Technology Strategy Board
Driving Innovation

Results of competition: Long-term care revolution - SBRI
Total available funding for this competition was £2.4m from the Technology Strategy Board.

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Belle Media	Poppins	£479,403	£479,403

Project description - provided by applicants
The 'Poppins' project is an integrated test system that explores the potential for a virtual currency that will help change attitudes to how the elderly and vulnerable are treated in society and within the dynamics of the High Street.   Thirty/forty years ago, habits were very different and people tended to shop daily at a variety of local shops where people knew them and had time for them. The dynamic is radically different today with out-of-town retail sites, internet shopping and people simply choosing to visit their local High Streets less frequently. Poppins intends to both help shops establish new relationships with a key sector of their customer-base (the elderly) and help build up new uses for the High Street. Shops are expected to see their involvement in Poppins as an example of good customer relations and corporate social responsibility and as a positive example for their staff.   'Poppins' are tagged coins that are given to people as tokens of respect and care by participating retailers and service providers who have agreed to adopt a Code of Practice in their dealings with the elderly. Poppins are exchangeable at a dedicated High Street presence that will also act as focal point for a range of other activities aimed at helping keep the elderly active, interested and independent. Initially, in recognition of the target demographic's perceived preferences, Poppins will be a physical 'coin' but, in due course, a fully virtual version will also be developed.   The initial project is designed to establish a framework that could be built upon in future studies.

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Cardiocity Ltd	SALTC - Simulating Ageing and Long term Conditions	£233,000	£233,000

Project description - provided by applicants

SALTC is a socio-technological research activity concerned with reversing the concept of Long Term Care, and using Reverse Assumption Thinking, looking from the other end, that of the final stages of the condition backwards. By using an immersive experience, the individual is illustrated the typical emotional and financial impacts of these conditions, coupled with the effect on relatives, loved ones etc. as well as the financial impact of providing support for individuals planning for the later stages of their lives.

This project seeks to quantify the most common Long Term Conditions and looks to qualify different deterioration stages for each condition, adding them into a ;protocol of acceptance'. Once this protocol is defined, the project aims to make it available on the internet for interested parties to shape the protocol with their personal experience, thus allowing the public to inform the project of where the 'flash points' of personal acceptance are, with regards the need for external help, when looking at specific conditions.

Challenging the status quo with regards to both policy and practice, the project looks to find a protocol that might be used by a person to add detail and acceptance thresholds to their understanding of the effects that long term condition may have on them. In such a manner, it might be possible to ascertain the boundaries and trigger points to when people suffering from a Long Term Condition, may require assistance, or may no longer consider that the quality of life is worth continuing with.

The final aspect of this research project looks at the socio-economic impact for the UK, using the established protocol's findings to draw a line in the sand regarding suffering and what the public deems acceptable in the context of lone living, and when they need support. It looks to see how support in this context can be planned for in advance and if Living Will's may be augmented by the fidelity that such an immersive experience brings.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Digital Laundry Limited	Flourish	£376,570	£376,570
Project description - provided by applicants			

Aspirational Aging: From Thriving to Surviving

We all come into the world with needs. In order to Flourish, we must fulfil not only the most basic, practical needs, but also those that impact our mental wellbeing, that give our lives purpose and meaning: engaging in activities we enjoy, feeling a sense of accomplishment, and building and sustaining relationships (Seligman 2012). Retaining a positive outlook, keeping active (physically, socially and mentally), and maintaining capability and independence are key contributing factors to mental wellbeing in older people (Humphrey et al., 2011). And Robert Butler, the first Director of the National Institute of Aging, identified that those who expressed having clear goals or purpose tend to live longer and live better than those who do not.

However, when we require support, the current care system assesses need and delivers care from a narrow, physical perspective, rather than evaluating, planning and providing support that also meets emotional requirements. This one-dimensional approach to care is creating devastating results for our older people. Poorly cared for, lonely and socially excluded, they have a higher risk of dementia (Wilson et al., 2007), a 45% risk of higher mortality and a 59% increase in the risk of functional decline, such as walking and climbing stairs (Perissinotto et al., 2012), which could ultimately increase the possibility of care home admission. It is also estimated that the cost to the UK health service of poor mental health in old age will exceed £34.7bn by 2026.

There is, therefore an urgent requirement to address these flaws within the care system to avoid further economic strain on our health services. This is unlikely to happen until we come to the realisation that need is more than just physical, it's the entirety of what is required to make life worth living.

Over the next nine months, our team would like to explore the feasibility of redefining the concept of need. A significant reframing, from a physical perspective to the only one that really matters…yours. From 'needs assessment' to 'understanding purpose', from 'practitioner-led,

one-size-fits-all planning', to 'self-managed, personalised paths to aspiration', from 'delivering care' to 'accessing relevant and meaningful choices'. We will do this drawing on recent advances in positive psychology, working with thriving older people to develop designs, and investigating the potential impact of innovative technology for identifying and managing aspiration.

If we can enable older people to thrive and flourish, the benefits could be overwhelming: not only improved health and wellbeing, but also better allocation of scarce resources, more autonomy and empowerment for older people and their families, and the redesign of delivery to align with the new definitions of need.

Project team members: Digital Laundry (lead partner) in collaboration with delivery partners Northumbria University, Stockholm Environment Institute, University of York; COMPAS (ESRC Centre on Migration, Policy and Society), University of Oxford; Cedilla Publishing.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Leone Services Limited	Connecting Assistive Solutions to Aspirations (CASA)	£372,342	£372,342
Project description - provided by applicants			

"I want to keep living in the comfort of my own home and continue doing the things I like doing. I never want to move into a residential care home, or become trapped in a home that no longer suits my lifestyle. With the current preoccupation with my limited functionality, my aspirations remain largely ignored."

The promised smart home to support independent living has not materialised. The assistive technology market is fragmented and dominated by hardware providers selling products to help with "age-related decline" or "special needs." These are marketed to the general public via poorly designed retail channels, or sold en masse to the public sector using often-unfulfilled promises of cost savings. Specialised technology may be inaccessible due to prohibitive costs or poor commercial application, and most of the products designed are hardware-led lacking in any modern design aesthetics. Technology that is not specifically designed for the "telecare" market but may have great value is often overlooked. Proprietary design can lead to interoperability problems, which usually results in the installation of multiple redundant devices to provide necessary functions. The technology is often inflexible and does not adapt to changing lives, soon rendering it "not fit for purpose". In addition, current technologies are predominantly reactive, designed to detect adverse events or require user initiative to trigger an alarm.

The business aims to transform the market by establishing new and sustainable value chains which deliver excellent client-focused service at all stages of ageing and disability. The multi-disciplinary, person-focused CASA project will explore the opportunity to create a disruptive new market using high profile demonstrators of effective solutions. It will define and develop commercially viable models for lifestyle enhancing, personalised services for all. It will help build an evidence base for the commercial proposition to ensure it delivers affordable and measurable improvements in quality of life and wellbeing. It will explore how best to customise and combine market-ready products and those already on the market; and envision new flexible technologies; which can be deployed and have impact by 2020 and beyond. Technology will be grouped into packs matched to aspirations; be interoperable with other technologies and existing systems; be sold through inspiringly branded, attractive

and easy to use retail channels; and promote independence by having in-built intelligence which detects problems before they arise.

CASA will create a holistic integrated solution for people who want attractive design, efficient functionality and intuitive usability. That's most of us. A personalised service delivering a set of enabling products designed to meet individual desires. Getting technology to do what it does best to enable people to do what they do best. This project pulls together existing and new technologies, working out how they might better fit with people's physical surroundings, social networks and desired lifestyles, to produce an affordable contemporary lifestyle product that is as aspirational as a new kitchen. Be the envy of your neighbours, the first on the street to have your home improved and your life enhanced by CASA.

Project team members: Leone Services (lead partner) in collaboration with delivery partners Institute of Mental Health, University of Nottingham; Bristol Robotics Laboratory, University of the West of England; Sensixa Limited; Swiss Cottage School, Development and Research Centre.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Rescon Limited	One Precious Life	£425,784	£425,784
Project description - provided by applicants			

'One Precious Life' is an ambitious project that will treat individuals in the UK with long-term conditions, such as diabetes, heart disease, dementia, stroke-survivors, asthma and arthritis, as we would high performance athletes. Rescon, a UK human performance company, has teamed up with Going For Independence, a UK social enterprise focused on empowering individuals to become independent, to deliver One Precious Life.

The team are going to actively recruit two individuals with a human performance background and pair them with two individuals from a social care or health background. They are going to house these four coaches together for three months where they will learn about how to apply the principles of high-performance athlete training and service to those with long-term conditions. They will learn off each other, as well as from the expertise of Rescon and Going For Independence. They will also develop a new competition, designed to be inclusive, fun, active and a great spectator sport, based off the principles of popular sports and paralympic inclusivity. Evaluation and monitoring technologies will be developed, as elite athletes would use, but specifically tailored to those with long-term conditions, as appropriate.

After the development and training phase, the coaches, and their support team, will go into hospitals, and recruit participants in the programme who have both the motivation to be involved and long-term conditions. These individuals will be followed up in their own homes where they will be trained up with no attention to detail spared. They will be trained and educated in activity, nutrition, form, function, recovery, managing their conditions, social life, sexual health, and how to access all the information they may need to optimise their day-to-day performance. A specific target in this program is the participation of all "athletes" in the end of program tournament. Our athletes will compete in an arena in this first of its kind competition where success is not just judged on points scored. Equally weighted to points are teamwork, being sporting and style.

By the end of the program we will have taken 28 individuals, with long-term conditions, and given them new hope, an improved body, mind and spirit whilst giving the four coaches a new career in high performance delivery to those who most need it. The pilot of One Precious Life, will

build up the resource, knowledge and evidence for delivering this approach to the UK population at scale. One Previous Life will not only save a generation that are chained by a system that does not address individuals with long-term conditions as valuable, it will also increase employment and booster new industry and the UK economy. One Precious Life is part of the long-term care revolution. Together with the other pilots that are part of the long-term care revolution we will transform the face of the Health and Social Care industry in the UK, providing a better present and future for us all.

Project team members: Rescon (lead partner) in collaboration with delivery partners Going for Independence, Lexilab.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
University of Kent	Developing a Responsive InTeractive Advocate ('RITA')	£498,040	£498,040

Project description - provided by applicants

The UK has an aging population; there are approximately 8 million people over the age of 75 in the UK, and this number is set to increase by approximately 4 million by 2031. The Secretary of State for Health in England (Jeremy Hunt) outlined the future problem for elderly care. He noted that not only will the number of people aged 85 and over have doubled between 2010 and 2030, but there will be over 1 million people with dementia by 2020. (Speech at the Kings Fund 12.09.2013). He was also at pains to point out that the current system of care is "reactive and disjointed", and it is rare that our "older vulnerable citizens are looked after with a joined-up care plan that pre-empts problems before they arise." In an age where public finances are stretched, the challenge exists to develop a means of supporting our aging population to live freely, and independently with dignity and purpose. Addressing this challenge requires solutions centred on each individual, and delivery of an empathic response, empowering the ageing population, focused on their expressed needs, thus assisting them to manage their own lives effectively

The radical idea outlined in this proposal is designed to instigate a new model for care of the elderly in the UK; supporting each person to live in the way they choose. This solution is scalable to individual needs and preferences, and seeks to empower individuals to have control of their own lives and care. Under this project we will develop and provide a digital champion, designed to enable and prolong an individual's ability to live as independently as possible, in their own homes if desired. This champion will take the form of a humanised avatar, who responds empathetically to an individual's needs and their emotional state. It will draw on a personalised repository, populated with a wealth of information relating to the preferences, memories and the well-being of the user, capturing the essence of the individual.

Critically, this champion will ultimately serve as a knowledgeable advocate on behalf of the user, interacting with providers of services, family and friends. This system is designed to ensure that joined-up care plans reside with each individual, and that the system is able to communicate with individuals, and when appropriate, to family, friends and professional support services. This is designed to anticipate problems before they become serious. A central tenet of this system will be the protection of the dignity of the user and the individual's data

enabling individuals to live as they choose, and to be independent for as long as they are able. The project addresses current policy debates on older people, developments in health, social care, telehealth, debates surrounding an empathetic and responsive workforce and the financial future of the NHS. This Responsive InTeractive Advocate (RITA) is person-centred and has the potential to improve both the physical and mental health of the user. RITA will provide cost effective support to vulnerable individuals, enabling a healthy, productive, happy and revolutionary old age for all.

Project team members: The University of Kent (lead partner) in collaboration with delivery partners University of Portsmouth, Affective State, We are Snook.