and digital infrastructure that can present as a seamless part of integrated community health and well-being supports. Over the coming period, as the ALONE model grows and embeds as a cornerstone of the HSE's strategy of enhanced community care (ECC), is hoped that the learning from this SIF supported initiative will continue to resonate, echo and inform some of the ways forward.

10 APPENDICES

10.1 The project structure and deliverables

The following table highlights the project actions, tasks, and key deliverables.

ACTION	TASK	STATUS	COMMENT
Establish Project Governance	Develop a project plan and appoint project team	Completed	Project documents (internal)
	Develop communications strategy	Completed	Project documents (internal)
	Establish oversight and sub-groups with ToRs	Completed	Project documents (internal)
	Establish reporting structure for project milestones	Completed	Project documents (internal)
	Establish reporting structure for financial spending	Completed	Project documents (internal)
	Establish referral pathway with hospital/ICPOP/NSCS	Completed	Activated and in place for the future
	Ensure adequate insurance cover and consent processes	Completed	Project documents (internal)
	Evaluation, impact and project monitoring	Completed	Final Evaluation -This document
Enhance ALONE technology platform and test with participants.	Formalise partnership with technology partner	Completed	Project documents (internal)
	Develop scope for Befriend App	Completed	Project documents (internal)
	Develop system apps as per scope	Completed	Software application
	Develop scope for ALONE volunteer app	Completed	Project documents (internal)
	Improve ALONE volunteer app	Completed	Software application
	Evaluate the integration of voice-based interaction	Completed	Software prototype

	Pilot services, technology and train with 50 older people	Completed	Installations / MIS records (assessments/SPOs)
	Feedback through pre-post intervention surveys and stakeholders	Completed	MIS records (measures/scores pre & post), interview recordings, meeting minutes and records
	Develop universal design guidelines for technology choice and procurement	Completing	Draft recommendations confirmed and included in evaluation. Final document preparing for dissemination
To improve the community's capacity to meet the growing needs of older people.	CHO9 area mapping of like needs for support	Completed	Public document
	CHO9 area mapping of local services and activity supports	Completed	Public document
	Identify gaps in service provision	Completed	As part of collaborative event planning
	Support common model of service provision (Service toolkit)	Completed	Document framework in place for continuous updating for on-going service improvements
	Recommendations for equitable access	Completed	Drafts contained in this evaluation. Inputs for on-going and future policy development initiatives.
	Create an online directory of supports and services	Completed	Available on new web-site (pending link release)
	Design a data management process to ensure directory is up to date	Completed	Project documents (internal)

10.2 Proposed Protocol For Technology Engagement

The following questions were proposed to inform an interim view of a client progress with the AAL technologies within the context of the Sláintecare project. The questions are based upon a hybrid of the Technology Acceptance Model. The questions assume the following:

- A defined set of technologies have been installed in the client's home, the client has received training on how best to use them, and is comfortable with trying them to explore their value. (ability)
- The client is aware of the experimental/pilot nature of the project, that they are contributing to the learning within the project, and that they are happy to share their views, feedback and inputs, as part of the information gathering processes within the project. (purpose and consent).
- The interim visit, and these interim questions, are happening at an appropriate time within the client's journey, (ie between 4 and 8 weeks ?) so that the services can assimilate feedback and respond is/as necessary (usefulness).

It is envisaged that the questions are presented in an open way to invite the client to talk freely about their experiences. Notes taken by the support coordinator will form the basis of information for the evaluation – however, if the client is willing to have the session recorded, this should also be pursued, and can be translated later.

It should be noted that it will be important to understand the clients adoption of (or resistance to) technology, and the extent to which this influences, or is influenced by, access to related services – ie phone call services, befriending, remote monitoring, emergency response etc. Ideally, these data can form a narrative about each case - how they are progressing – and how they can be improved from a co-design perspective.

THEME	INFORMATION	COMMENTS
How are they using the equipment today ?	For each device – is it being used regularly?	YES / NO
	When/how often is it being used ?	• Several times a day • Once a day • Once a week • Less than once a week
Perceived Usefulness	Is the technology helping them to attain their goals / SPOs. What are the most helpful/useful apps/services they are using – and why ? What are the least helpful/useful - and why ?	For each device - How helpful / useful : • Very • Moderate • Neutral • Less • Not

	Is the technology contributing to feeling/managing better in any way - and if so - how?	QUALITATIVE ?
Perceived Ease of Use	Are the technologies (individually, and as a set) easy to use. Have you experienced any difficulties in using the technologies – and what are the main problem areas/barriers ? What are the easiest things to use effectively ?	Things to consider here are: Availability and reliability – does it work properly ? Interaction design – the user interfaces – whether its visual, audio speech etc. Important design qualities for AAL/ICT are: • Body fit (user characteristics and abilities at rest and in motion), • Comfort (forces required by client to use equipment) • Awareness/perception (reception and interpretation of information) • Understanding/Cognition (required thinking, memory and learning processes) • Also –design goals for wellness, social integration, personalisation and cultural appropriateness.
Habit, compatibility and intention	Can you envisage using the technology becoming part of your normal daily routine. Does the client need to make significant changes to their lifestyle/way of life – and is the technology helping to adapt to this change ? Do some technologies 'fit in' more naturally than others.	How comfortable is the client using / working with / living with these technologies ? Might the client have the 'intention' to continue to use the equipment/service if it became generally available through ALONE/HSE services.
Individual context.	Does the client consider that using these technologies is a good way to address many of their needs ? or is their some resistance ? If resistance – what types of alternative services/supports might they prefer to access ?	This is to get at willingness to change /resistance to change. Consider shift from fixed line to mobile. Quality of new TVs. Consider what are the causes of any resistance – privacy / trust / complicated ? Do they fear it's a replacement for human-based services ?
Organisational context.	To what extent is the clients view and acceptance of the technologies related to the softer human support services in the background.	Here we're trying to get at the importance of the technologies as part of a wider community service rather than an end in itself. Does the client see the technology as a gateway/channel to services such as: • Telephone Support and Befriending Service Call • Help desks

	Do they feel that the HSE will have/should have the resources/infrastructure to support these services beyond the project and into the future.	• Emergency response • Remote monitoring (increased safety because others are keeping an eye on me) • Improved home support care etc
Areas for improvement.	After working/using the technologies for a period, and as experts in their own care – what advise of guidance would they give to improve the technology applications /services - so that it might be more helpful ?	Issues to consider here might include: • Reliability • Complexity • Interaction • Attractiveness • In-convenience • Intrusion • Others

10.3 The Range of Technologies Deployed in the Project.

ALONE

Pebbell, emergency fob

Emergency device

- Simple one button press to alert and contact 24/7 monitoring service
- Two-way communication through the device
- Can be used at home or outside of the home
- Geofencing capabilities, alerting up to 3 people when left a certain area
- Easy to use, one button functionality
- Charging cradle for simple charging, ideally located near bedside table

- No additional devices required
- Recommended for people at risk of falling, or with early signs of dementia

Price: €129.95 + 13.50 per month monitoring fee

1

ALONE

Minifinder, emergency strap

Emergency device

- Simple one button press, geofencing initiated alerts, for up to 3 people in the event of a triggered
- Two-way communication through the device
- Can be used at home or outside of the home
- Simple charging with magnetic strap
- Online map recording and visual display for family/friends if requested

- No additional devices required.
- Recommended for people at risk of falling, or with early signs of dementia

Price: €199.95 + 17 per month monitoring fee

2

ALONE

Pan Pan watch

Emergency device

- Wearable emergency alarm connected to 24 hr monitoring service with GPS location capabilities
- Can be used at home or outside of the home
- Two-way communication through the device

- Sleek design, doesn't look like emergency button
- Long battery life with simple charging with magnetic strap

- No additional devices required for use
- Additional Step count, heart rate and inference blood pressure readings to provide information on activity

Price: €247.50 + 13.50 per month monitoring fee

3

ALONE

Smart home sensors

Activity monitoring and convenience

- Monitor activity around the home and on doorways, which can detect / alert concerning events
- Alerts monitored by a family member or carer
- No interaction from user required
- Create automated routines for devices, based on time, motion and or door activity
- Enables devices to be turned on through use of voice

- Wifi required for smart device function
- Recommended for people with early stages of dementia or at risk of falling, living alone

Price: €79.95 + 29 per sensor

4

ALONE

Smart speaker, 'Alexa'

Information and convenience

- Source of information in an accessible manner
- Source of entertainment with a sense of companionship, including music, books, quizes etc.
- Can provide convenience and assistance, such as reminders, turning on lights and other devices, using voice
- Deliver alerts and or questions regarding safety or environmental concerns
- Additional communication and safety measures with screen

- Recommended for people with difficulty using / learning smart phone or tablet devices

Price: €49.95 - 89.95

5

ALONE

Simple phone

Information, emergency device

- Simple to use phone designed for older users, with simple, but limited functionality

- Incorporates an emergency button on rear of phone, which can alert a 24/7 monitoring service or up to 3 personal contacts upon being pressed

- Recommended for people not interested in using smartphone / smart devices, but require additional safety or contact

Price: €79.95 - 119.95 + optional 13.50 monthly monitoring fee

6

ALONE

Simple smartphone

Information, emergency device

- Simple to use Smart phone designed for older users, with simpler interface, menus and tactile buttons on front
- Provides all benefits of a smart phone, in a more manageable fashion

- Incorporates an emergency button on rear of phone, which can alert up to 3 contacts or monitoring service upon being pressed

- Recommended for people with difficulty using smart phone or tablet devices, yet are interested in learning

Price: €279.95 + optional 13.50 monthly monitoring fee

7

ALONE

Indoor/front door safety camera

Safety and security

- Safety camera that can monitor activity at the front door for additional security
- Can be set up to display footage to older person or next of kin
- Alert when motion has been detected or doorbell has been pressed via a smart phone app, or alternatively set up with Alexa screen to display camera footage

- Recommended for those who may benefit from additional security at home
- Wifi and Smart phone, tablet or Alexa show required for operation

Price: €99.95

8

ALONE

Smart watch

Health monitoring device

- Automatic tracking of step count and sleep activity
- Stylish and simple analogue watch face, displaying time and steps in real time
- Syncs wirelessly with smart devices to record and provide a history of readings
- Optional electrocardiogram (ECG) reader, to detect irregular heartbeat

- Smart phone or tablet is required to use this device to its full potential
- Recommended for those hoping to monitor step activity, sleep activity
- Additional ECG recommended for those at risk of Atrial Fibrillation

Price: €69.95 - 179.95

9

ALONE

Blood pressure monitor

Health monitoring device

- Record blood pressure from the comfort of your own home
- Simple, colour coded readings of heart rate, diastolic and systolic blood pressure
- Syncs wirelessly with smart devices to record and provide a history of readings
- Easy to use, with only one button to press

- Smart phone or tablet is required to use this device to its full potential
- Recommended for people with High Blood Pressure or Hypertension

Price: €99.95

10

ALONE

Bed sleep sensor

Health monitoring device

- Sleep detector, showing hours of deep and light sleep and interruptions.
- Syncs wirelessly with smart devices to record and provide a history of readings
- Easy to use, automated recording and syncing. No need to press button
- Unobtrusive, matt placed under mattress

- Smart phone or tablet is required to use this device to its full potential
- Recommended for people with interrupted sleep

Price: €99.95

11

ALONE

Kardia ECG reader

Health monitoring device

1 lead EKG or 6 lead EKG available

- Detects AFib, Bradycardia, Tachycardia & Normal heart rhythm
- Reliable heart health information

- 6-lead EKG gives your doctor more detailed heart information, with visibility into certain arrhythmias, leading indicators of cardiovascular disease

- To be used by carer to further understand heart health

Price: €100 - 160.00

1 lead EKG

6 lead EKG

12

ALONE

Smart indoor security camera

Safety and security

- Placed in unobtrusive locations around the home such as hallways / front door
- Provide added security
- Can provide alerts of motion to designated family member / carer's smartphone
- Can view previous video footage of all movement in the area on smartphone
- Two way sound travel, although quiet through the camera
- Recommended for trusted carers that want to add security for a loved one living alone
- WiFi is required to utilise this service

Price: €34.95

13

ALONE

Hearing device – Bellman maxi

Information and convenience

- Simple listening device that works like a hearing aid – but is much easier to use
- Only used when talking to someone

- User wears a set of headphones
- Friends and family can then speak into a small microphone
- Handheld controller empowers user to adjust volume settings

- Quick and effective solution for those with hearing issues

Price: free

14

ALONE

Alexa with motion sensor

Safety and security

- Motion sensor attached with amazon alexa.
- Can be used to ensure activity in the home

- Provides all Alexa services and benefits as mentioned previously, however may have limited speaker volume

- Recommended for those wanting to monitor activity and motion in the home in a non-obtrusive manner.

Price: 49.95

11

11 References

1 National Disability Insurance Scheme. www.ndis.gov.au
2 What is Social Prescribing? www.kingsfund.org.uk/publications/social-prescribing
3 The mPower Project. www.mpowerhealth.eu
4 Building Capacity for the Evaluation of Social Prescribing – Evaluability Assessment. (2019) Undertaken by S3 and Elemental on behalf of the HSE (Health and Wellbeing), the National Office for Suicide Prevention and the Dept of Health.
5 Social Prescribing and the Digital Landscape. www.London.gov.uk/sites/default/files/socialprescribingdigital_landscapereport.pdf Prepared by Elemental Software. (2020)
6 mPower Mid Term Evaluation Report. Terje, A., Munoz, SA, Bailey, H., University of the Highlands and Islands. (Internal)
7 Chatterjee H., Camic, P., Lockyer, B., Thompson, L., (2018). 'non-Clinical community interventions: A Systematised review of social prescribing schemes'. Arts and Health (10)2, pp97-123.
8 Elston, J., Gradinger, F., Asthana, S., Lilley-Woolnough, C., Wroe, S., Harman, H, Byng, R., (2019), 'Does a social prescribing 'holistic' link-worker for older people with complex, multimorbidity improve well-being and frailty and reduce health and social care costs? A 12-month before-and-after evaluation', Primary Health Care Research and Development, 20 (24), pp. 135
9 Redmond, M., Sumner, R., C., Crone, D., M., Hughes, S., (2019) ''Light in dark places': exploring qualitative data from a longitudinal study using creative arts as a form of social prescribing', Arts and Health, 11 (3), pp. 232 – 245
10 Waddington-Jones, C., King, A., Burnard, P., (2019), 'Exploring wellbeing and creativity through collaborative composition as part of Hull 2017 City of Culture', Frontiers in Psychology, 10 (MAR), Article number 548
11 Thomson, L., J., Lockyer, B., Camic, P., M., Chatterjee, H., J., (2018), 'Effects of a museum-based social prescription intervention on quantitative measures of psychological wellbeing in older adults', Perspectives in Public Health, 138 (1), pp. 28 – 38
12 Social Prescribing and the Digital Landscape
13 Ibid..
14 Ibid..
15 Ibid..
16 mPower Mid-term Evaluation Report
17 Ibid.
18 Pawson,R. and Tilley, N (1997) Realistic Evaluation. London: Sage
19 Common Outcomes Framework for Social Prescribing – NHS England. https://www.england.nhs.uk/personalisedcare/social-prescribing/support-and-resources/
20 Hughes, M.E., Waite, L.J., Hawkley L.C., Cacioppo J.T., UCLA Loneliness Scale – Short: A Short Scale for Measuring Loneliness in Large Surveys. (2008) HHS Public Access
21 Lubban Social Network Scale: Lubben .J.E. The LSNS. 2019 https://www.bc.edu/content/bc-web/schools/ssw/sites/lubben.html

22) Gobbens RJJ, van Assen MALM, Luijkx KG, Wijnen-Sponselee MTh, Schols JMGA. The Tilburg Frailty Indicator: psychometric properties. J Am Med Dir Assoc 2010; 11(5):344-355
23 Sim. J., Bartlam. B., Bernard.M., The CASP-19 as a measure of quality of life in old age: evaluation of its use in a retirement community. Qual Life Res (2011) 20:997–1004 DOI 10.1007/s11136-010-9835-x
24 Wagnild G. A review of the resilience scale Nurs Meas. 2009;17(2):105-13. doi: 10.1891/1061-3749.17.2.105. and www.resiliencecenter.com/products/resilience-scales-and-tools-for-research/the-original-resilience-scale/
25 Graessel et al. Subjective caregiver burden: validity of the 10-item short version of the Burden Scale for Family Caregivers , BMC Geriatrics 2014, 14:23 http://www.biomedcentral.com/1471-2318/14/23 The BCFC Scale: Subjective caregiver burden: validity of the 10-item short version of the Burden Scale for Family Caregivers
26 Davis, Fred D. "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology." MIS Quarterly 13, no. 3 (1989): 319-40. Accessed June 29, 2021. doi:10.2307/249008.
27 Gagnon M.P., Orruno E., Asua J., Abdeljelil A.B., Emperanza J., (2012) Using a Modified Technology Acceptance Model to Evaluate Healthcare Professionals' Adoption of a New Telemonitoring System. Telemedicine Journal and eHealth.
28 Ibid.