



Technology for Aging in Place

2013 Market Overview

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WHO SHOULD READ THIS REPORT?

This report, published originally in March, 2009 and most recently revised in July, 2013, adding more than 20 additional products, services, websites, and apps, serves as a market overview with a single purpose: it is intended to describe the need for, and the current market of, offerings to help aging adults live full lives in their homes of choice. As such, it is relevant to:

- Vendors within or considering entry into the **Aging in Place Technology** market of baby boomers and seniors
- Social networking sites targeting baby boomers or seniors
- Continuing Care Retirement Communities (CCRCs)
- Assisted Living Facilities (ALFs)
- Senior housing developers
- Home care agencies
- Home health care agencies
- Geriatricians
- Hospitals and integrated service delivery networks
- Government agencies and policy makers
- Geriatric care managers (NAPGCM)
- Naturally Occurring Retirement Communities (NORCs)
- Virtual Villages and their national network (VTVNetwork.org)
- Intentional Communities and Co-housing
- National Aging in Place Council members (NAIPC.org)
- Caregivers, seniors, and family members



AGING IN PLACE: AN EXPECTATION AND A TECHNOLOGY MARKET

“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 – with one-third of the 65+ living alone, and 40% of those 85+.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 dominates the minds of baby boomers that are 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, after the 2011 housing market crisis, many who would move to more appropriate settings did not.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. In 2010, MetLife published a vision 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 ever more daunting.** MetLife has pegged the average cost of an assisted living facility (ALF) apartment in the US in 2012 as \$43K/year, with nursing homes at \$87K/year.⁹ Meanwhile, their cost projections show average ALF cost growing to \$51K by 2015 – but in many states that number has already been surpassed.¹⁰ Unlike nursing homes, which can be covered under Medicaid, more than 90% of assisted living costs are paid out of pocket. 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 from a weak economy, falling value of assets, or inability to sell a home. The cost of private duty home care, one of the 10 fastest-growing job categories in the US, has risen to \$20/hour.



- **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.¹¹ But it is very clear from age-related trends that there will not be enough caregivers to help seniors age at home if they need substantial care.¹² 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 primary source for home care, assisted living, and nursing home aides (see **Figure 1**).¹³

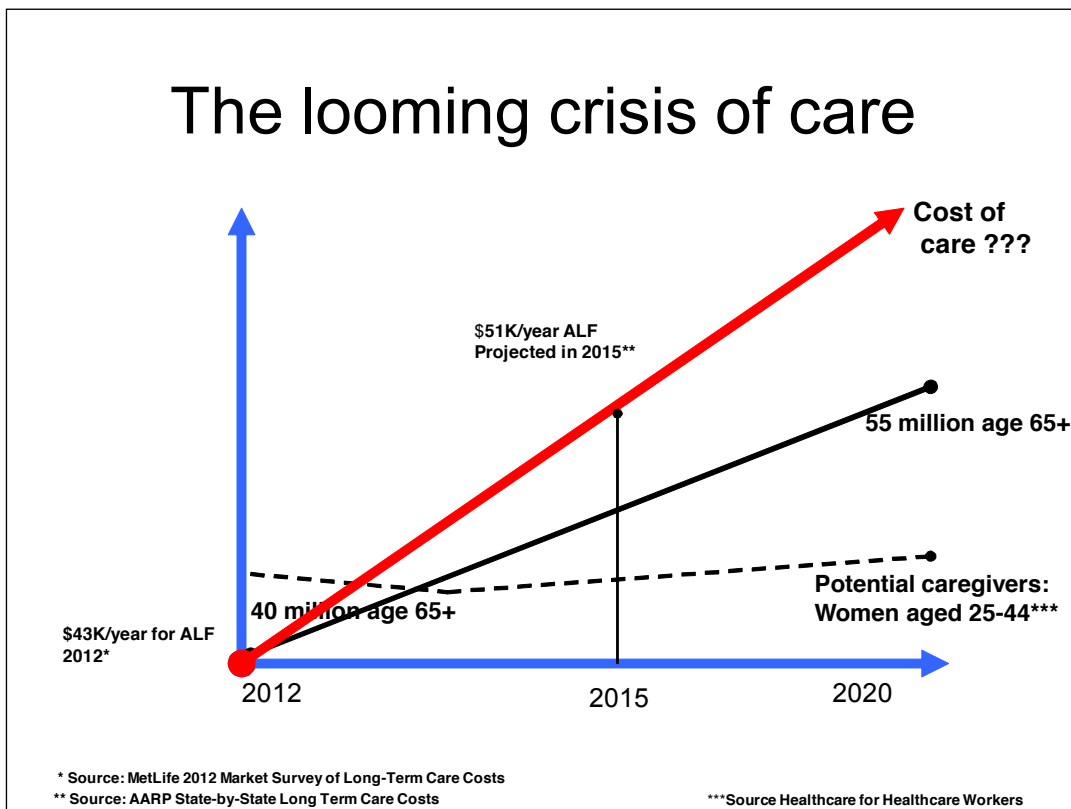


Figure 1



- **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 according to AARP, they are not necessarily aware of what exists (see **Figure 2**). A consolidated look at Pew Research findings from 2012, however, revealed that 53% of the 65+ are online, but only 34 % of the 75+. In that age range, use of communication technologies is still limited, especially the latest tablets and smart phones (see **Figure 3-a** and **Figure 3-b**).

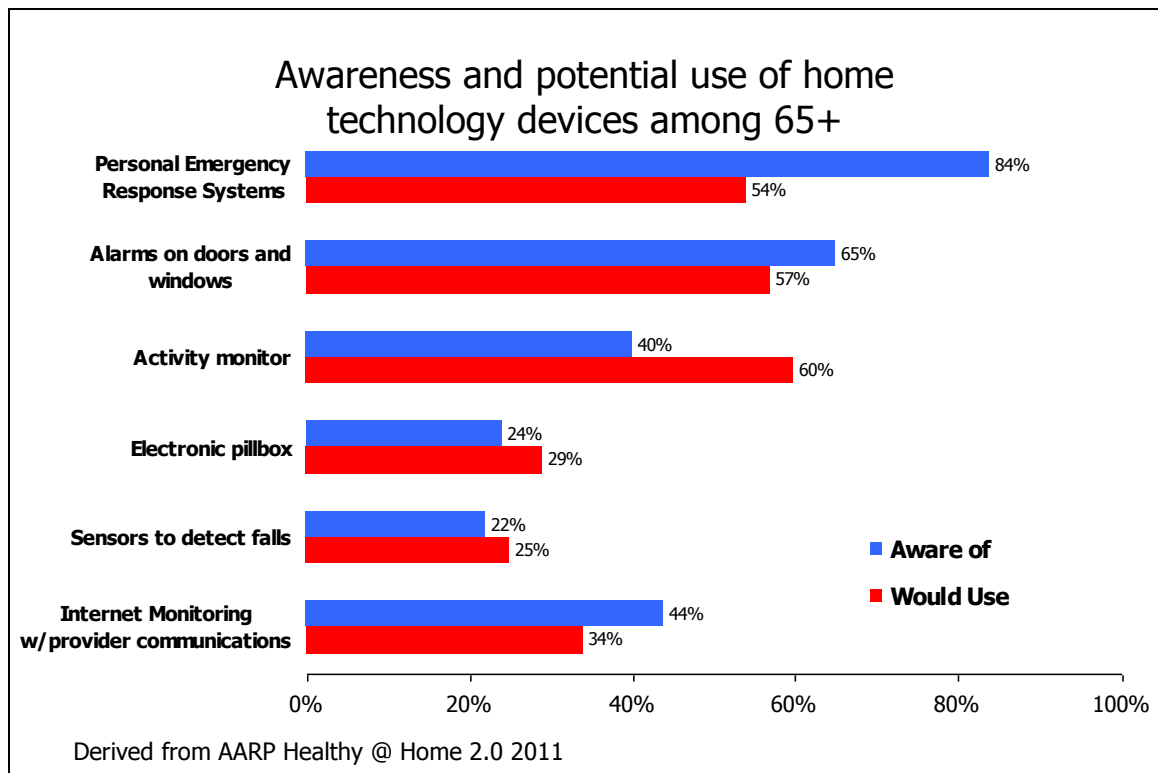


Figure 2



Older adults and online technology (Pew Research 2013)

Category	All	Boomers (50-64)	Seniors (65+)	Comment/Example
Have cell phone	88%	85%	69% 56% (75+)	% all adults
...Smart phone	56%	55% (45-54) 39% (55-64)	18%	% all adults
Internet calls	24%	19%	18%	% all adults
Have E-Reader	19%	19%	12%	% all adults
Have a tablet	34%	27%	18%	% all adults
Have mobile health app	19%	16%	10%	% adult smart phone users

Figure 3-b

Older adults and Internet technology (Pew Research 2012)

Category	All	Boomers (50-64)	Seniors (65+)	Comment/Example
Online	79%	78%	53% 34% (75+)	% of all adults
Use search daily	59%	52%	37%	% adults w/Internet
Use video sharing site	71%	54%	31%	View YouTube, % adults use of video
Seek Health info	59%	58%	29%	% adults w/Internet
Social network	61%	47%	34%	% adults w/Internet

Figure 3-a

What Does It Take to Successfully Age in Place?

More than 29% (11.3 million seniors) of those aged 65+ live alone.¹⁴ Many of the adult children of today’s oldest seniors worry with good reason about their parents – and struggle with them over whether they should be living on their own. And the National Institute for 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, focused on their own IT/EHR projects, still offer few mechanisms for communication.¹⁷ The result can be frustration and unplanned moves closer to family or into senior housing.
- **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.¹⁸ Even with hazards removed, remaining in the home after a fall 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.¹⁹ Depending on the nature of the resulting illness or complication, doctors determine if living safely at home is still feasible. And sped-up hospital discharges (“sicker and quicker”) processes, are now complicated by readmission penalties, which may push more seniors back into the hospital or into nursing homes, when with proper support they might be able to function at home.²⁰
- **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 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.²¹ 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.



Aging in Place Spans a Triangle of Relationships

A critical enabler for aging in place is a working set of relationships and communication between seniors, their families (both caregiver and long distance) or proxy caregivers, and providers of services to seniors and their families. This triangle of relationships should be reinforced with smart use of technology to enhance communication, but today suffers from one-sided, weak or no connections: these are too ad-hoc, too phone- or paper-based, too labor-intensive, and too narrowly conceived (see **Figure 4**):

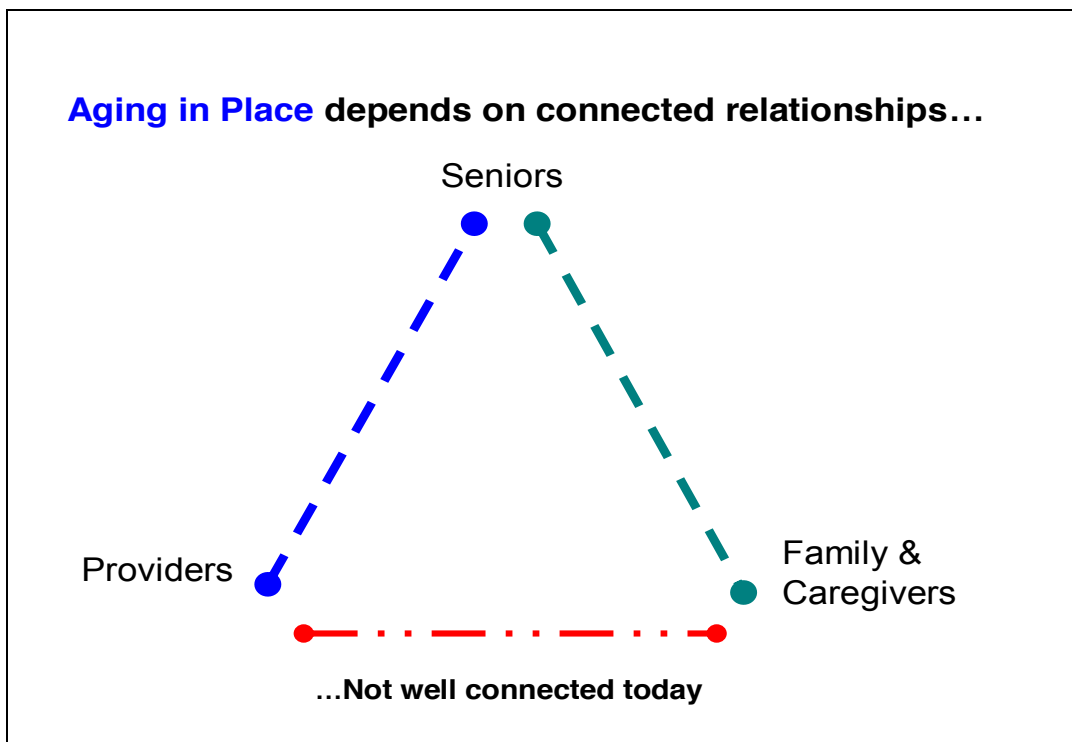


Figure 4

- **Seniors.** It's true that baby boomers will skew the population distribution and change how we age. This began in 2011 when the oldest began turning 65. Today there are more than 41 million seniors age 65+ at the end of 2012, exceeding 13% of the US population.²² And with growing life expectancy for those with more education plus baby boomers' expectations of working longer, the new 'senior' may really be those 18 million of them who are aged 75 and beyond.²³
- **Family & caregivers.** Family caregivers often take an interest in and provide some sort of oversight for seniors – either spouse or parents – in fact, as many as twenty-five percent of families today care for someone outside the home.²⁴ In a survey of caregivers who use technology, two-thirds believe that web-based and mobile technology (see Vendor Appendix in this version) would be helpful to them, although perceived cost was often noted as, but may not turn out to be, a barrier (see **Figure 5**).²⁵

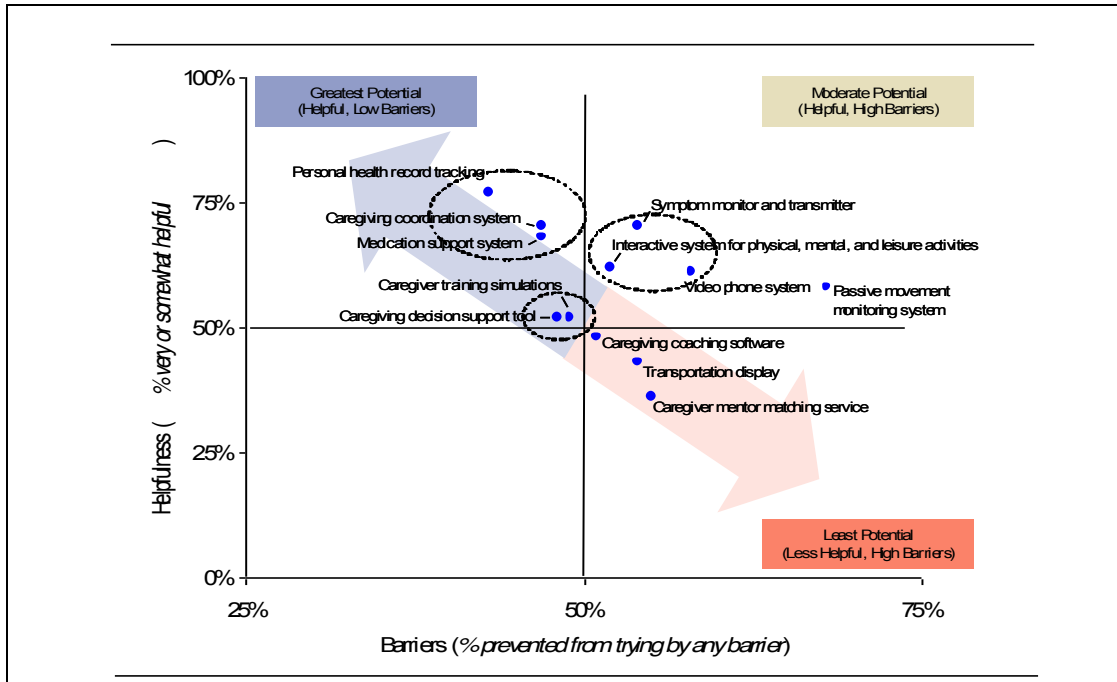


Figure 5 (Source: eConnected Family Caregivers January 2011)

- Providers of services.** Those with direct contact with seniors and families include: social services, hospitals, doctors, nurses, councils on aging, assisted living, and home care companies. This is the weakest technology link in the triangle, though it may have the greatest potential for keeping seniors in their homes. Today 74 percent of doctors, for example, have adopted electronic health record systems (EHR), a bare minimum for sharing personal health information from seniors or with families.²⁶ EHRs include basic diagnosis and drug information at hospital discharge (often to a nursing home/rehab), yet as of 2007, the most recent data available, only 41% of home and hospice care organizations use EHR.²⁷ And in a senate hearing in June, 2013, industry experts acknowledged that despite deployment, EHRs are only one aspect of improving healthcare quality.²⁸ And an EHR, unfortunately, does not include data about ADLs.²⁹

TECHNOLOGY FOR AGING IN PLACE TODAY – ENABLED RELATIONSHIPS

Successful aging and remaining at home can be substantially improved today by simply sharing information and creating linkages between participants. Consider this scenario made possible with technologies that exist and can be mixed, matched, purchased or used *today*. The scenario (see **Figure 6**):

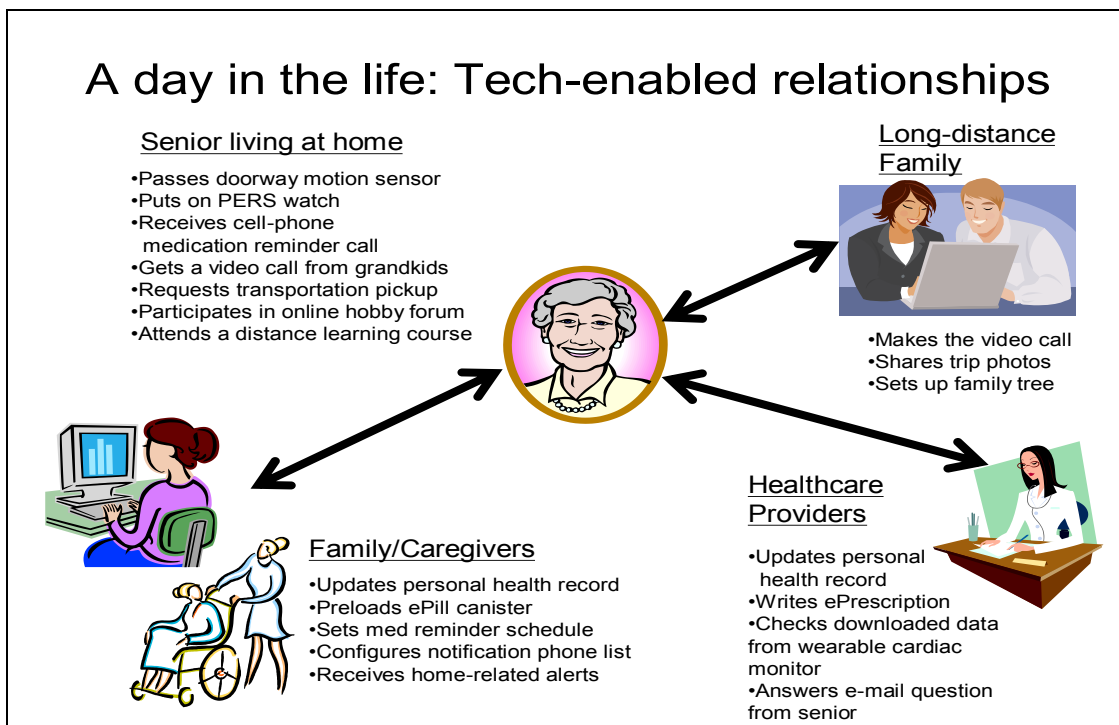


Figure 6

- **Senior living at home.** Margaret, an 88-year-old widow, lives alone in a senior housing development in Florida. She rises in the morning, passes a doorway motion sensor that remotely updates a security system that is configured to alert caregivers if it is not activated by a specific time. She puts on her mobile personal emergency response system (mPERS) watch, receives a call on her cell phone or land-line that reminds her of a morning medication, presses a button on the 7-day pre-loaded pill canister, takes her pills, and a message is sent to her caregiver. Later that day, she receives a Skype call from her grandchildren in Pennsylvania and tells them a bit more about her family history for their ancestry project. She goes online to request a transport pickup to take her to the senior center, and then checks in with her favorite online hobby forum through her new tablet. At the senior center she participates in an exercise session or class. When she arrives at home, she calls in to a telephone-based course.
- **Family/caregivers.** Margaret's adult daughter Irene lives an hour away and visits weekly to take her to doctor appointments. In consultation with her mom, she configures the medication reminder schedule and through her own tablet, sets automated check-in phone calls while she is at work. Before taking her mom to the doctor, she ensures that her mom's personal health record is up-to-date and sends an e-mail question to the nurse. Irene and her mom have agreed that home care aide Julie and Irene will receive only exception-based alerts about her mom's comings-and-goings and medication use.
- **Long-distance family.** Other long-distance adult children of Margaret's are alerted in the event that Irene or Julie is unavailable. These family members use Skype, e-mail, chat, and phone conference calls to stay in touch with Margaret between in-person visits. They send photos and family videos through e-mail that Margaret reads online.



- **Healthcare providers.** Margaret’s primary care nurse practitioner, Suzanne, knows her and her family – and makes sure that referred specialists and her primary care doctor have the most up-to-date electronic health record. The health center where Suzanne practices is up to date with the latest EMR systems and online prescriptions, communicating directly with Margaret’s nearby pharmacy. Margaret has a history of cardiac problems and with the help of caregivers she is regularly checked with home-based diagnostic devices whose data is transmitted to the doctor’s office as needed.

Four Aging in Place Technology Categories Have Emerged

The above scenario is **not a vision for the future**. It is feasible with the commitment of participants to learn to use technology available today – listed separately in the Appendix and discussed at www.ageinplacetech.com. These technologies promise 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 (see **Figure 7**):

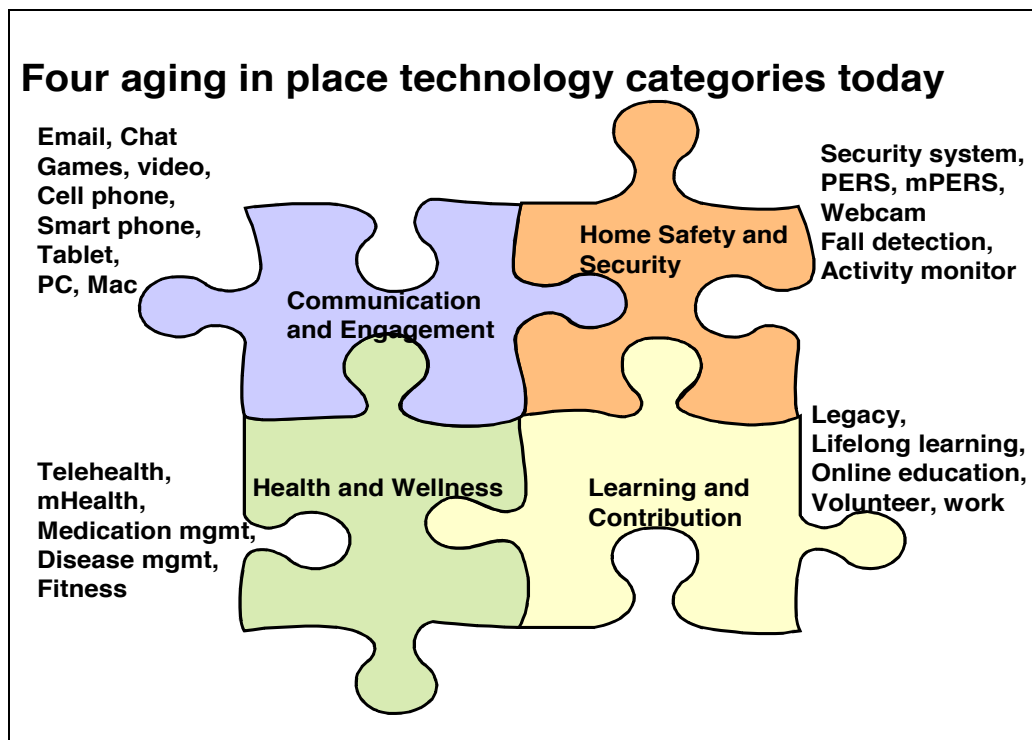


Figure 7

- **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 unaware of these 24x7 ways to be in touch and in the know.³⁰ And many older people are intimidated by tech like PCs and complex phones. Simplified tech – like the **Telikin** or **iPad 2**, easy-to-use cell/smart phones like **GreatCall’s Jitterbug Touch**, **Samsung’s Galaxy S4** (with Easy Mode) or **Apple’s iPhone** 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 **Readeo** or by using Skype on an **iPad** or other tablet.



- **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).³¹ Further, security systems, mobile personal emergency response systems like **GreatCall 5Star Urgent Response** or **Verizon SureResponse**, or PERS with passive fall detection from **Philips**, Mobile PERS (Numera, Philips GoSafe), sensor-based home monitors (from **Lively**, **Independa**, **AFrame Digital**, **BeClose**, and **GrandCare**) could help monitor and reassure both seniors and caregivers.
- **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.³² Today, Microsoft **Kinect** is also finding its way into senior centers.³³ For chronic disease management, vendors like **Care Innovations** 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.³⁴
- **Learning and Contribution.** In 2006, Joseph Coughlin of MIT's AgeLab applied "Maslow's Hierarchy of Needs" to Aging in Place.³⁵ He noted that once the basic needs of communication, safety, and health are addressed, people have both the need and capacity to read (today on a **Kindle**, **Nook** 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 through sites like **SeniorNet.org**, **Open Courseware (ocwconsortium.org)**, the growing **MOOC** movement or look for work on **WorkReimagined.AARP.org**.³⁶

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 (see **Figure 8**).

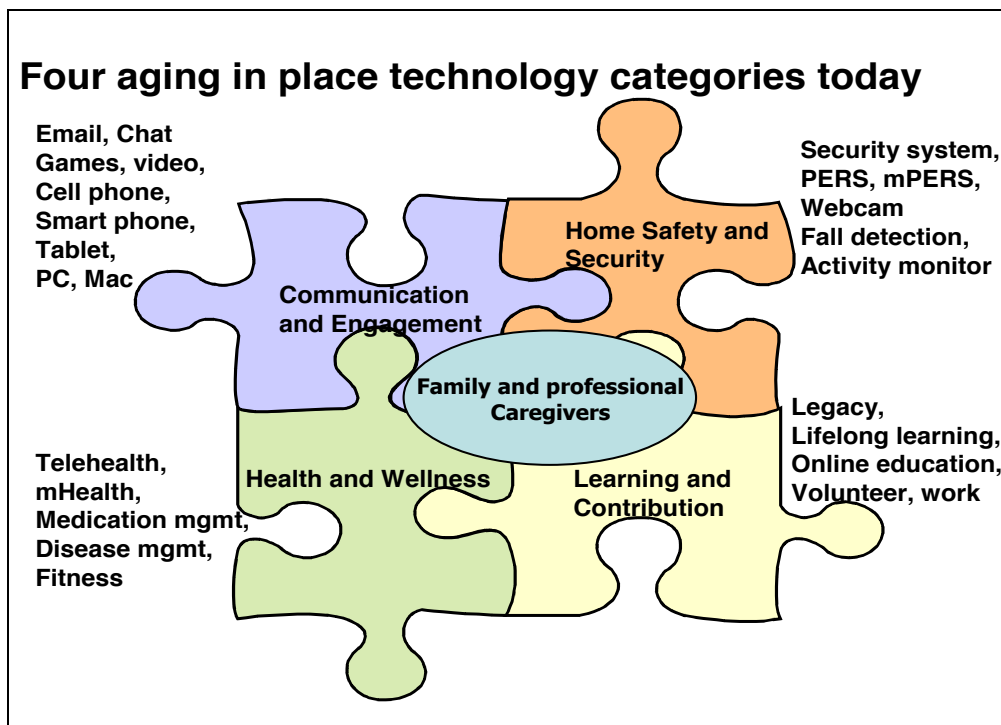


Figure 8

- **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 **Unfrazzle** and **ConnectedLiving** offer apps and portals for family caregivers and seniors to share information. **Caring.com**, **Lotsa Helping Hands**, and **CareLinx.com** provides tools for caregivers to find and share care.
- **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.³⁷ 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 versus spending 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 intuitive 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 iPad-like ease of use means ease of setup. Remote or zero configuration and exception management must be a major part of the offering – or doom the product to failure. Focus groups and home trials reveal greater technology resistance than any ‘what-if’ surveys.

- **Device 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 telehealth devices or medication reminders are useful, but touch 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 mood as well as her behavior changes over time. To provide valuable integrated solutions, device 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** or **Microsoft’s Kinect**; and cognitive fitness technologies have found use in both retirement and seniors’ homes. But too many user interfaces are one-off designs, unlike any others, even within a single device like an iPad. So consumers may gravitate towards applications that work with ones they already use, including Facebook or Skype. In the future, vendors will make it easier to use personalized user interfaces across multiple devices, coined in an AARP report as ‘Design for All.’³⁸ One day 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.

COMPETING PLATFORMS FOR AGING IN PLACE TECHNOLOGY

An aging in place technology platform battle is underway – vendors are deploying among:

- **Computer- and tablet-based for access to the cloud.** The PC, MAC and now tablets – with unfettered access to the Internet and multiple app formats – offer the broadest device access to help seniors remain in their homes, whether it’s searching for health information from **MayoClinic.com**, home retrofitting tips from **AARP**, or caregiving tips from **Caring.com**, the bulk of applications are now online (also described as hosted or ‘in-the-cloud’) applications and information.³⁹
- **Mobile wireless device, smart phone and tablet.** Up next in today’s market, expect wireless device to augment or serve both in-home and out-and-about needs. Good market penetration and simple operation is attractive, especially for reminders, alerts, simple Internet search, texting, and even GPS location applications. For baby boomers and their smart phones and tablets, targeted health apps for the iPhone (**SugarTracker** and **BPBuddy**), Android (**FitSync** and **Absolute Fitness**) and Blackberry (**DietCalculator** or



EmergencyInfo) are multiplying and wireless devices like **FitBit** or **Jawbone Up**, smart phones like the iPhone or Samsung's **Galaxy** and tablet counterparts like the **iPad 2** or will be a compelling mass-market information delivery platform, perhaps eliminating PCs over the coming decade.⁴⁰

- **Game platforms.** The game industry is expected to grow to \$70 billion by 2017. **Microsoft** alone sold 17 million **Xbox 360** consoles in the US as of the end of 2011 and while the video game industry is shrinking, the social game industry is booming (\$7.3 billion in 2011).⁴¹ As Jane McGonigal, author of "Reality is Broken" notes: "The Institute for the Future has shown that games consistently provide us with the four ingredients that make for a happy and meaningful life: satisfying work, real hope for success, strong social connections and the chance to become a part of something bigger than ourselves."⁴²
- **Televisions:** CES 2012 brought more Internet-enabled TVs – and of course their TV set-top boxes brought an explosion in voice and gesture-based controls.⁴³ Because of the broad base of deployed game controllers, expect a greater number of useful applications (not games) to be introduced. DVD players, **Roku** and now **Amazon** provide streaming video-on-demand and new Internet-enabled televisions could become an access point for senior applications.

ADVICE TO VENDORS TODAY: MOVE FROM PRODUCTS TO SERVICES

Probably the biggest issue that keeps more of today's technology out of the homes of seniors is the difficulty of marketing to both them ("We are not old!") and to their afraid-to-interfere adult children, while selling through knowledgeable reseller channels AND pricing right for resale. Vendors and senior service providers can and must close that gap of awareness, offering solutions for each stage of independence (see **Figure 9**). Vendors must find:

- **The right customer – baby boomers and their roles.** But some marketers pick a target audience that shares a common role – for example, caregiver role-based boomer sites **Caring.com** and **Care.com**, or **AARP.org/caregiving** offer aging in place vendors a ready audience of baby boomers with shared interest in caring for their aging parents.
- **The real need – a service problem solved.** Seniors and their adult children will not imagine on their own what to do with sensor networks, web cams, or set top boxes. Someone needs to tell them. Instead of offering point products out of context, vendors should fit their offerings into solution descriptions, service provider relationships, and senior support processes along the continuum of needed care. This includes a grasp of the decision points that spike interest in a product. Finding an independent living assessment on **Philips' Lifelinesys.com** is a welcome surprise to boomers and seniors wondering if it is feasible for a parent to remain at home.⁴⁴

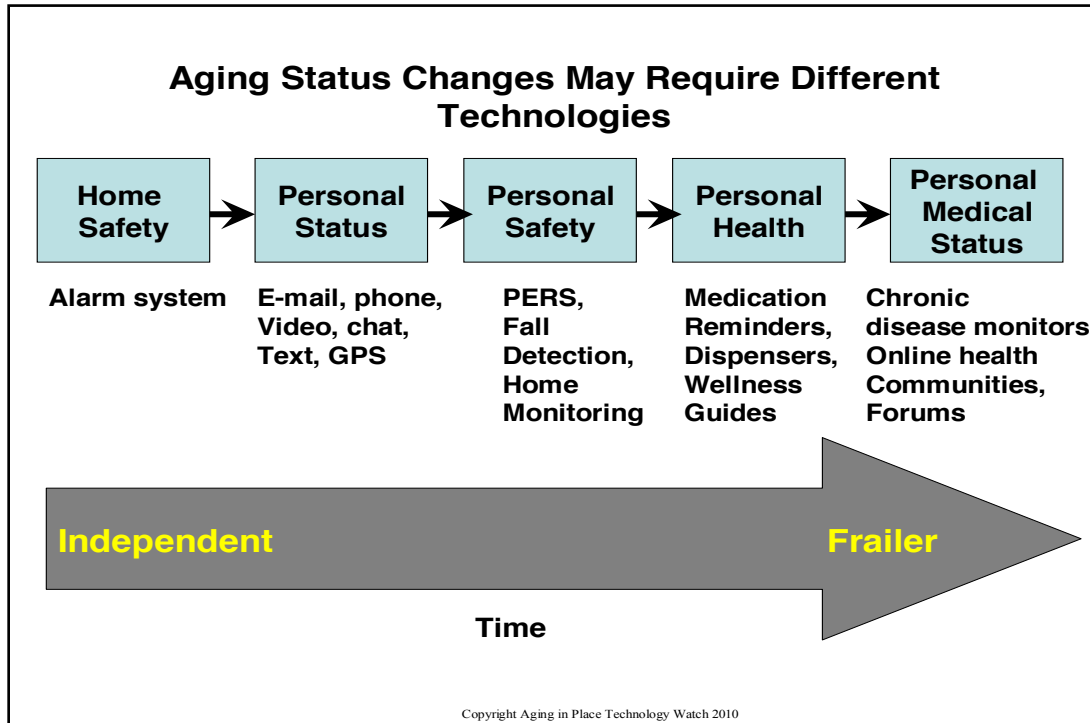


Figure 9

- **Identify the right channel – it’s about an ecosystem and indirect selling.** The right channel depends on the complexity of the product and the target user. And less is more – remembering that 20% of channel partners typically contribute 80% of revenues. Channel utilization should primarily be indirect, either because of extensive reach, configuration or local service needs. For example, PERS vendors like **LifeStation** or **Philips** market through multiple regional service providers at local price points. Others will gravitate to a larger and branded ecosystem from insurance companies or selling devices through retail, home care agencies, or senior housing organizations.

Ten Steps for Vendors and the Aging in Place Technology Market

Find the channels that present products and services in the context that’s appropriate, whether it’s AARP or Wal-Mart – or at an annually occurring event like Silvers Summit at CES that focuses on boomers and seniors within this giant consumer product showcase.⁴⁵ To those within or contemplating entry into the boomer and senior market – here are 10 steps to consider:

1. **Create a boomer-and-senior aware website.** Mention the target audience by name: “How this product can make seniors feel safer” rather than hoping prospective customers will figure it out. Make the site is friendly to those with diminished vision. Use **IN2L**’s example: provide a video of a pleased user that’s worth 1000 words.
2. **Test usefulness with the target audience.** So much of the R&D effort in technology firms and university programs fails to produce a viable product. And vendors often jump in without confirmation beyond needs of their own grandmothers. Consider trial relationships with senior centers, area agencies on aging, or health centers.



- 3. Narrow scope, but broaden messaging.** Products that serve a narrow purpose can still be described within holistic context (or solution) like the day-in-the-life scenario, like Margaret's. Early on, seek partners with related products or service messages.
- 4. Be wary of box obsolescence.** Avoid being part of the back-room junk pile of products-gone-by. Recognize the progressive nature of the service needs of the consumers and pre-engineer extensions (the tablet version, for example), expansion capability, and future integration into the product.
- 5. Give away device and sell service.** Device prices are a barrier to lucrative and long-term service to boomers and seniors. Yet many vendors have devices listed for more than \$100, with service fees beyond the price tolerance noted in surveys like AARP's.
- 6. Offer the free trial.** Try with option to buy is such a time-tested strategy -- it is interesting to see how rarely it was used in this market, though it is popular with low-priced or free smart phone apps that need free testers.
- 7. Add related and useful value.** Offer points and advice about problems faced by prospective consumers – including links to criteria for assessing needs and services, like a link to '20 questions for long-distance caregivers' from the National Institute on Aging.⁴⁶
- 8. Add the community to the product.** E-mailed customer testimonials are nice but they are inadequate to build buzz from early success. Moderated communities (or blogs with comment) can become willing sources of product feedback.
- 9. Monitor reputation on consumer websites.** Vendors should be wary about deteriorating service reputation by regularly checking blogs, chat rooms, and forums - - improving their responsiveness accordingly – or closing down defunct sites.
- 10. Cultivate members of other markets early – before launch.** Be the first in your space to actively seek out continuing care communities, geriatric care managers, home renovation providers, assistive technology, and health care organizations.

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.⁴⁷ But potential business would be greater if marketers could reach the 14% of boomers that have expressed interest in helping their parents. Between now and 2020, based on growing boomer awareness and their own aging, this market will grow to at least \$20 billion and radically change with the growing availability of in-car technology, mobile PERS and health devices, and smart phone apps. And by 2020, the technology market will increasingly support customizations for all people, regardless of age (see **Figure 10**):⁴⁸

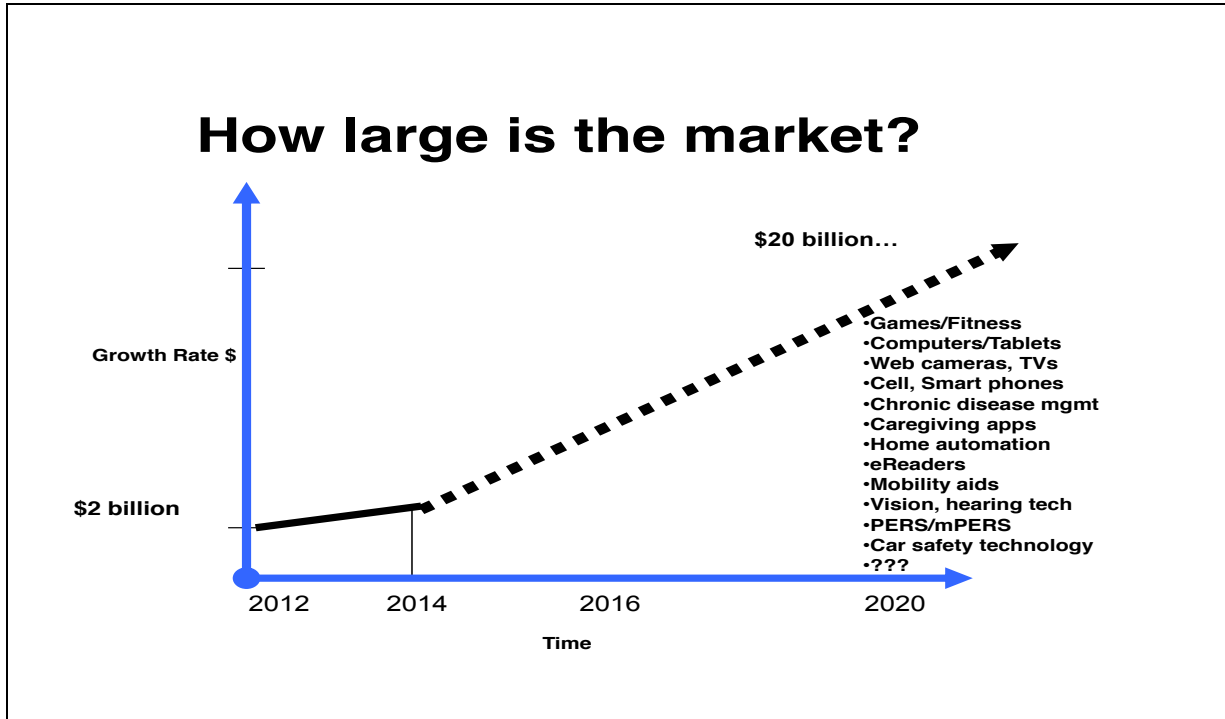


Figure 10

- 1. 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**, **MyGrandchild.com** or **Caring.com**, and health *need-based* hubs like **DiabetesMine** and **PatientsLikeMe**. Their partner spoke vendors (like **GreatCall** or **Bosch**) 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 social networks like **LinkedIn**, **Google+** or **Facebook** (see **Figure 11**).

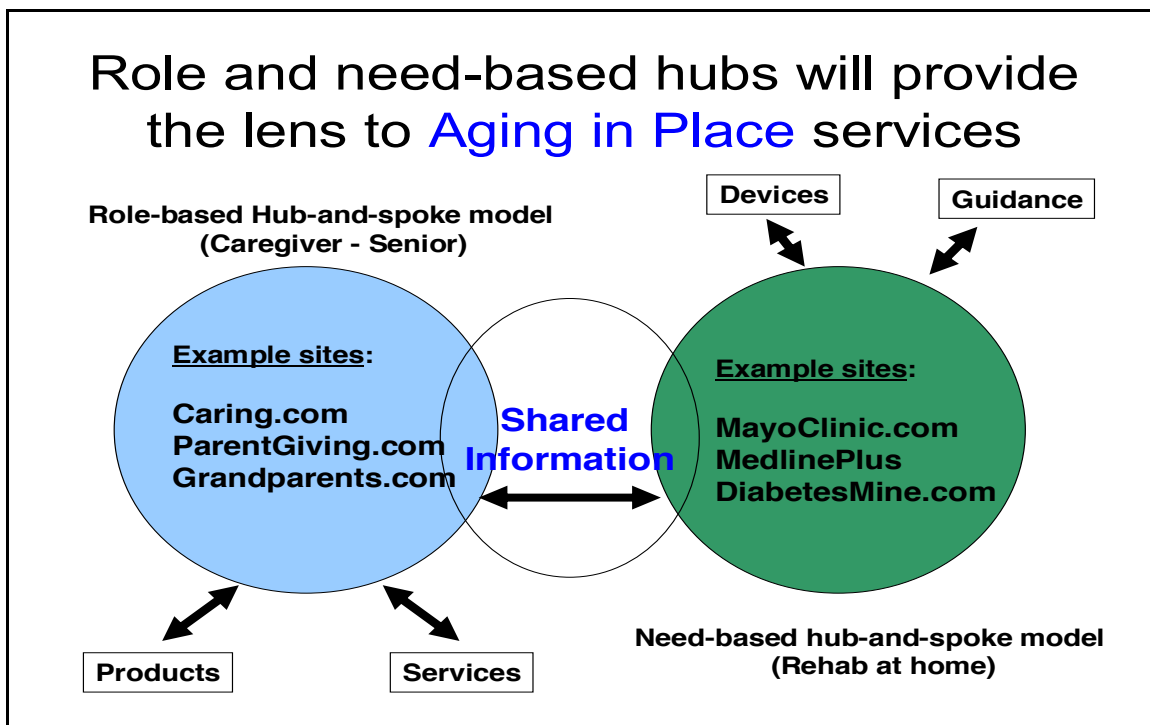


Figure 11

2. **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 associations and/or 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 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 behaves like a separate niche market (see **Figure 12**).
3. **New developments and remodels will offer aging-in-place technologies.** Some new housing developers (including CCRCs and ALFs) will pre-wire housing with broadband, security monitors, and motion sensors – in addition to wall backing for grab bars, standard wide doorways, and alternative kitchen counter heights. As housing demand restarts, other senior housing options will be standard, part of 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.

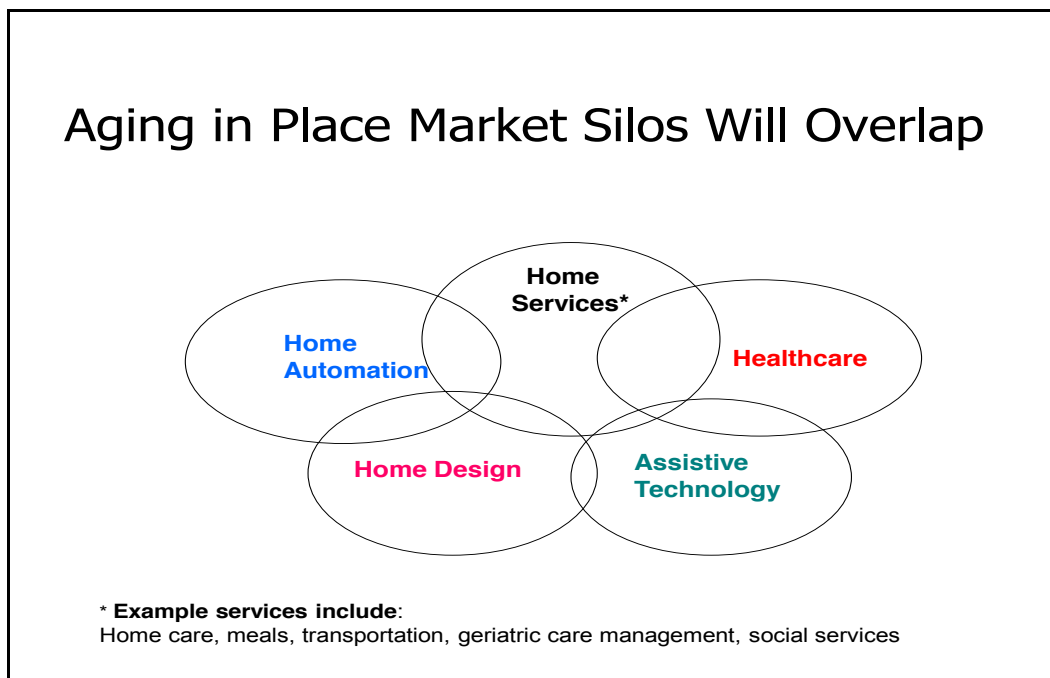


Figure 12

4. Vendor standalone market entries will morph into solutions, designed for all.

Today's 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 technically adept 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 security companies, senior housing, electronics dealers, or remodelers or home care, will travel the last few feet into the home.

WHAT CONSUMERS AND SUPPORT SERVICES SHOULD DO TODAY

Although the market is still young, already a useful set of products exists – and should be explored now by seniors and their families, caregivers, and service providers. Helping seniors and the-soon-to-be-senior be safer, connected, healthy and fulfilled is too important to await full market evolution and shakeout. And market awareness pressure results in better products and services – and vice versa. It's time to:

- **Assess the family along a tech literacy continuum.** Not everyone grows older lives in Silicon Valley -- one newspaper letter quotes a senior subscriber who plaintively noted that advertisers keep mentioning websites, not phone numbers. Even the Social Security Administration introduced statements that can only be viewed online. If your family member sees the Web or other tech as impenetrable, don't give up. That's why there is still a market for one-button answering machines, easy-to-use cell phones, and simple computer/tablet interfaces. And providers are learning: new training of Geriatric Care Managers (GCMs) offered by the University of Florida guides prospective GCMs in the use of technology to support clients, especially long-distance caregivers, in their businesses.⁴⁹



- **Research technology for today's need with an eye to the future.** Family members and providers who observe the absence of technology for loved ones should be energized into asking: why not – where is it? Yes, you should inquire about the availability of fitness programs and good food in an assisted living facility, but also ask about web cameras for long distance family chats or wireless networks to enable the use of tablets in common areas. Insist on improving safety or engaging family members into tighter connections to a relative, and ask how the facility deals with increasing frailty.
- **Find a community of interest and support.** Look online first for shared interests in advancing the use of technology and related services for boomers and seniors. Demand that nationwide and visible organizations, like AARP, NCOA, ASA, WebMD or Caring.com, and less well-known associations like NAIPC, NAPGCM and VTV Network mentioned earlier in this report – ask if they can provide more information on recent tech-enabled innovations and solutions. Find technical support communities, local 'Geek' and 'Genius' squads that will service boomers and seniors where they live as well as online. Push cable providers to add a local 'geek squad' service to offerings for a small recurring fee. If consumers elevate their expectations, vendors and providers must listen.



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Center for Aging Services Technologies (CAST)
Continua Health Alliance
Members of AgeTek.org
AARP
ASA
What's Next Boomer Business Summit
National Alliance for Caregiving
Pew Research
MetLife Mature Market Institute
And many others who have provided mentorship, guidance and insights

About the Author:

Laurie M. Orlov, a leading tech industry veteran, writer, speaker and elder care advocate, is the founder of **Aging in Place Technology Watch**, a market research firm that provides thought leadership, analysis and guidance about technologies and related services that enable boomers and seniors to remain longer in their home of choice. In addition to her years of technology background and years as a technology industry analyst, Laurie is certified in geriatric care management from the University of Florida, and has served as a long-term care ombudsman in Florida. She is the author of other market reports, including **Next Generation Response Systems (2013)**, **Future of Home Care Technology (2012)**, and the **Link·age Technology Survey Age 65 to 100 (2011)**. She has served as a member of the Philips Think Tank on Active Aging.

In her career, Laurie Orlov has spent more than 30 years in the technology industry, including 24 years in IT and 9 years as a leading industry analyst at Forrester Research where she was often the first in the industry to identify technology trends and management strategies which have survived the test of time. She speaks regularly and delivers keynote speeches at forums, industry consortia, conferences, and symposia. She has served as an advisor to leading organizations like AARP, J&J, Microsoft, Novartis and Philips; and her blog posts are featured on numerous websites about topics related to boomers and seniors. Learn more and find all published reports at www.ageinplacetech.com.



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⁹ Costs shown are rounded up. Nursing home cost is for a private room.

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¹⁸ <http://www.cdc.gov>

¹⁹ As of 2006, 38% of all hospital inpatients were individuals age 65+.

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²⁹ ADLs are Activities of Daily Living, including feeding, toileting, dressing, bathing, grooming

³⁰ Only 33% of those 65-73 and 9% of those 74+ go online wirelessly (smartphone or laptop).

³¹ CAPS, National Association of Home Builders,
<http://www.nahb.org/page.aspx/category/sectionID=686>

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³⁸ http://www.aarp.org/content/dam/aarp/technology/innovations/2011_04/Connected-Living-for-Social-Change.pdf

³⁹ Today 23% of seniors are online at least once daily. 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

⁴⁰

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⁴⁴ <http://www.lifelinesys.com/content/independent-living-assessment>

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⁴⁷ Market size was based on a combination of published market estimates, including the \$300 million 2012 brain fitness market (SharpBrains), \$1.5 billion PERS market, with \$50 million (estimate) of all other senior offerings that span privately held home monitoring companies and related security firms. Senior-focused PCs, software, cell phones, smartphones, tablets, and video games, make up the remainder.

⁴⁸ The PERS (and its mPERS subset) market has been estimated at \$1.5-2 billion and forecast at an 11.6% CAGR through 2012, www.marketresearchworld.net

⁴⁹ University of Florida certificate program: <http://www.admissions.ufl.edu/distanceed.html>

Aging in Place 2013 Technology Categories and Vendors (Example vendors)

Today's market combines general-purpose technology vendors with a boomer/senior offering and small specialist vendors solving more narrowly defined problems. For inclusion as a technology to facilitate aging in place, the vendor meets two of these criteria (these are examples, not an exhaustive list) In addition, ** entries are new in this 2013 release of the Market Overview, though not necessarily brand new in the market.

- a) Incorporate messaging to and about boomers and/or seniors or their caregivers (new in this version).
- b) Boomers and/or seniors have adopted the product.
- c) Is available across the US, not just in a single region.
- d) Be available free or for a fee, not only via insurance reimbursement.

Category	Sub-category	Purpose	Platform	Contact	Cost/ mo plus Device
<i>Communication and Engagement</i>					<i>Example Price range</i>
Presto Printing Mailbox	E-Mail	Printing e-mail	Appliance	Presto.com	\$12.50/mo plus \$49.99 (Amazon)
Landel Mailbug	E-Mail	Computer-free e-mail	Appliance	Maibugstore.om	\$125
Samsung Galaxy S4 with Easy Mode **	Smart phone	Smart phone	Android	Verizon, others	\$299 with 2 year contract
VTech CareLine Home Safety Telephone	Telephone	Voice announcer	Phone + PERS	VTechphones.com	\$119.95
GreatCall Jitterbug Touch No contract	Cell phone	Easy-to-use cell phone + services	Android	GreatCall.com	\$149
ClarityLife C900	Cell phone	Amplified 20db cell phone	Cellular phone	clarityproducts.com/products	GSM carrier plus \$82.95
Hamilton CapTel	Multiple devices	Captioned telephone services	Free service	HamiltonCaptel.com	800i for \$99
CaptionCall	Telephone	Captioned service + phone	Free service	Captioncall.com	\$149
iPad 2	Tablet	9.7 inch multi-touch	Tablet	Amazon.com	\$399
Kindle Fire	Tablet	7-inch multi-touch	Tablet	Amazon.com	\$159-\$499
Claris Companion Tablet **	Tablet	Senior tablet	Tablet	Clariscompanion.com	\$549 plus 39
Telikin Touch Screen Computer	Touch Computer	Easy to use computer	PC	Telikin.com	\$699.99

<i>Communication and Engagement</i>					<i>Example Price range</i>
It's Never Too Late Touch Screen Tablet	Rehab, Memory Care	Various	Tablet	In2l.com	\$1999
Connected Living	PC Ease of Use Software	Internet	Senior PC Software	ConnectedLiving.Com	\$9.99/mo
DuckDuckGo **	Search without user tracking	Internet	Search engine	Duckduckgo.com	Free
SimpleC	Senior engagement	Pre-config'd software	Memory care, nursing home	Simplec.com	\$120/month
SeniorsInTouch	Touchscreen system	Pre-config'd software	Senior housing	Seniorsintouch.com	\$300/month
CareLinx	Non-agency home care	Family caregivers	Portal, directory	CareLinx.com	\$50/month fee to workers
Lotsa Helping Hands	Schedule sharing care	Shared caregiving	Portal	Lotsahelpinghands.Com	Funded by partnerships
Caring.com	Caregiver portal and directory	Family caregivers	Portal, directory	Caring.com	Funded by fees, ads
Care.com	Find home care	Support to caregivers	Portal, directory	Care.com	Funded by fees, ads
CoroHealth, Coro Faith **	Music, spiritual	Dementia care	Web, iTunes	CoroHealth.com	Based on volume
CaringBridge	Private portals	Support to caregivers	Resources, Events	CaringBridge.com	Funded by partnerships
CareTreeMe **	Home care system	Manage home care	Family, workers	Caretree.me	\$10/mnth
eCaring **	Home care management	Family and professional	Web	eCaring.com	\$50/month after free trial

	system	caregivers			
<i>Home Safety and Security</i>					<i>Example price range</i>
GreatCall 5Star Urgent Response	mPERS	Consumer, Caregiver	Wearable PERS	GreatCall.com	\$14.99/mo +49.99
Nuvera Libris **	mPERS	Consumer, caregiver	mPERS, platform	Nuvera.com	\$26.95/mo
QMedic **	PERS, med reminders	Consumer	Wearable PERS	Qmedichealth.com	\$19.95 – 29.95/month
Verizon SureResponse	mPERS with concierge	Consumer	Wearable PERS	Verizonwireless.com	\$30/mo plus \$19.99
Philips GoSafe **	mPERS	Consumer, caregiver	Wearable	Lifelinesys.com	Plus \$50/mo
MobileHelp	mPERS	Consumer	Wearable	Mobilehelpsys.	\$36.95/mo
AframeDigital	Safety, health	Remote monitoring	Watch plus sensors	Aframedigital.com	\$69/mo plus \$499
Independa	Safety, health	Remote monitoring	Monitor platform	Independa.com	\$99/mo
BAMLabs	Smart bed monitor	In-bed motion	Wifi sensors	BAMLabs.com	\$150/200 per month
BeClose	Safety, health	Remote monitoring	Wifi sensors	Beclose.com	\$79/mo plus \$299
GrandCae Systems	Safety, health	Remote monitoring	Monitor Platform	Grandcare.com	\$149/month lease
Lively **	Safety, engagement	Remote monitoring	Plus Lively Gram	Mylively.com	\$19.95/mo plus \$149
Healthsense **	Safety, health	Remote monitoring	Wifi sensors	Healthsense.com	\$100/resident per month

<i>Health and Wellness</i>					<i>Example price range</i>
Dakim Brain Fitness	Cognitive fitness	Brain fitness program	PC-installed	Dakim.com	\$249
Luminosity **	Cognitive fitness	Brain fitness program	Mobile device	Luminosity.Com	\$79.95
MindFit	Cognitive fitness	Consumer or senior center – Brain exercises	Web or CD	e-mindfitness.Com	\$139.00 or \$149.00
PositScience	Cognitive Fitness	Brain fitness programs	PC	Positscience.	\$395-\$495
WiiFit	Exercise	Consumer: Balance board, fitness games	Wii	Amazon.com, others	\$90.00 plus \$129.99 Wii
Wii Sports Pack	Exercise	Senior center: Wii Bowling, Tennis, other	Wii	Amazon.com, others	\$42.99
My Fitness Coach	Exercise	Consumer: Ability to chart progress over	Wii	Amazon.com, others	\$31.20
Microsoft Kinect	Exercise	Gesture, camera-based	Kinect	Amazon.com, others	\$109.99
Philips Lifeline with Philips Medication Dispensing Service	Medication dispenser and reminder	Consumer: cup-based dispensing	Appliance	Lifelinesys.Com	\$75/mo plus \$85 installation
MedSignals	Medication management	Consumer, 4 drugs, instructions	Phone	Medsignals.Com	\$15.00/mo
TabSafe	Medication dispenser	Consumer, senior housing	Appliance	Tabsafe.com	\$68.95 plus \$19.95
MedMinder	Medication dispenser	Consumer: dispensing	Appliance	MedMinder.Com	\$39/month
Micromedix **	Drug data	Consumer	Smart phone	Micromedix.Com	Free

<i>Learning and Contribution</i>					<i>Example price range</i>
MyGrandchild.com	Games with grandkids	Play games, read online via network meetings	Internet	Mygrandchild.com	\$4.95/meeting
Readeo Video Book Reading Service	Books with grandkids	Read books, see grandchildren	Internet	Readeo.com	\$9.99/mo
SeniorJournal.com	Social networking	Boomers and seniors	Internet	Seniorjournal.com	None
After Steps **	End of life documents	Checklist and doc storage	Internet	Aftersteps.com	\$60/year
Ancestry **	Legacy	Family tree, history	Internet	Ancestry.com	\$19.95/mo
LifeBio	Legacy	Produce a book based on template	Internet	Lifebio.com	\$39.95
ElderLuxe	Product Catalog	Multiple products	Internet	ElderLuxe.com	None
FirstStreet Online **	Product Catalog	Multiple products	Internet	Firststreetonline.com	None
SeniorNet.org	Education and Learning	Technology training and access	Internet	Seniornet.org	\$40.00/yr
Open Courseware	Education and Learning	Download courses	Internet	Ocwconsortium.org	None
RetiredBrains.com	Education and Learning	Directory of online courses	Internet	Retiredbrains.com	None
Senior Center Without Walls (California)	Education and Learning	Telephone-based courses	Internet	Seniorcenterwithoutwalls	None
OATS (Older Adult Technology Services)	Education and Learning	Senior Planet Technology Center in NYC	Center/Service	Oats.org	None

<i>Smart phone/ tablet caregiving apps</i>					<i>Example price range</i>
CarePartners Mobile **	Task tracking	Private shared to-do list	Multi-device	Philips	None
2Together **	Mobile app link to PERS	Notifications for Lifeline contacts	Multi-device	Philips	None
Balance: for Alzheimer's Caregivers **	Caregiving coordination	National Alzheimer Center, Inc.	iTunes	Hebrew Home at Riverdale	\$0.99 - \$3.99
CoroHealth/Faith Mobile	Music, Faith	Customized content	iTunes	Corohealth.com	First 3 months free
Healthspek PHR **	Personal health record	Opt-in sharing health info with doctors	iPad with iPhone viewer	Healthspek.com	None
Comfort Zone Check-in **	Track Cell phone or wearable device	Alzheimer's Association	iPad, iPhone	Alz.org	\$9.99/month
Care Zone Mobile **	Task organizer	Shared calendar	Multi-device	Carezone.com	Free
GeriJoy **	Talking pets	Dementia care service	Tablet	Gerijoy.com	\$99/month
Personal Caregiver **	Caregiver coordination	Medication & refill reminders	iTunes	Personal caregiver.com	\$9.99
MedCoach **	Health and Wellness	GreatCall	Android	GreatCall.com	None
SingFit for Seniors **	Engagement	Music care recipients	iTunes	Singfit.com/for-seniors/	None
Unfrazzle **	Caregiving coordination	Mobile task management	iPhone/iPad	Bagheera, Inc. Unfrazzle.com	None