

Aging in Place: An Expectation and a Technology Market

Author:

Laurie Orlov

Aging in Place Technology Watch

E-mail address: laurie.orlov@gmail.com

Brief Description:

Technology to help age in place is at its most available and lowest cost to date. Technology promises to help tighten and grow care provider relationships, improving the ability to age more successfully, remain at home longer and more safely, and better weather change over time.

This submission was selected as part of a national challenge issued to leaders in all communities seeking new “best practices” and “best possibilities” for the future of nutrition and aging.

***“Before the tech revolution, the village took care of you.
Now we will have an electronic village.”***

Eighty percent of older people today live in their own homes.¹ Not surprisingly, the majority of them would like to stay there – and if they move, according to the AARP, it will be to another private home.² The desire to live at home will dominate the minds of baby boomers, in 2011 becoming seniors (age 65) at the rate of 10,000 per day, and will reshape the markets that provide products and services to them.³ Further, in the 2011 housing market crisis, many who would move to more appropriate homes cannot.⁴

Within that context, aging in place reflects the ability to successfully age and remain in one's home of choice, whether it is a private home, condo, apartment, or group home. MetLife published a vision in 2010 called **Aging in Place 2.0** that reinforces why the technology to enable this is so important now – versus years from now.⁵ That's because:

- **Successful aging means independence.** Nobody wants to think about becoming old -- but improved medical treatment and growing life expectancy has resulted in the 80-plus becoming the fastest growing demographic.⁶ When asked what's important for successful aging, seniors rank as the most important: 'being in good health, having the ability to do things for myself, having friends and family there for me, and feeling safe and secure.'⁷ And studies have shown that older persons who live independently have more positive self-esteem than those who are institutionalized.⁸

- **Cost of long-term care is daunting.** MetLife has pegged the average cost of an assisted living facility (ALF) apartment in the US in 2011 as \$41K/year, with nursing homes at \$85K/year.⁹ Meanwhile, their cost projections show an ALF cost that is growing to \$51K by 2015.¹⁰ Unlike nursing homes, which can be covered under Medicaid, more than 90% of assisted living costs are paid out of pocket.¹¹ The ability to *keep* paying for ALF care depends on availability of long-term care insurance, sizable savings, or proceeds from the sale of a home – all three jeopardized by late 2011 from a weak economy, falling value of assets, or inability to sell a home. Otherwise, seniors may have to move to Medicaid-eligible nursing homes.
- **Care capacity will reach crisis proportions.** As people age, the numbers of chronic conditions and related care requirements grow. And for a variety of reasons, including cost and availability, care of the aging population has already begun to migrate from nursing homes to assisted living and increasingly to home-based care.¹² But it is very clear from age-related trends that there will not be enough caregivers to help them age at home if need care. This care gap is a result of convergence of a growing senior population, increase in life expectancy, looming healthcare issues, and a relatively flat population of younger women -- still the source for primary home care, assisted living, and nursing home aides.
- **Technology capabilities exist now – and seniors are willing.** First and foremost, technology to help age in place is at its most available and lowest cost to date. It is the first time that platform adoption of cell phones, game units, PCs, tablets, high speed Internet and video is enough to merit the tentative but steady entrance of new and existing vendors. Next, baby boomers, the majority of adult children, own more tech than any previous generation. Because of their access, today is the first time we can connect multiple generations of families with each other -- and with their care providers. What's more, studies show that seniors and caregivers are interested, but not necessarily aware of what exists. A consolidated look at Pew Research findings from 2011, however, indicates that seniors are not significant users of communication technologies, especially the latest tablets and smart phones.

Nursing Research states that “one third of informal caregiving occurs at a distance with family members coordinating provision of care, maintenance of independence, and socialization for frail elders living at home.”¹⁵ What do these families need?

- **Better communication.** Seniors living alone and away from informal caregivers are at risk of cutting themselves off or being cut off from others – whether due to hearing loss or inability to leave their homes.¹⁶ Their long-distance family members struggle to know what’s going on -- and healthcare providers offer few mechanisms for communication. The result can be frustration and unplanned moves closer to family, into independent or assisted living facilities.

- **Improved safety and monitoring.** Many seniors struggle to take care of themselves, to accomplish activities of daily living (ADLs) due to mobility issues or worsening dementia. And many homes are danger zone of stairs, rugs, and bathing and cooking hazards. As a result, 31% of people age 65+ suffer a fall that permanently affects their mobility – whether it involves adding a cane, walker, or wheelchair to their lives.¹⁷ Even with hazards removed, remaining in the home in which they fell can be frightening.
- **Greater focus on wellness and prevention.** Seniors are too often forced out of their homes or into greater levels of care as a result of hospitalizations.¹⁸ Depending on the nature of the resulting illness or complication, doctors determine if living safely at home is still feasible. And hospital discharge processes push most seniors into rehab and permanent moves to assisted living or nursing homes, when with proper support they might be able to function at home. The Federal “Money Follows the Person” program launched in 2005 is now rolling out through the states and can help transition nursing home residents into the community -- with appropriate levels of support.¹⁹
- **More opportunity to participate in society.** But becoming frailer at home shouldn't imply a hard stop for contributing to life outside the home. In a recent study by AARP, 34% of senior responders reported limits on basic physical activities, two in five reported low vision or hearing impairments, and fifteen percent reported problems learning, remembering, or concentrating.²⁰ But at the same time, 66% felt it was very important to stay involved with the world and with people, and 57% said it was very important to continue to learn new things.

Four Aging in Place Technology Categories Have Emerged

Technology promises to help tighten and grow care provider relationships, improving the ability to age more successfully, remain at home longer and more safely, and better weather change over time:

- **Communication and Engagement.** For baby boomers and younger, life is unthinkable without e-mail, chat, web surfing, Facebook, Smartphones, video games, Skype, and texting. Yet the majority of seniors over the age of 75 are for the most part unaware of these 24x7 ways to be in touch and in the know.²⁶ And further, many older people are intimidated by tech like PCs and complex cell phones. But they need to stay in touch. Simplified tech -- like Cisco's Valet wireless router or easy-to-use cell phones from Great Call or Just5 or well-lit and customizable Android, Apple, or BlackBerry smartphones can make these experiences feasible and gratifying. Once online, seniors and their long-distance grandchildren can chat, video chat or enjoy reading books together through a video book-reading service like Readeo.

- **Safety and Security.** The ability to remain in one's home depends first on whether the home is free from obstacles and dangers – and whether those risks are addressed. Homes can be attractively retrofitted and become barrier-free by a Certified Aging in Place specialist (CAPS).²⁷ Further, security systems from **ADT**, mobile personal emergency response systems like **MobileHelp** or **LifeStation**, or PERS with passive fall detection from **Halo Monitoring**, or **Philips**, sensor-based home monitors (**Care Innovations Connect**, **BeClose**, **WellAware**, **AFrameDigital** and **GrandCare**) could help monitor and reassure seniors and caregiver.
- **Health and Wellness.** The risks associated with obesity and lack of exercise only worsen with age, so it's no surprise that **WiiFit** has become so popular with boomers and seniors.²⁸ The 2011 introduction of Microsoft **Kinect** has made a splash among prospective commercial application developers – more will follow in 2012. For chronic disease management, vendors like **Intel**, **Bosch** or **Ideal Life** offer systems for remotely monitoring chronic diseases like diabetes or congestive heart failure. Over time, integration of these with health systems' EMR will become standard.
- **Learning and Contribution.** In 2006, Joseph Coughlin of MIT's AgeLab applied "Maslow's Hierarchy of Needs" to Aging in Place.²⁹ He noted that once the basic needs of communication, safety, and health are addressed, people have both the need and capacity to read (on a **Kindle** or **iPad**, for example) and learn, stay active in and knowledgeable about society, contribute to it through volunteering and likely continued work, and leaving a legacy of stories, not just money, for those who love them. Seniors can sort among online programs and auditable courses found at sites like **SeniorNet.org**, **New York Times Knowledge Network**, **Dorot University without Walls** or look for work on **RetirementJobs.com** or **RetiredBrains.com**.

Family and Professional Caregiver Links Overlay Categories

Family, professional caregivers and their clients are beginning to expect that they will, along with the senior, participate in the use of technology categories

- **Family members have growing expectations for connectedness.** Today, picture sharing, social networks, video chatting, and text messaging are the mainstream mechanics for families – who will succeed at including aging parents in the loop of one or more of them. And when home monitoring and PERS devices are purchased, family members may be both the purchaser and rule configuration administrator for who to notify about what pattern changes or emergency alerts, with or without a call center intermediary. Vendors like **eCareDiary** and **Connected Living** offer portals for family caregivers and seniors to share information, **Caring.com** and **Care.com** provides tools for caregivers. **Coro Health** offers capability to configure music and spiritual content for seniors with dementia.

- **Professionals, health, GCM, and companion agencies – will link in families.** When a national Geriatric Care Management organization trains its staff to use Skype to connect clients to families, it's a sign that professionals believe they must link families into their process.³⁰ These offerings will likely not be revenue generators, but rather added to standard home health systems to enable providers to update all family members at once, much in the way that **CaringBridge** enables families to provide patient updates on a private website, rather than spend an hour or more on the phone each day providing status.

Requirements for Aging in Place Technology Market Success

Across all these categories, a number of common requirements are emerging that will grow in importance as the market grows. Customers will demand products that are as attractively designed and easy to use as a game or tablet, ubiquitous as a cell phone, and as extensible as a PC. For this market to further mature:

- **Technologies must be more intuitive, easy-to-use, and well-supported.** Most people, at every age, have a laundry list of frustrations with technology. AARP's survey about seniors and technology asked responders if they were concerned about the availability of customer service reps. No surprise – most said yes. Service (online, telephone, remote) is an essential ingredient in a go-to-market strategy. And ease of use means ease of setup. Remote or zero configuration and exception management will be a major part of the offering – or doom the product to failure. And focus groups and home trials reveal greater technology resistance than any 'what-if' surveys.
- **Vendors must be capable of integration and extension.** Many of today's gadgets don't communicate – into or out of the home, but especially with each other. So a medication reminder device is useful, but touches a tiny aspect of the whole person. Those who care about seniors like Margaret must know that she has responded to the reminder and, if she is willing to share, how her behavior changes over time. To provide valuable integrated solutions, software will use common network standards to communicate to caregivers and providers.
- **Costs to consumers must be affordable.** As tech becomes more usable and useful, consumers will look for ways to acquire it. This may occur through payers, but is more likely through adult children and family. Higher income consumers will come to realize that services associated with technologies like webcams and chronic disease monitors that provide value are just as essential as cell phone plans, GPS services, cable TV and many other monthly fees that are now part of their technology vocabulary.
- **Products must be available on widely adopted platforms.** A growing number of retirement communities are adopting Nintendo's Wii; and cognitive fitness technologies are making their way into both retirement and seniors' homes. But too many interfaces are confusing. So consumers may gravitate towards

applications that work with ones they already use, including Facebook. Even better, in the future, vendors will make it easier to use personalized user interfaces across multiple devices, coined in a 2011 AARP report as ‘Design for All.’³¹ Perhaps even a single device like a smart phone (or a TV) will drive interaction and content, and other devices in the home will simply act as displays.

HOW DOES THE AGING IN PLACE TECHNOLOGY MARKET EVOLVE?

The marketplace of products today is fragmented into a cottage industry comprised largely of startups, challenged by both lack of awareness and a difficult economy. But with its fragments assembled into an overall puzzle, this business for boomers and beyond represents a conservative \$2 billion market today.⁴¹ But potential business would be far higher if marketers could reach the 14% of boomers that have expressed interest in helping their parents. Between 2010 and 2020, based on growing boomer awareness and their own aging, this market will grow to at least \$20 billion and radically change as:

- **Role- and need-based hubs will emerge and grow.** Aging in place technologies are beginning to gravitate towards hub-and-spoke portals, so dominant in eCommerce evolution, that provide a lens into how roles (like caregiver, senior, and provider) relate to needs (like home monitoring, and medication reminders). As hub-and-spoke portals mature, they will offer concierge service for consumers to view and share information, as well as to purchase targeted products and solutions. Consider *role-based* hubs like **Grandparents.com** and **Caring.com**, and health *need-based* hubs like **DiabetesMine** and **PatientsLikeMe**. Their partner spoke vendors (like **Care Innovations**, **Great Call** or **HealthHero**) may advertise or even connect directly to these sites. In the future, some platform vendors may become important as hubs, like **MayoClinic**, **WebMD**, and **MedlinePlus**, for example, in healthcare, or **Google+** or **Facebook**, building on its growing boomer-turned-senior social network.
- **Aging in place provider silos will overlap (home design, healthcare, services).** In the future, role or need-based hubs-and-spokes, with their caregiver- and senior-focused lenses on need, will force convergence of aging-related categories. For example, Assistive Technology (part of the healthcare market) overlaps with Healthcare – and those in that market see little link to aging services. Service-based providers – like assisted living, CCRCs, and home companion care all target the same senior, but in very different and still largely tech-free ways. And markets that should overlap don’t: Home care and geriatric care management groups are becoming interested in deploying technology that could help family members know what’s happening with loved ones. The home automation and custom installation market – filled with tech experts – could be an aging in place enabler, but currently is a separate small market

- **New developments and remodels will offer aging-in-place technologies.** Some new housing developers (including CCRCs and ALFs) pre-wire housing with broadband, security monitors, and motion sensors – in addition to grab bars, wide doorways, and alternative kitchen counter heights. As costs go down and housing demand restarts, other senior housing options will be standard, upgrades or even pre-packaged retrofits. Boomers will expect home networks, web cams, and voice-activated security for personal emergency response – and aging in place vendors will leverage them to build more sophisticated and connected applications. To reduce energy use, building codes will mandate temperature and humidity sensors, including automatic reset of lighting and temperature as home is entered or exited. Automatically lit pathways from bed to bath will become standard as well.
- **Vendor standalone market entries will morph into solutions, designed for all.** Today's high product prices and one-off innovations will be replaced with integrated low-cost solutions; and the evolution of hubs (on- and off-line) will force vendors to find customers through them. Unique functionality may garner adoption by the most tech savvy seniors, but for the majority of the aging population, a consistent underlying platform that is designed for all, not simply for the elderly, will be preferred. Professional caregivers and health providers will use smoothly connected tablet/PC-smart phone platforms to gain visibility, which will propel solution-aware vendor offerings into mainstream usage. Local integrators, drawn perhaps from senior housing, electronics dealers, or remodelers or home care, to travel the last few feet into the home.

References:

- 1 <http://www.aarp.org/home-garden/livable-communities/info-11-2010/home-community-services-10.html>
- 2 <http://www.census.gov/population/www/projections>
- 3 <http://online.wsj.com/article/SB10001424052748704013604576104394209062996.html>
- 4 <http://www.kaiserhealthnews.org/Stories/2011/August/22/housing-crash-assisted-living.aspx>
- 5 <http://www.metlife.com/assets/cao/mmi/publications/studies/2010/mmi-aging-place.pdf>
- 6 <http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf>
- 7 AARP Healthy@Home 2008 survey ranking by 907 65+ individuals
- 8 Lewis, Aging: The Healthcare Challenge, 2002
- 9 Costs shown are rounded up. Nursing home cost is for a private room.
<http://www.metlife.com/assets/cao/mmi/publications/studies/2010/mmi-2010-market-survey-longterm-care-costs.pdf>
- 10 <http://www.aaltdci.org/consumer/travel.html>
- 11 As of October, 2011, Congress is evaluating cuts to Medicaid that would impact nursing home cost.
- 12 Number of nursing home beds, ALF, and CCRC flat, incremental growth curves.
LeadingAge.org
- 13 <http://hchcw.org/wp-content/uploads/2008/04/hchcw-women-fact-sheet.pdf>
- 14 27% of 65+ live alone: <http://pewsocialtrends.org/assets/pdf/752-multi-generational-families.pdf>
- 15 Family Caregiver Alliance (<http://www.caregiver.org/caregiver>)
- 16 <http://research.gallaudet.edu/Demographics/deaf-US.php>
- 17 <http://www.cdc.gov>
- 18 As of 2006, 38% of all hospital inpatients were individuals age 65+.
- 19 http://www.cms.gov/CommunityServices/20_MFP.asp
- 20 http://assets.aarp.org/rgcenter/il/healthy_home.pdf
- 21 <http://www.census.gov/population>

- 22 <http://www.caregiving.org/data/04finalreport.pdf>
- 23 http://www.unitedhealthgroup.com/news/rel2011/eConnected_Family_Caregiver_Study_Jan_2011.pdf
- 24 <http://www.physicianspractice.com/blog/content/article/1462168/193398>
- 25 <http://www.cdc.gov/nchs/data/databriefs/db45.htm>
- 26 Only 33% of those 65-73 and 9% of those 74+ go online wirelessly (smartphone or laptop).
- 27 CAPS, National Association of Home Builders.
<http://www.nahb.org/generic.aspx?genericContentID=9334>
- 28 Eight-six percent of the American population is predicted to be overweight or obese by 2030.
<http://www.newsweek.com/id/153309>
- 29 Cathedral Builders Wanted, Coughlin & Lau 2006
http://agingsociety.org/agingsociety/publications/public_policy/previous.html
- 30 NY Times 5/27/2010 <http://newoldage.blogs.nytimes.com/2010/05/27/screen-time-with-mom/>
- 31 AARP.org
- 32 Today 23% of seniors use the Internet at least once per day. As boomers age, however, that number will grow – 26% of today's boomers are online more than 9 hours a week and 35% of those users purchase products online at least monthly. www.forrester.com
- 33 http://seattletimes.nwsource.com/html/microsoftpri0/2014231113_mobile_world_google_ceo_says_the_phone_is_the_new.html
- 34 <http://train2game.wordpress.com/2011/01/14/nintendo-sold-15-million-consoles-in-us-during-2010/>
- 35 http://weblogs.baltimoresun.com/health/2010/06/kinect_for_xbox_360_adding_a_l.html
- 36 <http://grandcare.wordpress.com/2010/07/29/grandcare-2nd-article-in-new-york-times/>
- 37 http://tech.yahoo.com/news/ap/20090123/ap_on_hi_te/high_tech_senior_living
- 38 <http://www.silversummit.com/>
- 39 <http://www.agetek.org/>
- 40 <http://www.nia.nih.gov/HealthInformation/Publications/LongDistanceCaregiving/>
- 41 2010 market size was based on a combination of published market estimates, including the \$295 million 2010 brain fitness market (SharpBrains), \$1 billion PERS market, with \$50 million (estimate) of all privately held home monitoring companies and related security firms. PCs, software, cell phones, smartphones, tablets, and video games, make up the remainder.