

SMARTER HOUSING AND CARE FOR THE SILVER GENERATION

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Summary

Rising longevity is heralding a social revolution when post war baby boomers will be grandparents needing care. The emerging silver generation will not be content to live out their last years in institutions.

In recent decades in Western Europe we have relied more and more on institutional care to support older people with disabilities. Societies in Asia have not followed the path that depends on institutional care, relying on the strong tradition of families caring for their older relatives in their own homes. But, both societies are now at a crossroads.

Today, in Western Europe, there is a new consensus rallying around the wisdom of helping people to stay in their own homes for as long as possible. Government policy makers seek to shift the balance of care away from institutions to home-based services and older people themselves are voicing their preference to remain in their own home with maximum autonomy and independence.

Today, in the highly developed countries of Asia there is a dramatic rise in the scale of the population of older people coinciding with a shift in family lifestyle, and in particular more women with careers. It is a demographic and lifestyle shift that places in question the continuation of the traditional family pattern of care.

Both Western Europe and the developed Far East share a common goal that springs from two different traditions of care. It is a goal that requires us to assemble our resources

around a pattern of care that supports people in their own home, within their community, supported by a network of their friends and family for as long as possible. We also share a potentially potent resource in our ability to harness the power, flexibility and learning capability of silicon based technologies.

The new, smarter technologies do have the potential to provide us with more control over our home environment. However, we must first make the physical environment more accessible and usable to people of all ages and abilities. *Design for All* is an approach that is gaining ground in architecture and in product design. It is an important, even vital, foundation to any service in which the independence and autonomy of the individual is paramount.

In planning new services we should reject the conventional patterns of care that have obscured the individuality of the older person. Person centred approaches to care are the key; they can provide a framework that helps older people to take part in ordinary community life, to experience autonomy in large and small things, to have support that helps them enjoy meaningful activities, and to benefit from a network of personal relationships.

Smart technology is not the Holy Grail of the system of care for older people in the new millennium. But used sensitively alongside person centred care it can be a vital and valuable companion in a journey that will bring a happier, more fulfilling life to those of us about to join the silver generation.

Baby Boomers remain Forever Young

When John Glenn became the first American to orbit the Earth, he probably never imagined he'd later become America's first senior citizen astronaut. But in October, 1998 at 77 years of age, he returned to orbit the Earth aboard the space shuttle Discovery. In 1999 the Rolling Stones are continuing to prove that you they are forever young by taking to the concert stages for yet another world tour, much as they have been doing for over three decades. With one member of the rock and roll band in his sixties and the others not far behind, they are proof that youth culture does not leave you as you grow older; it simply migrates through the generations.

These two examples demonstrate that we are, in many ways, as young as we feel. But despite the fact that middle aged people have never been fitter, healthier or longer-lived there does come a time when we start losing our physical, sensory and cognitive abilities. When this happens it does not mean that we are also in the process of losing our zest for living. Nor does it mean we wish to give up our independence or anything that has become dear to us in our daily lives.

*Older people wish to retain their independence and autonomy for as long as possible and generally would prefer to remain in their own homes.*¹ Moving home is the last thing most of us want when our physical and mental circumstances change for the worse. And yet in most cultures in developed countries it is the thing most likely to happen to us. In British society, like most others in the West, professionals are still quick to decide institutional care is the best solution to meet the higher levels of support of older people. The view that is generally taken is that a person with significant disabilities is too much at risk in their own home.

The next two decades are likely to be a time when a sea change will take place in our acceptance of models of institutional care as the solution to the needs of older people with disabilities. This will come about because of a happy coincidence of circumstances. The most important of these is the spirit of the age illustrated by the forever young approach of the likes of John Glenn and the Rolling Stones. This will be supported by the continuing advance of a political agenda in health, housing and community care that supports inclusion, integration and cultural diversity. The third element will be the pace of technological change and our capacity as a society to support new approaches to care.

One of the most significant developments in the second half of this century has been an enormous explosion in choice and variety for the consumer. Someone familiar with the selection of goods available in a typical grocer's shop forty years ago would be overwhelmed by the thousands of different lines on offer in today's typical supermarket, many of them giving even those on modest incomes the opportunity to enjoy what in the past were luxuries for the wealthy. The marketing experts now no longer talk of "mass markets", but instead of "segmentation" and "micro marketing": more and more, the aim is to satisfy the wants of the unique individual consumer.

However, conventional patterns of care have obscured the individuality of the service user by designing stylised services for generic groups categorised as pensioners, the elderly and senior citizen. Established practices of care too often overlook the individual by being delivered in packages of care and models of supported accommodation that create moulds for people to fit into. As our silver haired baby boomers come of (old) age we can be sure that they will not be satisfied with anything less than being treated as unique individual customers; a treatment they have become accustomed to throughout their years of shaping today's consumer society.

The Royal Commission on long term Care says that "*making independence a reality requires a change in attitude across society*"². However, it may well be that it will be the changing attitudes of society that will be the driver to make a reality of independence as the baby boomers become the silver haired generation.

Breaking the Mould – A Person Centred Approach to Care

Traditional approaches to supporting people with disabilities have developed from models of institutional care in which the person is typecast with a socio-medical client description, segregated from society, and provided with support that focuses on their disability. The effect of the process is to devalue the person. By contrast the unique individual will expect care that treats them as individuals and provides them with every opportunity to maintain their independence at home with the support they wish to have from their family and friends. The challenge for twenty-first century care is to mould itself to both the

person's chosen lifestyle as well as his or her need for support.

Person centred support is one approach that puts the individual at the focus of the care plan and creates a framework for people to live in the community with maximum autonomy. A person centred service starts from a view that everyone in society needs support with some people needing more support than others. It raises the importance of things most of us can regard as *ordinary* parts of our lives such as close relationships (with other people and pets), making choices (about where to live or what to eat for breakfast), developing abilities (that people want and at their own pace), being treated with respect (by being known in the local shop as well as one's circle of friends) and using the places used by others in the community (such as workplaces and leisure facilities).

In prioritising these things for people, a person centred approach does not neglect the attention people with disabilities need to have paid to their particular support requirements and some people's need for high levels of support. By working with service users strengths and not their weaknesses care services adopt a greater tolerance of risk to the benefit of patients but within safety guidelines. The approach safeguards the rights of each service user by recognising, respecting and promoting their individuality, privacy, dignity, choice and confidentiality at all times.

Person centred techniques adopt a holistic approach to support in which the individual is viewed in the context of their skills and abilities, their family and friendship circles, their personal priorities and life plans. Psychological, social and spiritual - as well as physical - needs of each service user are recognised as important. The individual is supported to get what they want by a team of people who seek to include family, friends and community members in the support network. Carers, relatives and friends are recognised and respected as a crucial part of the support for the person who is the focus of the care service; their needs and concerns being acknowledged and addressed by the services as part of meeting the support needs of the service user. It is not about asking the individual to change, get better or fit into a predetermined pattern of care. It is about asking systems to change in order that people can be supported in a way that is more suited to their needs. It is also about asking

communities to change in order to integrate people with disabilities more effectively.

Person centred services assume people with disabilities have futures; that their aspirations will change and grow with their experience; and that therefore the pattern of support and services is not for ever. In practice many people with disabilities have in the past had limited choices and limited experiences, particularly those who have spent a long time in hospital. This is a philosophy of care that is dynamic and evolves as part of a team building process – a team that involves service users, their friends and relatives, carers and staff.

If the user cannot use it – it does not work

One obvious mark of society is the diversity of people and range of abilities. It is not only people who are tall, short, fat or thin but also people who use wheelchairs, parents with young children, people who have temporary injuries, people who are partially sighted and people who are hard of hearing. Despite our differences the built environment is not friendly towards people who are not in some sense of *average* ability. It is most obviously unfriendly towards older people and people with disabilities, but it is also unfriendly towards people pushing a pram.

Housing is no better, and can be worse, than other parts of the built environment. We have steps at our front door, we have doors that are too narrow to take a wheelchair and we put letter boxes in awkward places, just to name a few. We have taps with crystal tops that are difficult to grip if you have arthritis, or if you have got soap on your hands, and we put things out of reach, not just for somebody in a wheelchair. The house is like it is and the built environment is like it is because we design for *Mr Average*. The use of the male gender here is particularly appropriate since we seem to overlook women, children and people who are frail or disabled in our conventional approach to housing design.

Architects tend to design the built environment to meet the needs of people they perceive as average, and since most architects perceive themselves as *Mr Average* they design for fit males between the ages of 18 and 45, excluding those who are very tall, short, fat or left-handed. This convenient stereotype represents approximately one-sixth of the population - the other five sixths

being expected to adapt to a physical environment which is hostile by design. Our homes should be designed to cope with a wide range of changes throughout our life and we should really plan our housing so that it meets our lifetime development cycle. This cycle includes being: a young fit adult, a young fit adult with a temporary disability; a young couple; a young couple with babies and children; parents with children who have left home and visit; a couple visiting parents and grandparents, an older couple, possibly one of them being a carer; and an older single person.

In a world where we may live longer, live through changing ability and changing circumstances, there is an obvious need to design housing that lowers barriers. This approach to the design of housing is variously known as barrier free design, lifetime homes, universal design and design for all. It takes into account the fact that even if today we are physically fit and mentally alert, there is no guarantee that it will be the same next year. We

may suffer an injury or unexpected illness so that, at least temporarily, our movements become severely restricted. That is when we will appreciate the benefits of living with barrier-free design, such as level thresholds at the front door and throughout the house, light switches at elbow height, and power points at knee level. If the disability is more serious, or permanent, we may want to have the WC enlarged or the bathroom adapted for a wheelchair. Moving house is the last thing we will want to have to do in our new circumstances - how much better if it can be altered to suit - how much better if it is *design for all*.

It will be apparent that this approach is much more than just a matter of helping people to make the best of a bad job. Instead of casting around for a solution after some unexpected problem has arisen, it makes a virtue of anticipating future needs, and ensuring that the potential to cater for those needs is an inherent part of designing

COMMON DOMESTIC BARRIERS

INSIDE THE HOME

- Front door step: difficult for prams, pushchairs, wheelchairs, and children's trikes and bikes
- Doors: standard doors are too narrow, making it difficult to move furniture or shopping, or to get around in a wheelchair or with a pushchair
- Light switches: wrong height for children and wheelchair users
- Radiator valves at floor level: difficult/impossible for many older people, people with lower back pain, and people in wheelchairs
- Power points at floor level: difficult for people with lower back pain, many elderly people, and people in wheelchairs
- Taps: unless they have 'cross heads' they are difficult for people with soapy hands and people with arthritis
- Handles, switches & controls: some designs are difficult for people with paralysis, arthritic conditions and certain deformities.

OUTSIDE THE HOME

- Kerbs: pose enormous difficulties for pushchairs and wheelchairs. We recommend dropped kerbs at frequent intervals.
- Street furniture: (e.g. lamp posts): these can pose a danger to blind and partially sighted people if badly placed, and can be a barrier for wheelchairs and pushchairs
- Lighting: poor lighting can make women and vulnerable people feel unsafe, and can create difficulties for people with poor vision
- Layout: confusing street layout can make life difficult for people with dementia and disorientation problems
- Lack of colour contrast: can create problems for people with sensory impairments, disorientation problems, and dementia when trying to find their way about

the home. It recognises that rigid notions of “ability” and “disability” can be unhelpful. A bedroom or kitchen ideally suited to someone six feet tall will always exclude the great majority of the healthy population, including all children and the overwhelming majority of women. Once we have changed our mindset and cast out notions of *Mr Average*, and started designing and building homes that are truly adaptable, only then can we begin to think about harnessing technology to help us all live more independently.

Barrier free housing is a design concept similar to the movement for *universal design* and *design for all* that is addressing a wide range of consumer products. The intention is to make products, communications and the built environment usable by more people at no extra cost. The concept targets all people of all ages sizes and abilities. As we introduce new ways smart technologies can assist people to maintain independent living it is a design concept that will take on a special importance. We might adopt the following standard as the measure of success in our designs:

***If the user cannot use it –
then it does not work.***

Beyond Barrier Free – What smart technology can offer

“The customer can have any color he wants so long as it’s black”. — Henry Ford

When Henry Ford made that offer to his customers at the beginning of this century he was in the process of revolutionising the automobile industry through mass production techniques that placed the Model T Ford within the price range of the average American. But within 25 years of its first production Ford lost its pre-eminent place in the marketplace to competitors who

realised that customers sought improvements and choice. It may have been necessary for Ford to restrict choice when techniques of mass production were in their infancy. Today, car makers know it is not good enough and technological advances make it possible to provide a world of choice to a highly differentiated market of customers.

Not so the housing industry. The production techniques and performance of our homes have improved little since the beginning of the century. True, we benefit from improved insulation, whole house heating systems and double glazing but the production methods, the structural form, the visual design, the electrical wiring system and the plumbing installation continue to be based on standards that were set during the Victorian Industrial Revolution. It costs more to build even a small house or flat than it does to make a top of the range car. The quality of our living space is surely far more important to us than having the latest hot hatch sitting outside it. Yet, for all the advances in technology, in many ways the design and building of houses has remained Fordist.

Technology is often regarded with suspicion, yet how many of us would wish to revert to the days before washing machines, tumble dryers, dishwashers, vacuum cleaners, telephones, televisions and personal computers? How different our work and home lives would be without them. Technology has made an enormous difference to the way we work: think of PCs, fax machines, modems, scanning machines, mobile phones and the like. At home we can cook meals in seconds using a microwave, record telephone messages and favourite TV programmes while we are out, even go shopping from our armchair using cable TV or the Internet. New technology has enhanced our work and leisure, but it’s capable of more ... much more.

When this happens the television will show us who is at the front door and with a point and

Design for All – Universal Design

Creating products, services and systems that improve the opportunities for people to live on equal terms regardless of their ability or stage in life

- by the design of products that are flexible enough to be used without modification by people of the widest range of abilities and
- by compatible assistive technology products that might be used by people who cannot efficiently use the products directly.³

click of the remote control we will be able to open the door and let our visitor in. Fire and smoke alarms will be set to switch off the energy source to a cooker if a pan goes on fire and doors will be automatically unlocked for a safe escape. A person with rheumatism might use infra red controls to turn taps on and off and a water depth detector could ensure that there is no overflow. A green light at the front door could signal that all the windows and the back door are secure or a red light could let you know that you should not leave until every window is locked. One step more and we will have central locking for our house – just like we have come to expect in our cars!

Technology can help us all. If we harness it the right way we can create a living home that will be the foundation of a home for our lifecycle needs. For older and disabled people it could be a vitally important way to live independently in one's own home.

Silicon Care - Harnessing the Power of the Chip

At the centre of a smart home are a micro-chip and a digital network. Just like the nervous system in our bodies this will provide communication between the parts of the system. An individual house might be the whole system where communication takes place. Alternatively, a group of houses can be linked together with a call centre to provide an extended system. This opens up the possibility of providing the level of support in our homes that today we only expect to receive in institutional care.

A basic smart home system can be used to:

- save energy - by reducing the temperature in a room when it's not in use
- turn off lights when a room is vacated
- switch on lights when someone walks in
- raise the alarm if the occupier becomes ill and unable to move

All of this is possible using a standard burglar alarm movement detector combined with an intelligent computer system. It can save money and energy and, more important, it can save lives. But such a system can also enhance quality of life, by offering peace of mind to older people and people with disabilities - and their relatives and carers. The benefits are obvious: adding comfort and convenience coupled with security and safety to improved economy in our homes of tomorrow.

The point about smart housing is that it is tailored to the needs of the individual. Just as we can specify exactly those features we want when buying a new car, we have the potential to introduce a large element of choice and personalisation into our choice of house, enabling homes to be adapted to our changing needs and wants.

One occupant might want a pressure pad by her bed so her family have the assurance of knowing that she is going to bed at night and getting up the next morning. Her neighbour might want his curtains to close at dusk and his washing machine to select the best programme automatically. Voice messages can remind people of important tasks, such as taking drugs.

These scenarios may sound futuristic, yet already we have the technological capability. However, in the short term there are problems centred around the immaturity of the smart home market which has not yet organised itself to provide a supply chain in a form that is suitable for the potential consumers. In their evaluation of two demonstrator smart homes in the UK Professor Gann and his colleagues conclude that the technologies are difficult to integrate; the supply industry is fragmented; there is little standardisation across industries and systems, and appliances are too expensive.⁴

Regardless of these problems we can expect the smart technology products to become more

Ways Smart Technology can Assist People to Live Independently

- reduce the handicapping effect of the built environment
- reduce anxiety & safeguard people from hazards & risks
- compensate for physical, sensory & cognitive impairments
- assist in maintaining a range of community contacts
- monitor people's health & welfare
- provide communication with formal & informal carers
- assist formal & informal carers to provide support & care

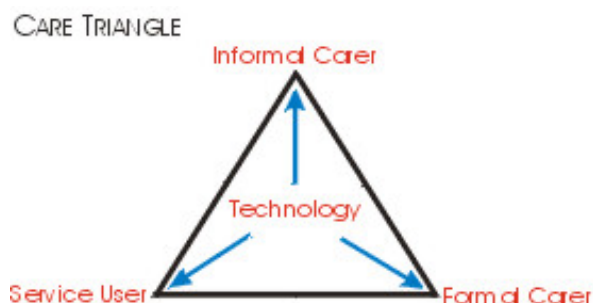
A Basic Smart Home System to assist Older People remain Independent

- The light is automatically turned on dimmed in the bedroom and full in the hall and bathroom when the residents get up at night, and turns off when they are back in bed, in order to prevent falls.
- If a resident is out of bed more than 30 minutes at night staff are alerted in case of a fall or any other need for help.
- The cooker is turned off if it is left turned on and overheats, and the staff are alerted.
- Smoke detectors alert the staff, turn on the lights and automatically unlock the front door and any other exits.
- Detectors on the exit doors from the flats can alert the staff when the doors are opened, for example at night.
- Infrared and door lock sensors detect an intruder who may get access to the home. Staff are alerted as well as an audible alarm in the house.

readily available prompting us to radically rethinking our approach to care. As we carry out this rethinking we need to consider carefully the different needs of the users of technology in a care environment. The benefits it will afford to the disabled older person are clear but smart technologies will also benefit carers, who might be a relative, a friend or professional staff.

This care triangle can lead to differences and dilemmas about who benefits from the use of technology. There is a risk that it may not be used to the benefit of the service user and may be a challenge to their civil liberties. There has been

remarkably little debate about the ethical issues in these situations, possibly because the greatest use of technology has been to assist people with physical rather than cognitive impairments. When



Technological Aids that can be used in conjunction with the Basic Smart Home

- Loop Induction Amplifier to allow occupants with hearing impairments to watch the TV, listen to the radio or hear the entryphone buzzer.
- Audible Reminder devices to remind occupants of important times or dates e.g. Time for medication.
- 'Keyless' Doorlocks that are easily operated by a keyfob 'swipe' device.
- Video Entryphone System that allows monitoring of both front & back doors, and has the facility to unlock open doors remotely.
- Door opening mechanisms that can be set to make door opening fully automatic or 'power assisted'.
- Bathroom controls: Washbasin taps, toilet flush and shower operation by means of 'no-touch' infrared sensors. Water can be thermostatically regulated to reduce the risk of scalding.
- Lights can be switched on randomly when the property is unoccupied to deter intruders.
- Window Motors that open and close windows by using either an infrared remote control or wall-switches. Programming of the control system so that windows automatically close when heating comes on, when the property is empty or when external temperatures fall below the optimum.
- Curtains that open or close by use of either remote control or wallswitches. External 'twilight' sensors that allow curtains to close automatically at dusk.
- Touchscreen Interface; allows devices and appliances to be controlled by simply pressing a picture on the screen.

people are able to reason and decide for themselves, it is less likely that the nature of the support or care will breach ethical principles of justice and autonomy. However, when we provide support for someone with a cognitive impairment we need to be sure that they approve of the assistance we provide. For this reason the person with dementia might well set the most rigorous standard for assessing ethical issues.

The service user should be the beneficiary of technological solutions, even where other carers are assisted through their use. Professor Marshall has suggested that the following questions should be asked before technology is introduced and while this was with the person with dementia in mind, the questions serve a useful purpose for anyone who receives care through the use of technology.⁵

- What is the problem the technology has been introduced to address?
- For whom is it a problem?
- What interventions have been tried to address this problem?
- Who decided on technology as a solution?
- Whose needs does it serve?
- What are the benefits and drawbacks of the technology for the person with dementia?

A SMART FUTURE

Smart home systems that are intended to attract people who live in the fast lane have already been brought to the market. These smart systems might conjure up an image of a stylish businesswoman returning home from the office in her luxury car talking on her mobile telephone. No, she is not telling her husband the time of her arrival; she is instructing her house to switch to “welcome home” mode. “Welcome home” triggers the central house computer to turn the heating on, to start cooking the prepared meal in the oven, to run the bath to just the right temperature and depth, and chill the champagne.

This popular myth about how tomorrow’s world technology will influence our lifestyle suggests that home automation is principally about toys for the rich and famous. New technologies may well provide wealthy people with expensive toys but they will also contribute to the serious purpose

of community care and help families to continue to provide support in a world of cultural changes. During the next ten years we will witness a revolution in the home similar to the office revolution of the last ten years.

Let’s imagine a different scenario. Your mother is in her 80s and living alone on the other side of the country. She has Alzheimer’s Disease and a dicky hip. However, she insists on living alone and is fiercely independent. You respect her wishes, but of course worry about what will happen the next time she has an accident at home. How can technology help to protect your mother’s health and autonomy, and your peace of mind?

Suppose your mother falls when getting out of bed one morning. She is in pain and unable to reach the telephone. A smart home would know her routine: up out of bed at 8:00 am; put the kettle on and run the bath; make breakfast of toast and tea. But on this particular morning the smart home detects that none of these activities has taken place. It automatically telephones you and switches your mother’s telephone to hands free working. You answer the phone on your mobile as you drive to work. You are able to speak to your mother and reassure her that help will soon be with her. Then you telephone a neighbour who calls round to see your mother and you telephone the doctor to make a home call.

Your mother recovers from her fall and is up and about again. However, her memory is so badly affected by her Alzheimer’s that it is placing her in danger. She keeps forgetting to turn off the iron and the cooker, for example, and she often forgets to close windows and lock doors when she goes out. But there is no need to worry; her smart home takes care of this for her.

Will the Bricks and Mortar Institution only make way for a Virtual Institution?

There are, of course, dangers too. First there is the Big Brother element. Few people would like others knowing and monitoring their every movement. Then there’s the danger of social isolation, if those benefiting from the smart homes are left to lose out on human contact. Instead of a district nurse calling to check that pills have been taken, a voice message down a telephone line could do the job. Dispensing with the need for people to call may mean a loss of social contact.

However, it need not be like this. If technology is used sensitively, and with advice and involvement from users, and so long as it is never thought of as a substitute for face-to-face contact, its value can be immense.

Person centred approaches to care are the key; they can provide a framework that helps older people to take part in ordinary community life, to experience autonomy in large and small things, to have support that helps them enjoy meaningful activities, and to benefit from a network of personal relationships.

Smart Care for the New Millennium

Everyone seems to agree that we should help people to stay in their own home for as long as possible. Technology can help to make this a reality. But it needs to be introduced alongside a sea change in our approach to providing care services.

Smart technology is not the Holy Grail of the system of care for older people in the new millennium. But used sensitively alongside person centred care it can be a vital and valuable companion in a journey that will bring a happier, more fulfilling life to those of us about to join the silver generation.

Dangers – A Virtual Institution	Opportunities – a Better Life
<ul style="list-style-type: none"> • Technology Overkill • Inappropriate Technology/ non-existent needs • Big Brother - Dehumanising/ Anonymous Care • Maintaining Acceptable Failsafety • Creeping Complacency • Social Isolation • Ethical Dilemmas 	<ul style="list-style-type: none"> • Improve the quality of life of older people • Help older people to be a resource not a problem • Increase potential for living independently • Make care more rewarding for the family/ informal carer/professional carers • Release staff for person centred activities • Improve the cost effectiveness of care • Compensate for impaired functioning • Enhance the functioning of other capacities

References

- ¹ With Respect to Old Age, Report of the Royal Commission on Long Term Care, March 1999, ISBN 0-10-141922-8
- ² Ibid
- ³ Design for All and Universal Design are approaches to design that have been defined in many ways. The definition given here is basically the same as the definition used by the Trace Centre, University Winsconsin, USA and the INCLUDE Project of the European Union Telematics Applications Programme
- ⁴ Gann, D., Venables T. and Barlow J. (1999) Digital Futures, Chartered Institute of Housing/Joseph Rowntree Foundation
- ⁵ Marshall, M. (1995) Technology is the shape of the Future for Dementia Care, Journal of Dementia Care