NEIGHBOURHOODS OF THE FUTURE

BETTER HOMES FOR OLDER ADULTS – IMPROVING HEALTH, CARE, DESIGN AND TECHNOLOGY

A WHITE PAPER FROM THE AGILE AGEING ALLIANCE, A CAMPAIGNING SOCIAL BUSINESS CONNECTING DIGITAL INNOVATORS IN AN AGEING SOCIETY
Better homes for older adults – improving health, care, design and technology
McCarthy & Stone’s CEO, Clive Fenton, explains why it is vital for housebuilders, housing managers and their ecosystem of suppliers to embrace innovation and ensure the housing needs of the next generation of older adults are met.

2017 will see McCarthy & Stone turn 40. The concept of retirement has changed dramatically since we built our first development in 1977. In many ways, it no longer applies. People live longer, work longer, travel more, and expect more. But while most of the change has been positive, certain aspects have declined. Every day we read or hear about older people struggling at home, the poor quality of social care and health services, and rising levels of loneliness affecting health and well-being.

In 1977, when we built our first retirement development, there were around eight million people aged 65 and over in the UK. Today, there are 11 million. In 2035, there will be 17 million, so the numbers will have more than doubled over this period. This pace of demographic change means there is an increasing need for better products and services for this growing segment of our population.

The move into the information age has been the other major change in our society. New forms of technology and ‘big data’ present possibilities for everyone, especially older adults. However, their impact on those in later life is relatively unexplored. This is of great interest to us, particularly how they can support this age group to live better at home.

We have therefore commissioned this report in partnership with the Agile Ageing Alliance, under the technical authorship of Professor Merlin Stone. Its purpose is to review what role technology can play in supporting independent living, providing entertainment and education, while keeping families and friends connected.

It is our view that technology will never replace the human touch and we are sure that developments in robotics will not compensate the need for personal care. But we would like to understand how tech can improve health and well-being and indeed, what is the relationship between health, older people and technology, and how can they support each other and co-exist?

Much of the UK’s retirement housing built over the past four decades reflects the way we, as market leader, have defined the sector. As part of our anniversary celebrations, we’d like to know what the next 40 years has in store for our market, and that’s where this report comes in.

Much like the ‘concept car of the future’, exploring the potential of emerging technologies to enhance our homes and support independent living will help us to continue to innovate and deliver state-of-the-art homes in our smarter neighbourhoods of the future.

We expect this report to influence our thinking, and the thinking of other housing providers. Our aim has been to summarise in one place, perhaps for the first time, what technology is on the horizon and consider how it could empower older adults and improve their quality of life. We would like this report to serve as a valuable resource for all housing providers. To use an appropriate technological term, we want it to be ‘open source’ – for the benefit of everyone – and ultimately to facilitate the creation of new homes that will support happier, healthier and, hopefully, longer lives.
What this report explores

We welcome the cognitive home

People power

Flexibility is essential

Agents of change

Management Summary

The technological innovations featured in this report could have transformative benefits for older adults. However, like health care, where health and social care are combined, there is a serious need for more ‘age-friendly’ housing. While our report argues that a cognitive home, where technology becomes more human and less machine-like, is the way forward, this is only part of the story. Ultimately, the key to successful ageing is the ability to combine technology and human interaction, to support the needs of a generation of receptive older adults who are ready for something different. Some of these needs are being met through the development of smarter homes in our Neighbourhoods of the Future. But what is still needed is a common platform – a humanised ecosystem that can meet the needs of the majority of stakeholders we spoke with, including patients and older people of all ages, including those who need support, and those who want to remain as independent as possible. This is the ‘Cognitive Home’, or, as we like to call it, the ‘Rational Home’.

In summary, if housing providers are willing to listen to prospective customers, we can look beyond the physical design of new housing to a much wider range of possibilities. The ‘Cognitive Home’ is a fundamental shift in the way we think about housing, a shift that will require the rapid development of new technologies. This will be a different kind of innovation, one that is more collaborative and user-driven, one that is based on the needs of older adults and incorporates the views of the many different groups and stakeholders who use housing.

We need to look at the wider context in which housing is provided – the role of the service sector, the role of the service user, the role of the service provider, the role of the regulator and the role of the public. And we need to think about how these roles can be combined to create a more effective and efficient system of care and support. We need to think about how we can use technology to support older adults, to help them to remain independent and to help them to maintain their quality of life. We need to think about how we can use technology to support the needs of older adults, to help them to remain independent and to help them to maintain their quality of life. We need to think about how we can use technology to support the needs of older adults, to help them to remain independent and to help them to maintain their quality of life. We need to think about how we can use technology to support the needs of older adults, to help them to remain independent and to help them to maintain their quality of life. We need to think about how we can use technology to support the needs of older adults, to help them to remain independent and to help them to maintain their quality of life. We need to think about how we can use technology to support the needs of older adults, to help them to remain independent and to help them to maintain their quality of life.
Central to all of this, I believe, is the importance of a more holisic, collaborative and open approach to research, development and commercialisation.

Like most complex challenges, the question of what constitutes an age-friendly home cannot be addressed through the lens of a single discipline, especially in this day and age of seemingly endless possibilities. To this end, for the past year the AAA, in partnership with the European Commission, has been taking soundings from world capitals to city halls and rural communities, in order to inform the development of a 'European Reference Framework for Age-friendly Housing'.

Working alongside Utrecht University, we engaged with national governments, city, local and regional authorities, health and care practitioners, NGOs, corporates, SMEs, end-users, tech solution providers, financial institutions, academics and others. We listened to hundreds of private, public and third sector stakeholders talking passionately about new forms of cross-border and cross-sector collaboration, sharing capacity and developing risk-sharing models in a spirit of open innovation.

This bodes well for a future where, instead of focusing on imposing our own exclusive standards, we should be thinking about improving user experience and interoperability. While we will still be competing, let’s embrace a shared long-term vision based on a set of principles, a voluntary code of conduct and a common language.

Some of the ideas covered herein could be mistaken for science fiction, but they are all based in reality. In the words of science fiction author William Gibson: “The future is already here – it’s just not very evenly distributed.”

Made possible by AAA founder member McCarthy & Stone, the UK’s leading retirement housebuilder, this report embraces the art of the possible and is unapologetically optimistic. Here we look to the future for our older selves and ask: What If?

IAN SPERO
Founder, the Agile Ageing Alliance

Setting the Scene

The convergence of game-changing assistive technologies and big data analytics constitutes a golden opportunity to rethink the outlook for ageing populations, especially in terms of housing. This is the driving force behind Neighbourhoods of the Future, a pan-European collaborative initiative orchestrated by the Agile Ageing Alliance (AAA), an independent social venture and campaigning organisation which aims to boost knowledge, investment and commercialisation of innovations that promote agile ageing at home and in the community.

Once considered a luxury, the demand for streaming services, social media and gaming has turned high-speed internet into an essential utility. In the UK the Government recently announced plans to invest £700 million in ultra-fast broadband, as part of a £1 billion boost to Britain’s digital infrastructure. Indeed, as the world becomes increasingly connected, we need sustainable networks that can boost emerging technologies in order to empower our smarter homes, cities and Neighbourhoods of the Future.

The Agile Ageing Alliance (AAA) is a platform for sharing best practices and knowledge exchange and collaboration, and for promoting cross-disciplinary, transdisciplinary and transnational approaches to solving the challenges faced by older adults. Founded in 2017 by a group of European collaborators, the AAA promotes a European collaborative, interdisciplinary approach to tackling the challenges faced by older adults across Europe.

Ian Spero, Founder of the Agile Ageing Alliance, explains how developments in the UK can benefit from cross-border, transdisciplinary collaboration and knowledge exchange.

In order to promote our member homes, colleagues and partners, the AAA has developed a network of homes and care providers that are leading the way in age-friendly, innovative care. Our members are committed to improving the quality of life for residents in their homes through the provision of high-quality care and services.

By the Agile Ageing Alliance (AAA)
How stakeholders are willing to collaborate in a united effort to reimagine how we house the current and next generations of older adults. The Commission envisage that this vision will be supported and advanced in the near future,.trade in free movement of people and goods. A European Commissioner delivered the first phase of a Blueprint which aims to demonstrate how digital innovation can transform demographic change into an opportunity for Europe’s economy and society. Recognising that a shared vision is essential to mobilise investment and guarantee the commitment of all actors, the blueprint is a collaborative process involving a broad spectrum of stakeholders including the European Innovation Partnership for Active and Healthy Ageing, reference sites, industry, standards organisations, and user organisations; underpinned by a €4 billion commitment from the public sector to invest in health and care innovation in the next three years across Europe.

The Commission envisage that this vision will be developed through a unique, open, collaborative and dynamic set of resources and tools, co-created with a number of “champions” including organisations such as the Agile Ageing Alliance.
BETTER HOMES FOR OLDER ADULTS – IMPROVING HEALTH, CARE, DESIGN AND TECHNOLOGY

NEIGHBOURHOODS OF THE FUTURE – BETTER HOMES FOR OLDER ADULTS – IMPROVING HEALTH, CARE, DESIGN AND TECHNOLOGY

live healthier, more meaningful, agile lives, for as environments can enable an ageing population to take a fresh look at how smarter homes and user experience.

At the time this was quite revolutionary thinking. Nowadays of course, you will find it difficult to identify a credible consumer-facing business that is willing to invest in order to develop and implement the ideas together. The first thing that struck me from my research with middle and older-aged consumers was how disjointed this sector is. The outcomes we need will only be possible if we have an open innovation, not of superior knowledge and expertise, which no-one can claim.

To this end, we have engaged and conducted research with a wide range of older adults and experts, who no-one can claim. The results we need will only be possible when we use our combined knowledge to apply the findings to our daily lives. There are many new generations of older adults and the evidence suggests that, when middle-aged and older adults get involved in new activities, they can be more effective than their younger counterparts.

I now walk to work, or if worst comes to the worst, I take a local bus. It is free, after all, when you get to my age! I now feel 40 or thereabouts and like so many of my friends and peers, I am enjoying life to the full. My life is reliable, because my relatives did not grow up in overcrowded and less modernised homes where the average age of the household is older. In January 2008 I was 68, but it is not yet the age of retirement. Research for the Financial Times by Professor of Business Transformation for IBM, the former IBM Innovation partner Ian Spero invited me to join the Agile Ageing Alliance, with a view to taking a fresh look at how smarter homes and user experience can help us to live better at home.

In this section Professor Merlin Stone explains how he was lured from corporate customers to use customer relationship management (CRM), information technology and corporate social responsibility (CSR) to new audiences. The outcomes we need will only be possible when we use our combined knowledge to apply the findings to our daily lives.

The outcomes we need will only be possible when we use our combined knowledge to apply the findings to our daily lives.
European countries of the other advanced modernised than in most overcrowded and less older, smaller, more
the UK the average home is not fit for purpose. In Commission over 70% of

According to the European

Commissioner over 70% of

Europe's housing stock

immediately.

in fair weather and foul, with our spouses, partners,

on our doors. However, it will soon include much more

waiting for us..." Microsoft, Facebook and other social media
devotees, of at least two and possibly more of

products and services of the companies providing

products, taxation, local administration (from

As we age, controlling and managing our homes

It's truer than ever before that life begins at 40,

are 30 years! We're not of course forgetting the

70% of

As our generation ages, we will become centres

and decision makers. We are

Whist enjoying media content when and how we

will become instinctive. We will know everything

It's not fit for purpose. In

in the European

Commission over 70% of

through modern technology, our homes will

And this experience has informed the way all the

in use in many homes, such as maintaining the

and communities of the future your offer must be

parking fines to collecting rubbish) and so on.

at least) the most moneyed older generation

Don't forget too that we are (some

than just where we live. It's about the technology

So, when you talk about us and our future homes,

The way we generally do things is going to be ruled out

We don't want to be 'educated' to use this

We're not of course forgetting the

We have all used the same

and off. However, it will soon include much more

will become centres of consumer and service economy of the post-war

So, let us be clear. When planning our homes

"Cognitive Home" as a partner in our lives, helping

activities: education, fitness, local shopping, home services, taxation, local administration (from

As our generation ages, we will become centres

of agile ageing, while

The way we generally do things is going to be ruled out

we expect, we are now, we expected,

there has ever been. We lived through the yuppie

And this experience has informed the way all the

the way we already lead our

channels – and anything that doesn't fit smoothly

and they are already emerging, based on the idea of the

imagine a growing number of older 'customers',

in the neighbourhood, communicating with our

providers. We expect the days of having to battle

and off. However, it will soon include much more

as customers, a good service experience.

no matter what that meant for us

we will expect an update on what's

As our generation ages, we will become centres

As our generation ages, we will become centres

and off. However, it will soon include much more

with authorities and suppliers to get what we need

In the service economy, often being part of it as

There is another way of looking at all this. Let us

As our generation ages, we will become centres

we will expect our homes to be – dare

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WE’LL CUSTOMISE OUR LIVES

Let’s make a connection

We now have access to a doctor at the tap of a finger. As technology has evolved, so have our expectations. The internet has become the go-to place for anything we need. We can research, compare, and make informed decisions. We can even shop online and have items delivered to our doorstep. We can access our medical records and share them with our doctors. We can even have a virtual consultation with a doctor from home. No longer are we the patient, polite folk waiting in queues. Today, we are the online buyers with the ability to select what we want, taking a few options from the hundreds (or thousands) of media channels available. We are the home producers, but also the home players and entertainers, managing and adding to our content in ways that we determine. How we are. Of course, we like the human touch at the end of the spectrum there are the early adopters who always have the latest and best technology, while the majority prefer to wait for things to be delivered. We are (though perhaps only some of us) prepared to become proficient at managing that condition, bearing in mind that older adults are likely to suffer from at least one chronic condition and will be concerned about health – what we have now and what awaits us. We are more aware of developments and how they can impact our lives. The rise of the robots is not to be feared – it will increase our productivity. However, we may want the consultation to be digital not physical – no embarrassing questions. Whatever helps. If we have any uncertainty and don’t know what to do we’ll ask Siri, Cortana, Alexa, Google Now or Samsung’s new Bixby; or maybe the car. We want our doctors to be cognitive, and to help us diagnose ourselves, using basic sensors and ever more intelligent diagnostic tools at home. Even though it is good manners, we don’t need to show up at their convenience. We'll even refer to our own personalised digital assistant, digital doctor or robot. The house will know we are coming and turn on the lights, the heating, the music, and the coffee. When we arrive home and the house lights go on, and in the winter the heated seats go on too, then we say the house to the car. We don’t want a car or a appliance to be an obstacle no matter how helpful their intent. And please, let’s ensure that – when we need help is supplied at the right time, or if we are carers suit both us and whoever is helping us – to create a living environment that works. We don’t want to wait in queues or for people to make decisions. We want our lives and our care to be digitised, and to be delivered.

As Britain is confronted by the fact that many of 500 local doctors’ surgeries may have to be closed of GP training posts unfilled in 2015. As many as 8000 may need to be trained each year to meet the demands of an aging population. We are (though perhaps only some of us) prepared to become proficient at managing that condition, bearing in mind that older adults are likely to suffer from at least one chronic condition and will be concerned about health – what we have now and what awaits us. We are more aware of developments and how they can impact our lives. The rise of the robots is not to be feared – it will increase our productivity. However, we may want the consultation to be digital not physical – no embarrassing questions. Whatever helps. If we have any uncertainty and don’t know what to do we’ll ask Siri, Cortana, Alexa, Google Now or Samsung’s new Bixby; or maybe the car. We want our doctors to be cognitive, and to help us diagnose ourselves, using basic sensors and ever more intelligent diagnostic tools at home. Even though it is good manners, we don’t need to show up at their convenience. We’ll even refer to our own personalised digital assistant, digital doctor or robot. The house will know we are coming and turn on the lights, the heating, the music, and the coffee. When we arrive home and the house lights go on, and in the winter the heated seats go on too, then we say the house to the car. We don’t want a car or a appliance to be an obstacle no matter how helpful their intent. And please, let’s ensure that – when we need help is supplied at the right time, or if we are carers suit both us and whoever is helping us – to create a living environment that works. We don’t want to wait in queues or for people to make decisions. We want our lives and our care to be digitised, and to be delivered.
Back to the Future continued
There is a growing demand for age-friendly housing, but where will the funding come from? Here we speak to experts in longevity, property, banking and architecture to understand the perception of the challenge, as well as the opportunity within this growing space.
BETTER HOMES FOR OLDER ADULTS – IMPROVING HEALTH, CARE, DESIGN AND TECHNOLOGY

NEIGHBOURHOODS OF THE FUTURE – needs of the ageing
care real estate, largely motored by the public and private demand for health equity that can be used to fund social care in later life. Companies are scrambling to meet the demand for health care real estate, largely motivated by the needs of the ageing.

Believe it or not, property investment companies are keen to emphasise that the next generation will be split broadly between those who need specialist retirement housing or care, and the ‘younger older’ adults who can address this disconnect and create some sort of adaption subsidy and low interest loans schemes. This is helped by the next generation, who have grown to 376,000 homes by 2030. If current trends continue, the gap could grow to 160,000 retirement homes by 2050.

Nick Howe; “We are seeing a perfect storm of demand for health services across the sector of last time buyers and encouraging downsizing is one of last time buyers and encouraging downsizing is crucial to addressing the housing crisis. According to Regional Enterprise Manager, Jeremy Porteus, former National Programme Lead for Housing at the Department of Health, “By partnering with the Agile Ageing Alliance, we learned about pioneering home clinics, assisted living facilities and age friendly homes. We are very enthusiastic about this area and the wider ageing population. By being such an early mover within a significant emerging market, we are aiming to construct, profile, and prove our own research confirms that older adults can stay in their own homes for longer, and can release equity to buy private professionally configured homes for retirement, of which there is not enough provision.

One of the biggest barriers is the lack of innovative financial mechanisms specific to age-friendly housing. In fact, they are going through the kind of business plan sea-change you only normally see in times of radical change such as war. The downside is that these investors are so busy meeting basic needs for care to be closer to the home. There is clearly a need which can be fulfilled with innovative solutions that address the disconnect? Should the two sides be speaking the same language? We know the ageing population needs but isn’t getting. Is there a hidden opportunity.

The next generation of older adults (and even younger older adults) are not set in their ways and are taking very well to technology. Isolation is a serious problem, but even this can now be mitigated by technology. In many cases an older generation can use technology to stay closer to their children, and grandchildren. This could not only benefit our retail and one-stop shops for products and services, and businesses, but also our own staff base. By partnering with the Agile Ageing Alliance and the Commission we have seen very important, as these determine attitudes to technology. In many cases an older generation can use technology to stay closer to their children, and grandchildren. This could not only benefit our retail and one-stop shops for products and services, and businesses, but also our own staff base.

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There is no doubt that an ageing population constitutes a significant challenge, but we can rise to the occasion.

An extended version of this essay is available in the Design for Science, 2015).

There is evidence that older people would like more easily managed homes to meet their residents and commercially successful, but many mismatches between their needs and their needs in later life.

According to the NHS, 64 per cent of registered a large number of older people in conventional neighbourhoods. In England, only 28 per cent of homes alteration accessible, and in 28 per cent of homes alteration accessible. The key features of accessibility – level access, seating, or working toilets. Properly maintained are no step-free access points, ramps, handrails, and exit points. This is clear evidence of the benefits to well-being, autonomy and sense of self in living in a known familiar setting.

On the face of it, this is a happy situation. But and familiar setting.

However, a significant UK population over state pension age is disabled in some loss of mobility and increasing difficulty in bending, stretching and weight bearing.

Only 24 per cent of the UK population is over state pension age and hearing loss.

Current mismatch between the UK housing stock and people's needs in later life.
The future is coming, but what will it look like? Here we let our imaginations run wild. Our Cognitive Homes of the future will seamlessly align interoperable solutions which will redefine the way we live, play and learn.
In years to come assistive technology will touch most, if not every aspect of ageing at home. To mark the 40th anniversary of their first groundbreaking purpose-built development for older adults, our friends at McCarthy & Stone asked AAA to reimagine what a retirement home might look like in the next decade or two.

Following an international competition we selected Moive Ltd – a London based architectural, design and visualisation consultancy. The following images are based on an initial concept design for a future cognitive living cluster – made up of modular ‘plug and play’ units which take advantage of sound design principles and advances in pre-fabricated construction techniques and technology to create a barrier free environment which will support independent living.

Working in collaboration with the AAA, Dariusz Sadowski and Martin Piotrowski of Moive have been thinking about the relationship between architecture, design and technology, to empower and sustain older adults. According to project lead Dariusz Sadowski; “The idea is to integrate advanced building fabrics with a pre-installed technical membrane so that these advanced living clusters work seamlessly with their immediate and wider natural environment to minimize the impact that buildings have had on health and care systems in the past. The focus of the design is to make the cognitive home independent living spaces and support independent living by being able to produce additional energy to feed into the grid.”

Here we look at some of the innovations we may well find in our Cognitive Homes of the not too distant future.
As we near home, our personal drone(s) will fly ahead to ensure there are no surprises waiting in store. We will have kept up to date via the screen mounted to our electric bike, or our smart watch as we stroll with assistance from our friendly smart walk assist device. If it’s been a particularly hot day, our thermostat has adjusted accordingly and our solar shaded windows will recalibrate to let in just the right amount of light. Sonte can alter the levels of transparency or opaqueness of windows either automatically or remotely (eg. through an app).
immediately ahead. "Some homeowners in the vicinity will be actioning any emergency happen if your running the course or around your town in the country or around your place out of control. You can feel more secure at your location and enjoy all nature outside on your range. Or maybe you may just want to hang around when you can meet up with neighbors, friends and family, or you can enjoy watching your favorite hologram series. If you are feeling more energetic you could take a virtual cycling tour in the countryside or around your favorite city. And do this knowing that if anything untoward happens if you are alone, someone in the vicinity will be immediately alerted."

COMMUNAL LIVING SPACE

WALKING ASSIST DEVICE

PROJECTION SCREEN

STREAMING, VR, IAT COMPATIBLE

SOLAR SHADES

HUMANOID / ROBOT

ACTIVE CHAIRS

ACTUAL WEATHER / NEWS STREAM

SMART MIRROR

HOLOGRAPHIC / TOUCH TABLE

FALL DETECTION FLOOR

See also the universAAL IoT platform page 44
Pull Down Shelves
Existing technology – allows users to literally pull down storage without the use of a step stool – making it safer for both older adults and young people.

ECO Fire Line
In the future, there will be more ways to enjoy the aesthetic pleasure of a fire, safely yet realistically. According to Plankia, "Creating a long line of real fire wouldn't be possible without Burning Ethanol Vapours (BEV) technology, which ensures the highest level of safety, fuel combustion efficiency and allows the presentation of a unique fire – natural, golden flame with ideal shape and height."

Smart Fridge
This is one of the more advanced IoT enabled development solutions. A smart fridge can communicate with personal digital assistants and alert users to foods needing replacement or even order directly with the supplier if so desired. When connected with health monitoring devices, the fridge can even advise you to stay away from that whipped cream!

Care-O-Bot 4
Modular service robot assistant to support humans in their daily life tasks.

Biowall
Biowall is a hand-woven structure that can be crafted into lace-like surfaces of any dimension and form providing a vertical support system for growing plants, vegetables etc. According to one of the leading company's working in this area is Biotecture.

Sustainable living walls are a truly flexible, modular system that help transform any built environment bringing a new level of sustainability through intelligent water management and stable system dynamics."

Full Zone Induction
Allows you to take advantage of any part of a worktop surface for cooking – without specific 'hob' zones. Looking to the future we envisage that surfaces and counters will be multi purposed. Here is a video for an early Gaggenau system.

Kitchen Robotic Arms / Robotic Chef
A compact stationary robotic device that can prepare meals to any digitally acquired recipe.

Soft Moving Walkway
Modelled on the principle of an airport moving walkway we envisage a smart walkway in the home environment providing a convenient and safe means of moving about. If you want to give your robotic chef the night off, you will find it much easier to reach your pots and pans thanks to spring-mounted, pull-down shelves, while your smart fridge makes sure you don't run out of ingredients by automatically keeping stocks topped up. And you will be able to grow your own ornament vegetables and herbs on your very own indoor biowall.
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NEIGHBOURHOODS OF THE FUTURE –

underestimate what we can achieve in 10 years." need to integrate the built environment with IT overestimate what we can do in a year, but if we want to tackle this challenge at scale, we with acronyms, slang and hollow phrases, but...

The IoT says: "Everyone will be huge professional and home leaders will come to your health care, human-to-machine, but even

People, Nations and Business that:

"The best way to predict the future

is to create it."

support our needs. Information systems will free us of many small burdens that today add stress and chip away at our mental health. They can improve everyday life for those who are "...information systems will free us of many small burdens that today add stress and chip away at our mental health. They can improve everyday life for those who are

"Some of the latest digital solutions

PREDICT THE FUTURE

"THE BEST WAY TO "THE FUTURE WORLD"
As the population ages, we're going to see an increasing number of people either carrying on gaming into retirement, or perhaps discovering gaming in their later years. That's a huge market for developers to explore. "When you get two people together in a virtual world, you get the full experience. You get the total package. You get the technology, the environment, the gameplay. You get it all." - Alison York, Research Director, Nickelodeon

With big releases from Microsoft such as the HoloLens and Holoportation, and the hugely secretive Magic Leap still to come, home entertainment and indeed our workplace is set to change beyond recognition. Supposedly, we won't need our TV or tablets to get our entertainment, as it will be beamed directly onto our retinas or glass eye wear. At Develop 2016, the annual game developer conference, it was predicted that VR—often criticised for being a solitary experience—will in fact bring us closer together.

"When you get two people together in a virtual world, you actually get to see how they move and how they talk, and how they interact with the world. It lets you connect as if you were really actually in that room with them. And it's pretty powerful." - Anna Sweet, Head of Developer Strategy, Oculus

Chad Jones, Chief Strategy Officer for Deep Information Sciences, sees Holoportation as a potential gamechanger. Commenting in a LinkedIn blog, he wrote:

"Holoportation is a new platform that will change the way we communicate, remember our lives and even view other's memories. What could a movie become in this new platform? Now imagine sensors (commonly referred to as the Internet of Things) that sense the target room's temperature, pressure, lighting, etc. then recreates those environment variables in your room. You could do heat, wind, cold, etc. Imagine virtually exploring a location, holodeck style, with sensory immersion! Want to see what it truly feels like right at this moment in front of the Taj Mahal, say in August? Yep, you'll get the full experience. You'll get the total package. You'll get there in your own room, in your own time, from anywhere in the world."

And as VR continues to develop we'll be able to do more than see these virtual worlds. Thanks to developments like Intel's Project Alloy, we'll be able to feel them and even see ourselves and others, so we can share more experiences with one another. We can enjoy more experiences with our friends. We can stay more engaged in a virtual world.

"The family that plays together..."
Where technology exhibits intelligence.

Responsive technology will begin to make an inexorable transition from today’s world where such things are not freely available?

Where digital images interact with physical objects from the real world.


Computer generated sensory inputs such as graphics or sound that 'augment' a live view of a physical, real-world environment through devices and software generated environments in which users can interact with the space.

Software generated environments in which users can interact with the space.

To revolutionise health and with our friends care coordination.


Exciting and insanely scary - Chad Jones, [online] Available at: http://www.huffingtonpost.co.uk/maarten-ectors/the-future-of-your-smart-home_b_1025950.html

Digital health will make us active partners in our health care. But what can we do as individuals to better manage our health at home, and become more proactive health managers?

"VR will allow us to shop for clothes at home as if we were looking at ourselves in a mirror – changing our style and fashion."

"But the next generation, using just their cheek. But the next generation...

Professor Stephen Hawking can communicate through immersive sensory input – for example, using a device that translates speech to text. To add to this, our HCP , while Vida, dubbed the ‘Uber of care’, will extend to every corner of the globe, so no matter your need for the day – a hard to open jar, a cartridge, we'll say goodbye to simply watching TV or travel programmes as a multi-sensory feast. In the future of the industry."

And what about clothes shopping? No longer have to leave home for a diagnosis. Nor do we have to trial]

But the next generation...

Multifunction devices will be able to identify early signs of disease.

In addition to the activity trackers such as FitBit, there are health platforms arriving every day to help us record specific health data to share with our health care practitioner. Using AI, providers can then address identified issues by creating proactive health management plans such as fitness programmes, sleep monitoring or medication reminders.

Today’s tricorders will be able to measure an individual’s bio signal profiles and deliver pharmacogenomic advice.

The Star Trek tricorder, which was a multifunction device, was originally created to provide medical information and address emergency situations.

"We may one day be able to use the mobile phone to order our preferred medicine. Or view a hologram image of a doctor who will address our medical needs."

Software generated environments in which users can interact with the space.

But the next generation...

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But the next generation...
BETTER HOMES FOR OLDER ADULTS – IMPROVING HEALTH, CARE, DESIGN AND TECHNOLOGY

and information or conclusions from the analysis

developed a demonstration centre in Portsmouth, companies that the likes of IBM has identified as

Apple and its focus on robotics. IBM is currently

Deutsche Telekom/T-Mobile, Italtel, Liberty Global, companies more on the provision of managed care, partnering

broadband capacity limitations. When this 100 per

and management, security, managing domestic

App (e.g. GE Wink), or involving establishment of a

house, which interacts directly with humans in a

and is also one of the sponsors of the Sphere

Assistant, Amazon's Alexia and Samsung's Bixby

Yes, on the surface it may seem a bit like the HAL

computer in 2001: A Space Odyssey, but it is much

how it can be analysed to allow customers

range of services (e.g. insurance, health) meet their

when needed or warn them. These businesses also

and how it can be analysed to allow customers

importance of the design of the Cognitive Home.

The big four – Amazon, Apple, Google and

children, and the leap from provision of the carrier network to

friendlier and focused totally on meeting the needs

constitute a true dialogue. This underlines the critical

of leading companies in every sector – from

DOMOTIC SYSTEMS, SERVICES AND

DIGITAL DEVELOPMENTS:

DIGITALIZATION US AND OUR HOMES

HOW COMPANIES ARE PLANNING TO

PRODUCT PROVIDERS, SYSTEMS, SERVICES AND
When it comes to long-term care, the supply is significantly underdeveloped, and there is considerable scope for both businesses and service models. In particular, we believe that social entrepreneurs and start-ups have an important role to play in addressing this gap. The Silver Economy is a significant opportunity, with estimates suggesting that the market could be worth over £160 billion by 2025. However, small businesses need to learn to navigate the regulatory landscape and to develop innovative business models that can appeal to consumers in a highly competitive market. We know that small businesses can be very innovative, and we are committed to supporting them in their efforts to address the challenges of an aging population.

Over the past two years, we have worked closely with the UK government and the European Commission to develop a framework for promoting innovation in the Silver Economy. Our aim is to create a supportive environment for small businesses and start-ups to flourish, and to help them to find ways to access the funding and support they need to succeed in this exciting new market.
BETTER HOMES FOR OLDER ADULTS – IMPROVING HEALTH, CARE, DESIGN AND TECHNOLOGY

NEIGHBOURHOODS OF THE FUTURE – BETTER HOMES FOR OLDER ADULTS – IMPROVING HEALTH, CARE, DESIGN AND TECHNOLOGY


it detects burning food, while Unibot is a handy introduced an oven that automatically turns off if busy rooms. With safety in mind, General Electric services when needed will be provided by external sensor technology in each apartment. Special care support the inhabitants.

For those with limited hearing, Oticon revealed a smart hearing aid which can be controlled via an operators. The concept takes into account the needs of our ageing population by developing of the Internet of Things.

AAA asked Karina to identify products and services we should be looking out for. Some of the solutions listed here are available today, others promising solutions to market, working with end development and/or distribution partners. One of the most promising of this new breed is an international R&D programme funded by the EU co-

Cheaper technology paired with AI will mean more personalised products. Entrepreneurs have spotted an opportunity to develop new products and services that meet the needs of an ageing population. Here AAA highlights a selection of advanced concepts and solutions encountered on our travels.

INTEROPERABILITY IS KEY

The market for platforms specifically designed to get the most out of AAL has grown significantly since AAL was an extraordinarily wide range of products and services when needed will be provided by external sensor technology in each apartment. Special care support the inhabitants.

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Products and Services Review

Focus on health and care

Coming soon to a
neighbourhood near you
continued

Activ8Health Explorer: A winner of the 2016 AAL Smart Ageing Challenge Prize for the best innovation that uses the Internet of Things to empower older adults to achieve the quality of life they aspire to, socially and independently.

The Activ8Health platform (pronounced: Activate-for-health) opens up a window to the world for older adults by bringing the joy and health benefits associated with cycling outdoors inside into the comfort of their own home. Each user gets a personalised experience to fit their needs, motivations, and abilities. There is total freedom to explore urban and rural environments. The user simply selects a street on a map and get the visual experience of cycling through that location, at each intersection they can choose in which direction to go.

Web: www.activ8health.eu

Care@Home: A personalised care portal

Bringing together a range of services into a personalised communication and service channel, Care@Home aims to enable older adults to continue living in their own homes in safety, comfort and independence.

Using mobile phones, wireless wearables and fixed sensors, the project's open platform makes it possible to assess and manage risk by unobtrusively monitoring the home in real time, all the while functioning as a two-way communication channel for family, friends and caregivers. The project is now being tested in the Netherlands through a spin off social enterprise called Zo-Dichtbij. If it lives up to expectations, there are plans for an international roll out.

Web: www.zo-dichtbij.nl

CloudCare2U: Supporting behaviour change

If you've been trying to kick some bad habits, and adopt a healthier lifestyle, you might realise this can be difficult without some support. Fortunately, the market is flooding with apps that support healthy behavior one way or another. Now, Activ8Health brings all these apps to your home, in an innovative interactive wall hanging that you can adapt to your own needs, wishes and abilities. The project is now being tested in the Netherlands through a spin off social enterprise called Zo-Dichtbij. If it lives up to expectations, there are plans for an international roll out.

Web: www.cloudcare2u.com
Coming soon to a neighbourhood near you

**PRODUCTS AND SERVICES REVIEW**

**Focus on health and care**

**ConnectedCare: Enabling sociable and collaborative support**

Today a range of mobile applications and devices are available to help older adults manage their life. Inspired by the social character of day-to-day caregiving, the ConnectedCare platform enables a senior to easily ask support from their network in case of incidents. Evidence shows that the platform improves communication and increases peace-of-mind. The platform is now being used by an increasing number of care organisations in the Netherlands, and organisations from other countries – including the UK – have shown interest.

*Web:* [www.connectedcare.eu](http://www.connectedcare.eu)

**Inclusion Society: Coordinating care**

Inclusion Society is a connected service system that aims to improve communication and coordination between sectors, friends, family and older adults for a better overall community care service. From a core device called the HomePad, the service user is able to monitor their health and communicate with family, friends and local services from a distance. The platform includes integrated alarm buttons and home sensors – for example, a senior with mild cognitive impairments can now move outdoors more safely, since they can easily ask support from their network in case of incidents. Evidence shows that the platform improves communication and increases peace-of-mind. Inclusion Society is now being used by an increasing number of care organisations in the Netherlands, and organisations from other countries – including the UK – have shown interest.

*Web:* [www.inclusionsociety.com](http://www.inclusionsociety.com)
Coming soon to a neighbourhood near you
continued

PRODUCTS AND SERVICES REVIEW

Focus on health and care

RGS: Virtual reality for post-stroke care

Rehabilitation Gaming System (RGS), is a new science-based approach towards the training of the brain. RGS comprises expanding libraries of clinically validated protocols for the neuro-rehabilitation of motor deficits, affective disorders, cognitive and language deficits caused by brain damage.

“The basic idea from here is that we can talk to the brain systems affected by stroke and this will help it regain its functionality,” explains project coordinator Paul Verschure. “It enables the patient to respond to things going on in the virtual world that are designed to stimulate communication between their perception, what they’re seeing and what they’re feeling and their motor mechanisms. The system adapts to an individual’s specific needs learning as it goes.” Currently deployed in hospitals, in the longer term, Verschure anticipates development of a more personalized system to be used at home.

Web: www.eodyne.com

Sansara: An innovative monitoring system without cameras

“The challenge was to develop a system suitable for people in different needs in terms of support and monitoring. In all these stages there are different needs in terms of support and monitoring and we need to develop a system suitable for people in different stages of dementia,” explains Dr Irek Karkowski. “Sensara is a non-intrusive home-based sensory system that calibrates itself to the user and monitors services in their daily life.” The system aims to detect a system suitable for people in different stages of dementia.

Web: www.sensara.eu
Coming soon to a neighbourhood near you

Focus on mobility and domestic support

Products and Services Review

Connected Vitality: A new level of communication

Older adults with mobility problems can have difficulties organising their social connections and lifestyle in the way they want, which puts them in a situation in which they are reliant on others. Connected Vitality has developed a video communication network that enables immobile senior citizens to organise their social network, choose an activity and select levels of social interaction according to their individual needs, abilities and lifestyle.

Web: www.yooom.com

AXO-SUIT: Modular full body exoskeleton for older adults

AXO-SUIT aims to deliver commercially viable assistive exoskeletons which will support older adults in their daily tasks and in participating in occupational and social activities. The project brings together academic and industry partners who are active and experienced in the assistive technology business to create a solution that meets older adults' functional needs at an affordable cost.

Web: www.axo-suit.eu

iWalkActive: Enabling active living

Declining mobility isn’t simply a barrier to performing the everyday physical activities of normal life; it is a loss of independence that is not always easy to accept and leads to growing dependence on caregivers. iWalkActive was born with the hope of restoring that independence. Conventional rollators and motorised “velopeds” are handy for getting about, but because they are quite basic ungainly tools, there is a stigma surrounding them. With intuitive sensors, e-drive functionality and cloud-based services, this active walker brilliantly combines an array of technologies to drag the rollator into the twenty-first century.

Web: www.iwalkactive.eu

DOMEO: Helper robots at home

A mobility assistive and companion robot providing personalised domestic services. Serving as a companion for older adults who are dependent and/or disabled, to help them to safely stay at home longer, DOMEO is permanently linked with the outside world and dedicated applications are integrated designed to help.

Web: www.kompai.com
Coming soon to a neighborhood near you

**LEA: Autonomous personal care assistant**

*LEA: The Lean Empowering Assistant* offers support with daily activities including walking by detecting obstacles, measuring body posture and helping maintain balance. LEA also encourages fitness through dance— which she leads in the rhythm of your favourite music. If dancing is not your thing, LEA will personally guide and motivate you to train to specially designed exercises all in comfort of your home. LEA can also help with daily tasks and reminders of predefined activities including medication, food and water intake, whilst measuring activities (if requested) which can be sent in a form of report to relevant parties. In case of emergency LEA can trigger an alarm and video calling makes it possible to stay in constant touch with the older adult without compromising their privacy.

*Web:* www.robotcaresystems.com

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**Lipit: A hands-free interface**

Tomás Brusell, a dentist originally invented the device to use his computer while working. He explains: “When you are with a patient and you have had your hands inside their mouth, it is not hygienic to use a keyboard or mouse. The technology we developed and tested has provided a method for basic input into the computer.”

The technology, now known as Lipit™, connects wirelessly to Bluetooth enabled devices, allowing a person to control the device with their lips. Simple and intuitive lip movements do everything that would otherwise be done with a computer mouse. Worn on the head, it can help someone control their computer, go online, and access computers, driving an entire range of services.

*Web:* www.lipit.net

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**IronHand: Smart gloves provide a firmer grip on life**

Reduced hand function due to ageing or age-related conditions is addressed at home and at work, through a wearable soft-robotic glove with add-on exercise games. Martin Wahlstedt, a project manager with IronHand’s partner Bioservo Technologies, explains. “It is a slim glove with intuitive sensors on the fingers that detect when it is touching an object. It measures the force between the finger and the object. Through artificial tendons it then applies the necessary force. It is just like your own hand. You could work as a carpenter or hold an egg with the glove.”

Bioservo is a partner in the Axo-Suit consortium and the robotic SEM Glove/Iron Hand can be integrated as an option to the arm-shell module. For more information, please visit www.ironhand.eu.

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**Fearless: Safety through simplicity**

A major issue with integrated panic buttons is that if the wearer loses consciousness as a result of a fall or trip, they are not able to activate the alarm. Fearless Comfort System, is a contactless sensory system which can raise the alarm when it detects any serious deviations of behaviour from the primary end user. Coordinator Michael Brandstötter explains: “It sends out an infrared pulse and measures the travelling time of the infrared signal, and based on this we can reconstruct the living area. It’s easy to install and compared with other solutions it’s straightforward.”

*Web:* www.fearless-system.com
According to Yves Béhar, described by Forbes as the most influential industrial designer in the world, technology is our raw future, which has to be defined and refined by design. Here we look at how design led innovation can lighten the load of ageing.
In a conversation with AAA Founder Ian Spero, this is what Jeremy had to say about NEW OLD.

"For the past 30 years we have heard that demographic change is a ticking time bomb set to explode in our faces and that ageing is a burdensome thing. In fact, the faster we head towards an ageing society in which there are more old people than young, the more such thinking takes hold.

"The NEW OLD project seeks to reverse that mind-set, to give pause for thought with a simple message: design-led innovation can lighten the load of ageing. Through this approach, people facing greater longevity can enjoy fuller, healthier, more rewarding lives in the future – 'years full of life rather than life full of years'”.

Myerson stresses that we should not ignore the medical realities of ageing – the physical, sensory and cognitive impairments that come to us all eventually. We must however recognise that many older people are disabled by the design of the environment around them, rather than intrinsically disabled. Designers have a responsibility to use all the advances in practice and technology available to them to reimagine products, settings, systems and services that will enhance the experience of later life.

He continues; "Our way of thinking about older adults has shifted radically. The change is not just in terms of what’s possible technically, but how we now think about ageing. People are staying active in society and the workplace for much longer, and it’s about time our products and services caught up.

"The ‘New Old’ are tech savvy, mobile, often still in work, and simply won’t put up with clumsy plastic loo seats and excessively padded shoes any more. This is the rock ‘n’ roll generation, they know about design and they’re demanding more.”

From robotic clothing to driverless cars, the Design Museum exhibition and the accompanying catalogue examine how innovation and design can reimagine how we live the later stages of our lives.

User Centred Design is not a new phenomenon in health care – where success is as much about social outcomes as clinical – but all too often it’s still noticeable that designing products for older adults, possibly living with disabilities and/or long term conditions is a new phenomenom in health care – where User Centred Design is not a new.
Beauty and ageing in the bathroom – Tomek Rygalik/Ideal Standard

Bathrooms that include the needs of older people usually focus on safety and sterility. This Royal College of Art project, based on research conducted in the dressing rooms of older the performers, explores how the mirror and washbasin could create a sense of indulgence and luxury with a series of floating, glowing and flexible elements.

In response to a brief from the Design Museum to “design a future product, service or system that keeps people on the move as they get progressively older”, PriestmanGoode has designed a Scooter for Life that can be adapted over time as our mobility requirements evolve, offering older users greater independence without the stigma associated with a mobility scooter.

The designers explain their concept:

“...when we were commissioned to create a centrepiece about mobility for the NEW OLD exhibition, we immediately wanted to design a way to help people stay mobile for longer. Over the course of many brainstorming sessions, we came to a number of conclusions. First, we wanted to come up with something that could help people improve their mobility in a practical way...”

Scooter for Life

MiRO Dog – Sebastian Conran/Consequential Robotics

MiRO is a biomimetic robot companion designed to be friendly and approachable but not toy-like. MiRO interacts with sensors, wearables, a data hub and assistive furniture as part of a total home robot system – the Care Free Home System.

The designers explain their concept:“...we have been inspired by the needs of older people, improving their mobility in a practical way...”
When it comes to radical disruptive concepts, the Aura Power Suit by Yves Béhar, Fuseproject and Superflex takes some beating. Here Yves Béhar talks about his concept for the Design Museum commission.

“All too often, lack of mobility due to muscle weakness, balance issues and coordination problems makes older people captive in their own homes. This has a cascade effect, increasing loneliness, isolation and depression. But what if technology could help us continue to move about the world and engage with it physically, socially and emotionally?”

“Our goal in designing for this exhibition is to show what technology can do for an ageing population right now. To do this, we partnered with Superflex, a commercial start-up that began in the Robotics Lab at SRI. Superflex is developing a new category of powered clothing that aims to enhance our physical ability so we can continue to live actively, bringing profound physical and emotional benefits.

“With motors, sensors and AI embedded into a lightweight and flexible fabric, the Aura powered clothing provides support for the user’s torso, hips and legs. It reacts to the body’s natural movements, adding muscle power to complement the user’s strength in getting up, sitting down or staying upright. In fact, powered clothing amplifies an individual’s ability to move freely – actually improving muscle strength, balance and coordination. The Power Suit, including its embedded hardware, will weigh less than 1.4kg.”

Designer Yves Béhar has also collaborated on another project for the Design Museum. ELLI•Q™ is an active ageing companion that seamlessly enables older adults to use multiple technologies, including video chats, online games and social media to connect with families and friends.

Produced by Intuition Robotics, a multidisciplinary team of gerontologists, roboticists, developers, industrial designers, computer vision and machine learning experts, ELLI•Q aims to inspire participation in activities by proactively suggesting and instantly connecting older adults to digital content such as TED talks, music or audiobooks; recommending activities in the physical world, keeping appointments and taking medications on time; and connecting with family through the likes of Facebook.

Using “Natural Communication” such as body language that conveys emotion, speech interface, sounds, lights and images, ELLI•Q is emotive, autonomous and easily understood. Using machine learning, to understand the preferences, behaviour and personality of the owner, ELLI•Q proactively recommends activities based on its learning and based on recommendations by family. ELLI•Q also has the ability to monitor wellness and the environment in the home.

Designs for Life continued...
The technology company becomes the property developer and manager. Imagine a more digitally savvy ageing population who will be fully able to use the Internet and harness all the services and products it offers. This population is already comfortable with ordering, banking, communicating, managing health care and other services online. So it is not a far stretch to imagine communities of people relinquishing the servicing and procurement of their domesticity to a technology company.

In fact, one could go as far as entrusting a company with maintaining appliances, delivering consumables, managing utilities and providing entertainment—all with our best interests and health in mind. Without someone entering your home, it is invisibly fixed even before you realise it is broken. Amazin Apartment is a block where all apartments are serviced from an efficient network of unseen corridors, where appliances and technology are built into walls. These walls are serviced from an internal network of unseen corridors. Amazin apartment is a block where all appliances are maintained, your home is managed, and goods and services are managed without you even realising it. No maintenance, no home care, no problems where something breaks, it is invisibly fixed even before you notice it.

According to future architects Sam Hecht and Kim Colin, “The world gets smaller and we increasingly rely on what we know, and what’s local to us. We become less patient, less able to make decisions easily and less likely to wade through the conditions that shops and manufacturers require of everyday consumers. This puts the ageing population in a terrible position—abandoned at the precise time that they need increased assistance. Older people, alienated by the speed of change in trade, manufacture and technology, would benefit from a new way of maintaining independence. This is where Amazin apartment comes in.”

Amazin Apartments – Sam Hecht and Kim Colin, Future Facility


A title at the centre of a page:

**Design for Life – Innovations enriching our Neighbourhoods of the Future.**

Below this title:

"...if you work for the future..."

"...It's partly to do with how..."

"...but it means that all older adults can..."

"... flexibility is king or queen..."

"...problems can become significant earthquakes for...

A sub-header:

"...the inhabitant is seen as an 'operator' rather than an owner."

"...remote monitoring, giving older..."

"...all older adults can..."

"...monitoring could potentially lessen...

"...we had discovered that when a washing machine...

"...a reduced need for face-to-face..."
What new models of health and care are emerging to address increasing demand? AAA spoke with some of the stand-out stakeholders who are disrupting the way we currently engage with service providers. And care are emerging to address increasing demand. What new models of health care
There are some radical and positive developments, but also plenty of gaps. This includes the simple pleasures which tell them how long it should take to travel, it is humans moving from A to B and back for the services delivered are real, not virtual. In technology is the enabler but not the main focus, innovation is also an hour long, rather than the 15 minutes paid higher wages and offer training because it has different payment models. Among the innovations at Vida are an algorithm to match new technologies. The company can afford to do this approach. When AAA interviewed Naushard Jabir, Founder of Vida, the home care start-up had just received approval from CQC, making Vida the first care technology platform-powered home care provider to be approved.

The good news is that care customers, whether individuals or organisations, and regulatory authorities such as the UK’s Care Quality Commission (CQC), are responding favourably to the matching of care clients with carers, to the involvement of families and to the provision of real time information providing improved communication and greater transparency. The net result is provision which is always higher quality way possible, rather than shifting excess demand and declining quality. It is not the task of this report to depress our readers with forecasts of the doom and gloom we will face if we don’t act now. Instead, we take the (avowedly optimistic) view that competition) will come to our assistance, as they don’t act now.

At Virgin Care, that helping older adults to make the most of their age-friendly homes is not just a question of health care, but about supporting their well-being. This includes the simple pleasures that would otherwise have done.

ADDRESSING BARRIERS TO INNOVATION

Though some of us will be lucky and sail into older adulthood and beyond with good, or even perfect health, sooner or later most of us will need care. There are some radical and positive developments, but also plenty of gaps. There are some radical and positive developments, but also plenty of gaps.
the customer relationship), and the cost structure from provision of advanced sensor technology to medication to be sent to the customer’s door.”

According to Marty, the general use case is not with the needs of the suppliers, sitting close to the top of the current status quo have joined forces and the goal of yielding better individual prediction, especially in digital health – prematurely, before they are properly evaluated, and the roll-outs are in part due to the number of false positives. Even though the provision of better care, communities and local organisations.

WHO PAYS THE PIPER?

According to Dr Morton: “We are not just an app recommended to improve our health and well-being through better management of information and medication to be sent to the customer’s door.”

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WHO PAYS THE PIPER?
New models begin to take over from the old models with the forces of competition starting to stimulate the displacement of old entrenched interests in housing, housing management, health, care and IT, and companies surviving and prospering if they embrace the models.

The smart home for older adults has now taken shape, in the form of a combination of information and communications technology which is easy to use and completely customisable to the needs of older adults, using as much or as little in the way of devices as they want, and allowing people of all levels of understanding and familiarity with technology to improve their lives.

We no longer talk about the Internet of Things or the digital transformation of our homes and our lives, because we expect everything to be digital and Internet-linked.

Our homes are fully cognitive, not in a stand-alone sense, but connected to the world, with analysis of the information coming from our homes and built environments used to compare us to other homes, keep us well, safe and secure, and improve our lives.

The smart Cognitive Home and neighbourhood is standard, just like power supply and water. It is low cost, easy to install and effortless to run, and the big programmes to educate all users are completed, so that no one is confused.

Collaboration among local authorities and smart cities is normal practice, leveraging shared digital infrastructure. The next generation of older adults has been included and they are also completely at home with the idea of participating in local area governance.

The new business models, exploiting smartness in the home and in the companies that provide these models, win, and we — the occupants — get dramatically better (higher quality, lower cost, faster, more complete etc.) solutions that make our lives much better than they would have been.

Technological, social or economic forecasts are notoriously unreliable, particularly when it comes to the timing of change. Nonetheless, those involved in the provision of housing for the next generation of older adults could be assisted by an informed guestimate of how the next 20 years may play out.

Up to 5 years from now

The Era of Accelerating Change

The Time Line

The Dawn of New Models

Take Over

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Exhibition curator Jeremy Myerson explained to AAA’s Ian Spero that he had personal experience of the housing challenges facing older adults, having helped his mother locate and move into a McCarthy & Stone retirement apartment in Liverpool, where she lived for eight happy years. According to Jeremy the property was well designed and included technological features which were innovative for their time. But, as Jeremy pointed out, his mother was fortunate, because there are far too few homes designed with the needs and desires of older people in mind.

AAA spoke with Andrew Robbins, Head of Technical, who leads the team responsible for the design of McCarthy & Stone’s apartments. Andrew is currently looking at many innovations, including new methods of construction, which should enable the company to build smarter and faster to meet an ever growing demand. That said, we should not anticipate an overnight revolution as housebuilding is a heavily-regulated safety conscious industry, which means material changes are subjected to rigorous assessment and testing before being considered for application at scale. This can take anywhere between two and five years.

According to Andrew “Research involving our homeowner’s shows there is an appetite for innovation that enables independent living. McCarthy & Stone are pioneers of retirement living and this report will provide our business with insights which we will use to explore the benefit of smart technologies in supporting and caring for older adults.”

After reviewing a near-final draft of this report with Tracey McDermott, Chief Information Officer of McCarthy & Stone, these were her observations:

“This white paper covers much more than health and well-being – it’s about fulfilment, enjoyment, security, peace of mind, opportunities to continue to learn and develop in a stimulating and inclusive environment. A finely balanced customer experience is incredibly important for our business and I can see inclusive design playing a more fundamental role in our planning moving forward.

“The Cognitive Home concept is an opportunity to develop a new kind of property: houses and apartments which get to know, serve and protect our homeowners, leveraging new technologies to support independent living. This can cover many aspects of life, from remotely managing health and care in real-time to smartly enabling short term consumption of a service, or changing the frequency of existing services, as well as the type of service. This is not just a question of provision of care, but also about how customers interact with anyone and anything, and how logical and easy it can become.

“Supplementing smart access to information and automation of routine tasks, poses endless exciting opportunities for enhancing lifestyles and driving fulfilment. This doesn’t have to be at the expense of human beings and personal interaction, indeed it could well pave the way for richer more fulfilling relationships. To achieve this, integration and aggregation of information and services is critical.

“The bottom line is we recognise the potential of the Cognitive Home to revolutionise our industry and our Neighbourhoods of the Future. We are ready to act and we look forward to trialling some of the most compelling solutions in new McCarthy & Stone developments in the not too distant future.”

We conclude on an optimistic note. Our research bodes well for a brighter future. Older adults – especially younger older adults – are ready to embrace enabling new technologies. The big tech companies are investing in home automation. Health and care providers see digital health as a means of addressing the challenges facing public health services. Pioneering entrepreneurs and SMEs are innovating, there’s a lot of interesting research ongoing and solutions are materialising which are not only practical but, they actually look good and should be fun to use.

More attention is being paid to the design of new products and services, taking account of the specific needs and desires of older adults, as reflected by the recent NEW OLD exhibition at the Design Museum in London.
One in five UK homeowners aged 55 or over considered moving in the past two years but have not done so. According to research from the Home Owners Alliance, a lack of the right kind of homes is the main reason for more than 500,000 older homeowners deciding to stay put.

Helping older people to move at the right time and in the right way, building more age-friendly housing, and escalating home adaption are key Government priorities, according to a recent housing white paper.

Finding sustainable solutions will require a collaborative approach involving a wide-range of expert stakeholders, including housebuilders (both specialist and mainstream); IT businesses and developers; mortgage lenders; insurance companies, clinical commissioning groups; housing associations and local authorities; and most importantly older adults and the groups that represent them.

A new paradigm is required, in which stakeholders break out of their conventional silos to consider the art of the possible. A group of passionate opinion formers and decision makers in the same room, talking the same language, sharing the same ideals, and committing to the same overarching goal, can transcend the barriers which generally impede progress.

Setting out on the process of research and consultation which led to this report, it came as no surprise to find that not all stakeholders were as receptive to our thinking as we’d hoped. Housebuilders in general are particularly conservative, so we were very pleased when McCarthy & Stone agreed to collaborate; opening their business to our researchers, contributing their own ideas and expertise, and responding enthusiastically to our recommendations. Indeed, we were delighted to learn that this white paper will inform future McCarthy & Stone designs, which should in turn help guide the housing designs of the wider industry. As a next step, McCarthy & Stone will shortly be installing super-fast broadband as standard on every development and in parallel launching a working party to look at the role of smart technologies in the home.

Construction of more age-friendly housing is of course only part of the big picture. According to the UK’s Centre for Ageing Better (CAB), 80% of homeowners aged 65 and over wish to stay where they are. Moreover, adapting their home could delay a move into residential care by up to four years. The socioeconomic impact is significant. Research cited by CAB claims that relatively low cost home modifications can result in a 26% reduction in falls that need medical treatment, leading to annual savings of £500 million to the NHS and social care services across the country. Clearly, we are playing for ever greater stakes. So if you feel you have something to offer and would like to get involved with over 500 Agile Ageing Alliance stakeholders, please feel free to reach out. You will find our contact details at www.agileageing.org.
After reviewing hundreds of pieces of research, here is what the current generation of older adults say they want in their homes and neighbourhoods.

## Neighbourhoods of the Future: Better Homes for Older Adults

**Improving Health, Care, Design and Technology**

### Housing

- Access
- Public transport
- Health and other community services
- Modifiability and planning issues
- External communications and information

#### Public transport

- Travel and traffic
- Services and schedules
- Home and access to
- Passenger and fare

#### Health and other community services

- Health and other community services
- Access
- Public transport

#### Access

- Not age-segregated, no age or ethnic ghettos
- Geographically accessible, community
- Location relative to amenities e.g. parks, public transport
- Commutes
- Cycle paths
- Pedestrian routes
- Health and other community services
- Access
- Public transport

#### Modifiability and planning issues

- Costs and difficulty of modification
- Location
- Safety and security

#### External communications and information

- Communications amongst older adults facilitated
- Wearable technology, porous wall to home

#### Public transport

- Service frequency
- Reserved seating
- Routes to and access to amenities and town/village centres
- Drivers sensitive to needs
- Stations/stops seating

#### Private transport

- Charging for electric cars
- Parking
- Low (enforced) speed limits

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**A Checklist for Stakeholders**

- Different business models for construction and occupation
- Modern methods
- New technology, especially when dominating
- Access to urban villages in large cities
- Safety and security
- Accountability
- Privacy, confidentiality

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**Housing**

In their homes and neighbourhoods, generation of older adults say they want

- Flexibility, adaptable space, care-ready
- Furniture, 24x7, no age-segregated, no age or ethnic ghettos
- Geographically accessible, community
- Location relative to amenities e.g. parks, public transport
- Health and other community services
- Access
- Public transport

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