



Technology for Aging in Place

A 2009 Market Overview

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WHO SHOULD READ THIS REPORT?

This report is a market overview with a single purpose: it is intended to describe the need for and the current market of technology to help seniors 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
- ❖ Social networking sites targeting baby boomers or seniors
- ❖ Continuing Care Retirement Communities (CCRCs)
- ❖ Assisted Living Facilities (ALFs)
- ❖ Senior housing developers
- ❖ Home care agencies
- ❖ Geriatricians
- ❖ Hospitals and integrated service delivery networks
- ❖ Government agencies and policy makers
- ❖ Geriatric care managers
- ❖ Naturally Occurring Retirement Communities (NORCs)
- ❖ 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.¹ Not surprisingly, 90% of them would like to stay there and if they move, according to the AARP, it will be to another private home.² In fact, one survey of seniors revealed that they fear nursing homes worse than death.³

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. So why is the technology to enable this important now versus years from now? Because:

- **Successful aging means independence.** Nobody wants to think about becoming old. When asked what's important for successful aging, however, 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.⁴ And studies have shown that older persons who live independently have more positive self-esteem than those who are institutionalized.⁵
- **Cost of long-term care is daunting.** Today, 70% of seniors age 65+ will require some form of long-term care during their lives.⁶ The AARP pegged the average cost of an assisted living facility (ALF) apartment in the US in 2007 as \$36K/year, with nursing homes at \$77K/year.⁷ Meanwhile, MetLife cost projections show that ALF cost growing to \$51K by 2015.⁸ 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 depends on availability of long-term care insurance, substantial savings, or proceeds from the sale of 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, care of the aging population has already begun to migrate from nursing homes to assisted living and home-based care.⁹ But it is very clear from age-related trends that there will not be enough caregivers to help them age at home. This care gap is a result of convergence of a growing senior population, increase in life expectation, looming healthcare issues, and a relatively flat population of younger women -- still the primary home care, assisted living, and nursing home aide (see **Figure 1**).

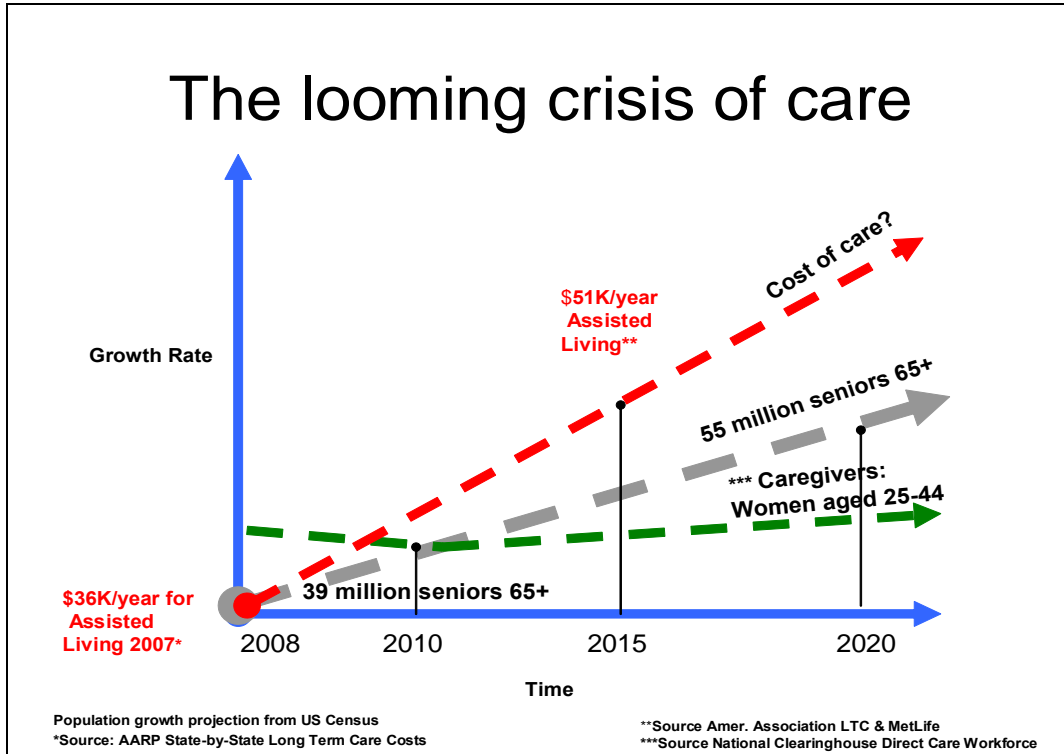


Figure 1

- **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 platforms, PCs, and high speed Internet is enough to merit tentative but steady entrance of 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 (see **Figure 2**).

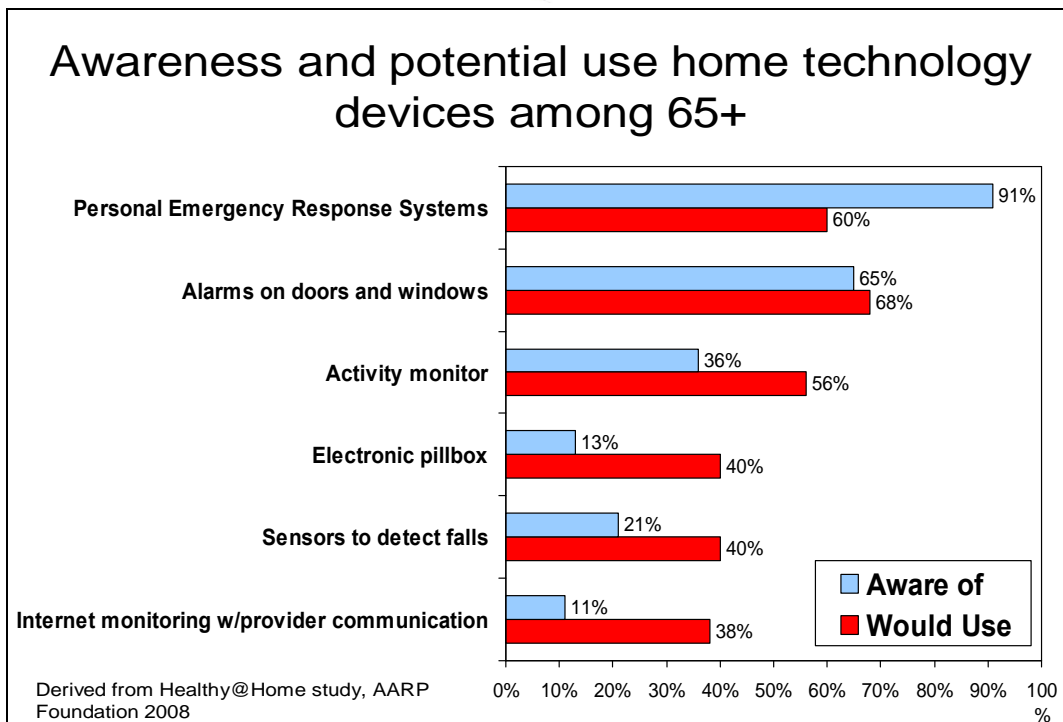


Figure 2

What Does It Take to Successfully Age in Place?

Over 10 million seniors age 65+ live alone.¹⁰ 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."¹¹ 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. 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.¹² 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. As of 2006, 38% of all hospital inpatients are individuals age 65+.¹³ 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 seniors into rehab and permanent moves to assisted living or nursing homes.
- **More opportunity to participate in society.** Becoming frail at home should not 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. 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, but today suffers from weak or no connections: too ad-hoc, too phone- or paper-based, too labor-intensive, and too narrowly conceived (see **Figure 3**):

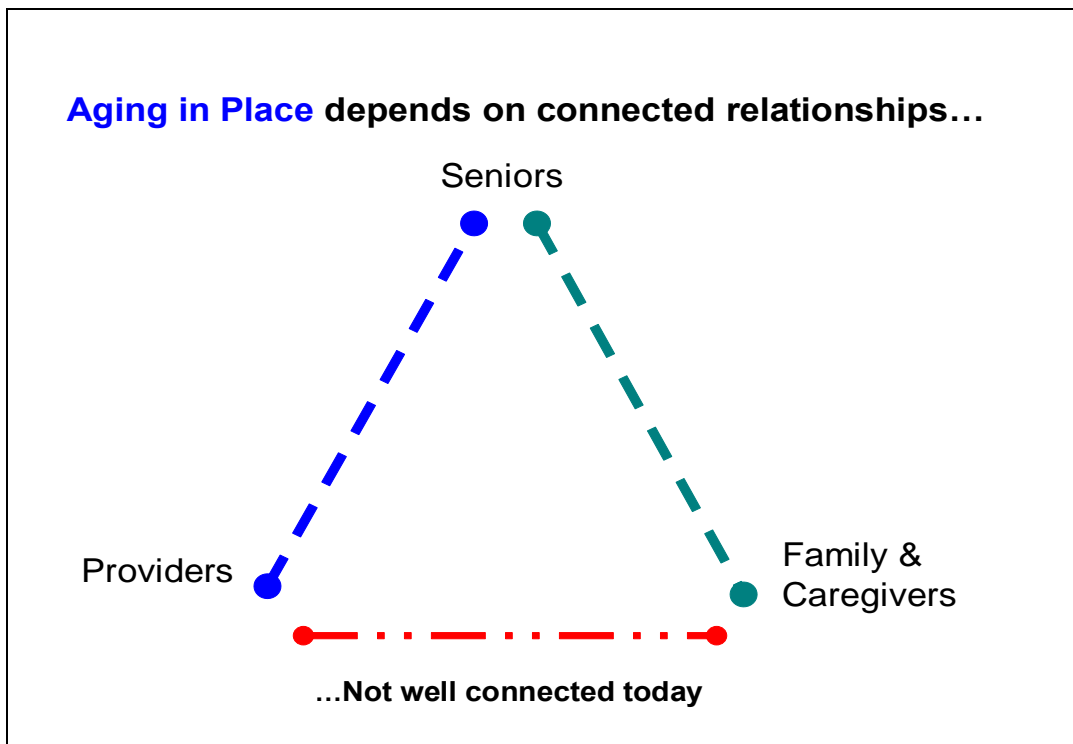


Figure 3



- ❖ **Seniors.** It's true that baby boomers will skew the population distribution and change the way we age, beginning in 2011 when the oldest of them turn 65. But there were over 39 million seniors over the age of 65 at the end of 2008, 13% of the US population.¹⁴ And despite willingness to use technology to help them connect to others, few seniors have the mechanisms to do so. Fifty-five percent of those 65+ use cell phones, but only 35% use internet or e-mail and only 30% of them have high-speed connections in their homes.¹⁵
- ❖ **Family & caregivers.** Family caregivers often take an interest in and provide some sort of oversight to seniors ó either spouse or parents ó in fact, as many as twenty-five percent of families today care for someone outside the home.¹⁶ However, many are ðout of the loopö of the day to day actions of the seniors they support. While nearly half of 50-64 year-olds have broadband connections, only 7 percent currently use a computer to stay in touch with the person that they help.¹⁷
- ❖ **Providers of services.** Those with direct contact with seniors and their families include: social services, hospitals, doctors, nurses, councils on aging, assisted living, and home care. This is the weakest technology link in the triangle, though it may have the greatest potential for keeping seniors in their homes. Today only 9 percent of doctors in small offices, for example, have electronic medical records, a minimum for sharing personal health record (PHR) information from seniors or families. However, EMR use overall is growing, and e-mail use by doctors is now up to 31%.¹⁸

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 4**):

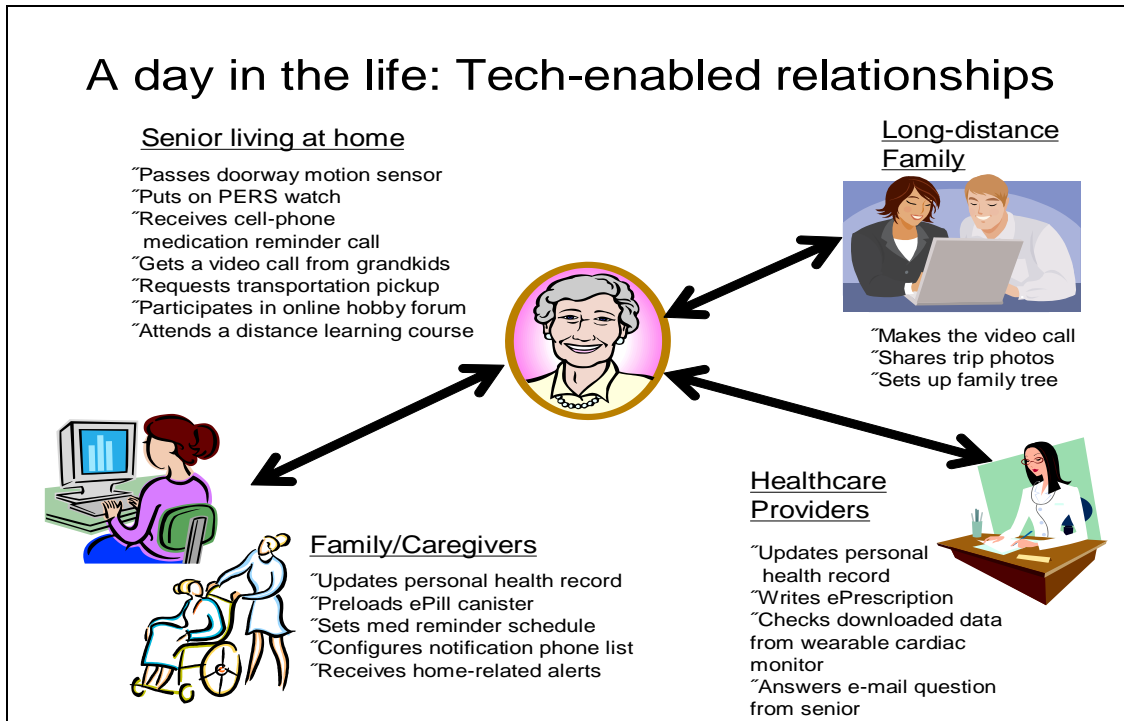


Figure 4

❖ **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 which remotely updates a security system, configured to alert caregivers if it is not activated by a specific time. She puts on her personal emergency response system (PERS) 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 indicates such on her phone.

Later that day, she receives a video phone call from her grandchildren in Pennsylvania and tells them a bit more about her family history for their ancestry project. She uses e-mail to request a transport pickup to take her to the senior center, and then checks in with her favorite online hobby forum through her easy-to-use PC. At the senior center she participates in an exercise session or class. When she arrives at home, she calls into a telephone-based course.

❖ **Family/caregivers.** Margaret's adult daughter Irene lives an hour away and visits weekly or to take her to doctor's appointments. In consultation with her mom, she configures the medication reminder schedule on the pill canister and uses a website to set automated phone calls. 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 she and home care aide Julie 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 internet-enabled video calls, e-mail, online chat and phone conference calls to stay in touch with Margaret between in-person visits. They send photos through e-mail that Margaret receives via fax or others could use an e-mail appliance, printing mailbox or view and print from a senior-friendly PC.
- ❖ **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 and uses it to communicate directly with Margaret's nearby pharmacy. Margaret has a history of cardiac problems and with the help of caregivers is regularly checked with home-based diagnostic devices whose data is transmitted to the doctor's office at the time of visits or as needed.

Four Aging in Place Technology Categories Have Emerged

The above scenario is **not a vision for the future**. It is feasible with technology available today, offered by a small and early set of vendors and service providers and listed separately in Appendix I and further 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 5**):

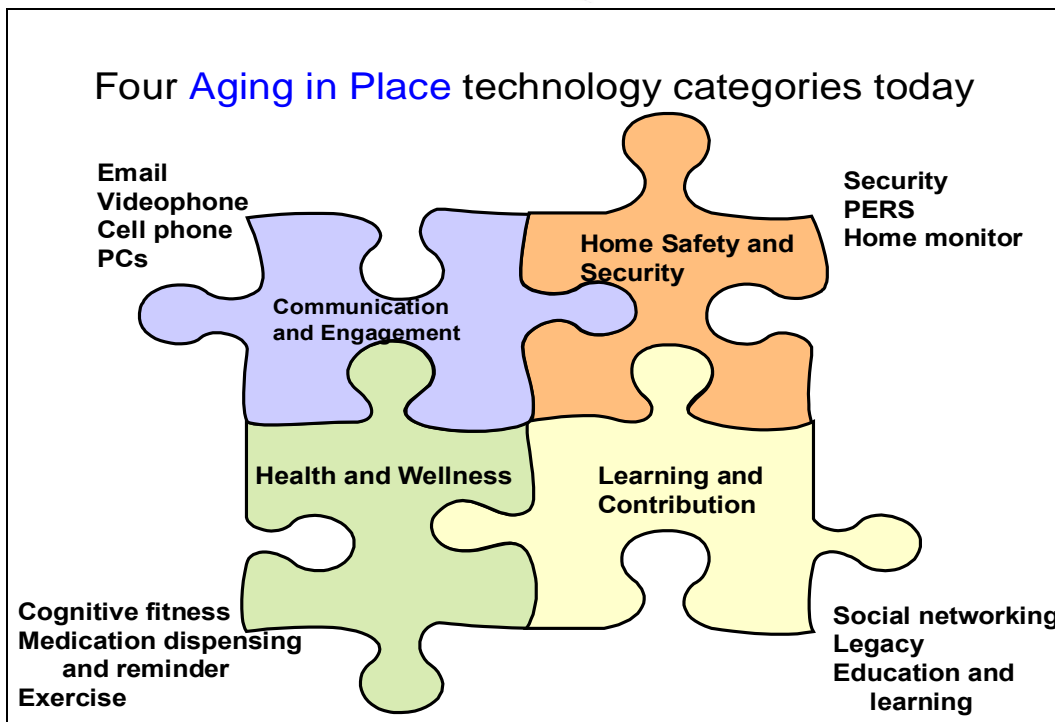


Figure 5

- **Communication and Engagement.** For baby boomers and younger, life is unthinkable without e-mail, chat, web-surfing, Facebook, Smartphones, video games, and texting. Yet the majority of seniors over the age of 65 are for the most part unaware of these 24x7 ways to be in touch and in the know.¹⁹ 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 **Microsoft's** Guide for Aging Computer Users or easy-to-use cell phones from **Jitterbug** or **Clarity**-- can make these experiences feasible and gratifying.
- **Home 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 retrofitted with universal design elements, like grab bars, alternative counter heights, placement of outlets, wider doorways, and ramps, by a Certified Aging in Place specialist (CAPS).²⁰ But beyond that, security systems from **ADT**, personal emergency response systems (**Philips Lifeline**), sensor-based home monitors (**QuietCare** and **Grandcare**), and web cameras (an option with **Alarm.com**) 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.²¹ And according to a recent Deloitte study, 75% of consumers want expanded use of in-home monitoring devices and internet-based methods that would reduce the need for provider visits.²² So home monitoring



and security vendors are gearing up personal response technologies that can integrate with wearable technologies. **HealthSense™** with its **eNeighbor™** monitoring products and **Visonic's** platform for security and emergency response enable links to remote health management devices that can detect changes in blood pressure or glucose levels.

- **Learning and Contribution.** Maslow's needs hierarchy has been smartly applied to aging in place by Joseph Coughlin of MIT's AgeLab.²³ He notes that once the basic needs of communication, safety, and health are addressed, people have both the need and capacity to read on a **Kindle**, for example, and learn, stay active in and knowledgeable about society, contribute to it through volunteering and continued work, and leaving a legacy for those who love them. Seniors can sort among online programs and auditable courses found at sites like **SeniorNet.org** or **RetiredBrains.com**.

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, ubiquitous as a cell phone, and as extensible as a PC. For this market to mature:

- ❖ **Technologies must be intuitive and easy-to-use.** 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. Ease of use means ease of setup. Remote 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. Some vendors say sales and support costs are too great for them to target seniors directly.
- ❖ **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 message formats (such as those endorsed by the **Continua Health Alliance**) to communicate to caregivers and providers.²⁴
- ❖ **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 PERS and home monitoring) that provide value are just as essential as cell phone plans, GPS services, 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. In fact, 39% of older boomers and 16% of seniors own a video game console, spending 5 or more hours per week playing video games.²⁵ But it's unlikely that seniors will be willing to navigate several different systems for different types of applications. So consumers may gravitate towards applications that work with ones they already use.

COMPETING PLATFORMS FOR AGING IN PLACE TECHNOLOGY

An aging in place technology platform battle is underway & vendors will select among:

- ❖ **PC-based.** The PC & its unfettered wired and wireless access to the Internet -- offers by far the broadest access to technologies to help seniors remain in their homes, whether it's finding health information from **WebMD**, home retrofitting tips from **AARP**, or improving cognitive fitness with **Posit Science**. In fact, the number of online seniors will increase from 13.7 million in 2007 to 25.9 million in 2013.²⁶ With the wealth of available PC applications comes complexity that may need to be masked with products like **BigScreenLive**, **Pointerware**, or the **GO Computer**.²⁷
- ❖ **Wireless phone.** Up next in today's market is the wireless phone & at least 55% of seniors and 76% of boomers own them today. Good market penetration and simple operation is attractive, especially for reminders, alerts, simple internet search, and even GPS location applications. While targeted mobile applications are limited today, wireless phones will be a compelling mass-market information delivery platform for applications hosted and configured on the web & as **OnTimeRx** and healthcare app vendors already demonstrate.²⁸ And new wireless platforms from growing smartphone use (iPhone, BlackBerry, etc.), will likely boost availability of targeted mobile content for boomers and seniors beyond ring-tones and games.
- ❖ **Game platform (Wii): Nintendo**, sold 2 million game consoles in November, 2008, representing 10% growth from 2007. As Majd Alwan, head of **CAST** refers to it, Wii "Therapeutainment" is growing in popularity for seniors & and both **Wii Fit** and **BrainAge** are the hot new additions to Assisted Living Facility (ALF) activities. Simple, step-by-step instructions and limited options could prove attractive to technology phobic seniors & especially if extended to provide the ability to share results with caregivers.
- ❖ **Other/Appliance:** Set-top boxes like **Cisco's Scientific Atlanta** today provide video-on-demand, television, voice, and internet that is not yet, but could easily become a platform for senior applications. Other platforms include landline, fax, and appliances (bundled proprietary hardware and software). For examples, consider the extensible **Philips Motiva Telehealth** monitoring platform or the single-purpose **Landel Mailbug** email appliance.



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 way baby boomers view the status of their parents. Clarity's 2007 survey of boomers and caregivers offered this hard-to-forget survey result: *51% of baby boomers believe technology could help their senior parents, but only 14% have looked for any.* Vendors and senior service providers can and must close that gap of awareness, offering solutions for each stage of independence (see **Figure 6**). Vendors must find:

- ❖ **The right customer – baby boomers and their roles.** But some marketers pick a target audience that shares a common role and dominate it. For example, **Grandparents.com** has identified a shared role occupied by boomers as young as age 47 and built a high-traffic and compelling website. And other role-based boomer sites like **Caring.com** and **GilbertGuide** 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 can't begin to 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. Finding an independent living assessment on **Philips Lifelines.com** is a welcome surprise to boomers and seniors wondering if it is feasible to remain at home.²⁹

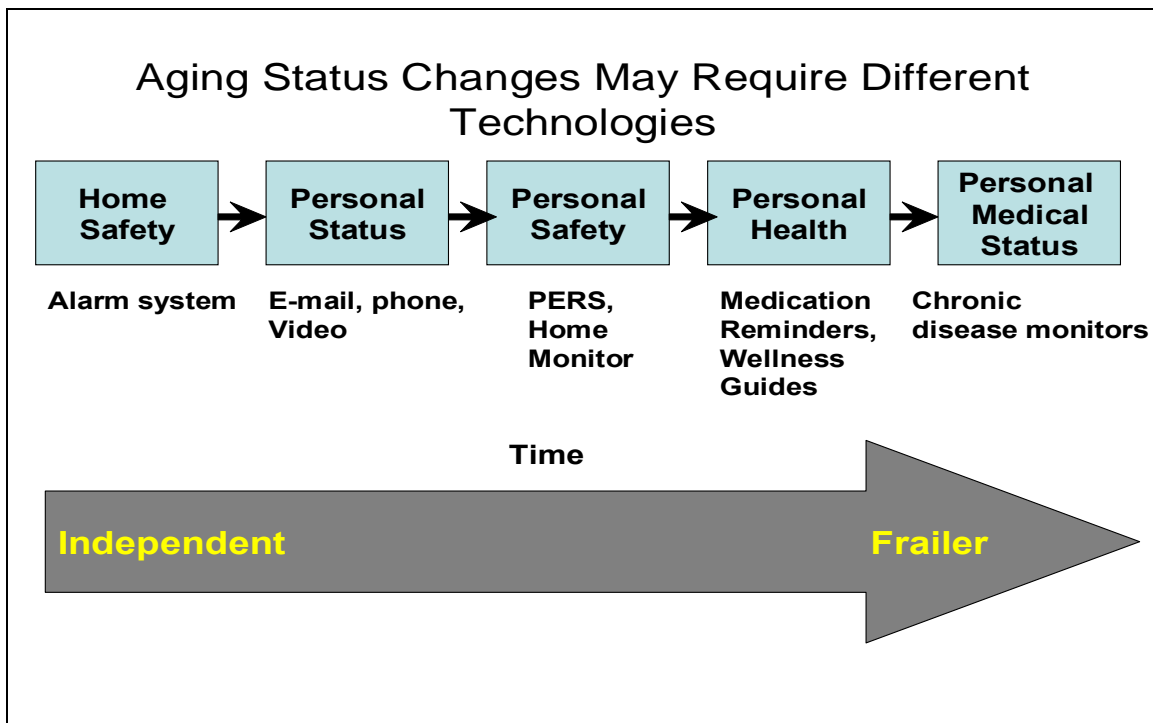


Figure 6



- ❖ **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 ó 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 **Lifeline** market through multiple regional service providers at various price points. Others are starting to gravitate to a larger and branded ecosystem like **Microsoft HealthVault's** or even resold through senior centers.

Ten Steps for Vendors and the Aging in Place Technology Market

The Silvers Summit at CES in January, 2009 was the first-ever track in this giant consumer product show that focused on technology for boomers and seniors. To one observer, there were as many vendors at the event wondering about market entry as actively engaged. To those within or contemplating entry into the boomer and senior market ó here are 10 steps:

- 1. Create a boomer-and-senior aware website.** Mention the target audience by name ó how this product can make seniors feel saferö rather than hoping prospective customers will figure it out. Make sure the site is friendly to those with diminished vision. Provide a video of a pleased user ó it's worth 1000 words.
- 2. Test usefulness with the target audience.** These seems like silly advice, but so much of the R&D efforts in technology firms and university programs fail to produce a viable product. Consider free trials 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 in holistic context as in a well as a day-in-the-life scenario, like Margaret's.
- 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 extension and expansion capability 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, beyond the price tolerance noted in AARP's Healthy@Home.
- 6. Offer the free trial.** Try with option to buy is such a time-tested strategy -- it is interesting to see how rarely it appears to be used by vendors in this market.
- 7. Add related and useful value.** Offer points and advice about problems faced by prospective consumers ó including links to criteria for assessing needs and services, like a link to 20 questions for long-distance caregiversø from the National Institute on Aging.³⁰
- 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 product feedback living organisms.
- 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.



- 10. Cultivate members of other markets early.** 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, but with its fragments assembled into an overall puzzle, 2008 business represents a conservative \$2 billion market today.³¹ But potential business would be far higher 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 \$20 billion and radically change as (see **Figure 7**):³²

- 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**, **Caring.com** and **GilbertGuide**), and *need-based* hubs like **AARP.com** and **WebMD**. Their partner spoke vendors (like **Intel**, **Jitterbug**, or **HealthHero**) may advertise or even connect directly to these sites. In the future, some platform vendors may become important as hubs, like **Philips**, for example, in healthcare, or perhaps **Facebook**, building on a growing social network of seniors.

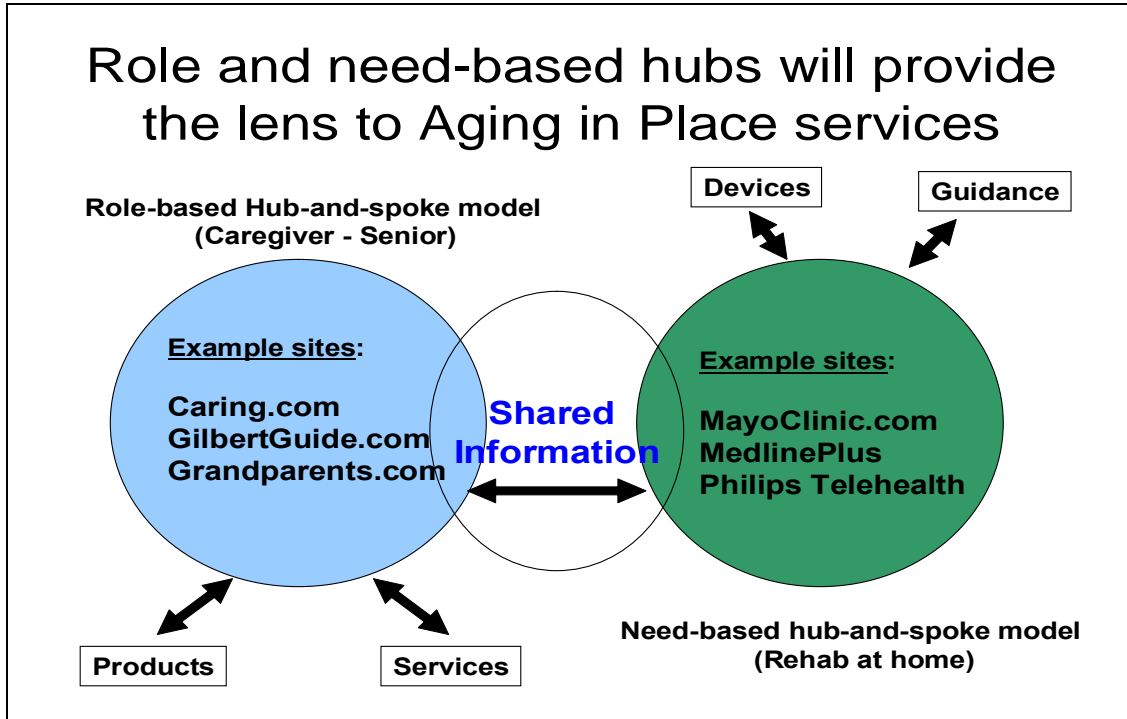


Figure 7

- 2. Aging in place provider silos will overlap (home design, healthcare, services).** In the future, role or need-based hubs-and-spokes, with their senior-focused lenses on need, will force convergence of aging-related categories. Today there are overlapping markets that serve seniors. For example, Assistive Technology (part of the healthcare market) overlaps with Healthcare. Service-based providers ó like assisted living, continuing care, home-based care all target the same senior, but in very different and largely tech-free ways. And markets that should overlap don't: Aging in place home design should have a technology component in CAPS certification, for example, but doesn't. And the home automation market ó all about tech -- could be an aging in place enabler, but currently is a separate small market (see **Figure 8**).



Aging in place market silos will overlap

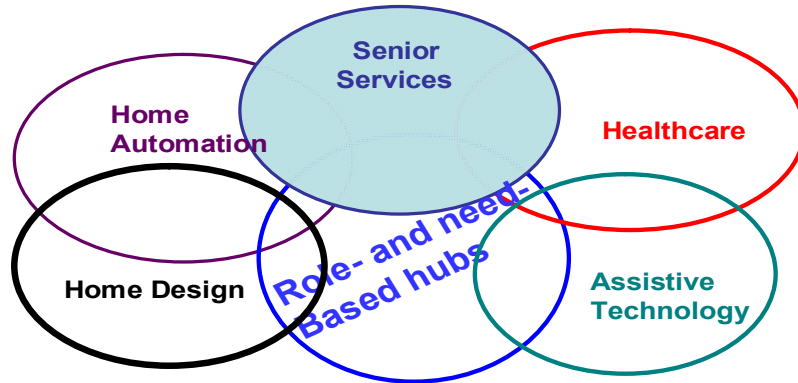


Figure 8

- 3. New real estate developments will offer aging-in-place technologies.** Some new housing developers (including CCRCs and ALFs) pre-wire housing with broadband, security monitors, and motion sensors ó 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 ó 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 (see **Figure 9**).



Eskaton National Demonstration Home



~Connectivity through TV or home computer

~Wellness monitoring

~Cognitive fitness games

~Smart reminders

~Smart lighting and appliances

Courtesy of Eskaton Senior Residence and Services 2008

Figure 9

4. Vendor standalone market entries will find compatibility suites and solutions.

The need for solutions and the evolution of hubs will force vendors to find partners in related and useful areas. Functionality may still earn them adoption by the most tech savvy seniors, but for the majority of the aging population, a consistent platform they can use ó and their caregivers and health providers can use to gain visibility ó will propel solution-aware vendor offerings into mainstream usage.

WHAT CONSUMERS AND SUPPORT SERVICES SHOULD DO TODAY

Although this is an early market, it is still a very useful set of products ó and should be explored now by seniors and their families, caregivers, and service providers. Helping seniors and the-nearly-senior be safer, connected, healthy and fulfilled is too important to await market evolution and shakeout. And most important of all, market awareness pressure makes for better products and services ó and vice versa. It's time to:

- ❖ **Assess family along a tech literacy continuum.** Not everyone grows older in Silicon Valley -- a newspaper letter quotes a senior subscriber who plaintively noted that advertisers keep mentioning websites, not phone numbers. 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 printing mailboxes. 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.³³



- ❖ **Research technology for today's need with an eye to the future.** Family members and providers who observe that *no* technology is available to seniors should be energized into asking: why not? Yes, you should inquire about the availability of fitness programs in an assisted living facility, but also ask about technology (like web cameras) to improve safety or help engage family members into tighter connections to a relative, and 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 or WebMD, provide more information on recent tech-enabled innovations and solutions. Find technical support communities that will service boomers and seniors where they live as well as online. Push cable providers to add a "geek squad" service to offerings for a small (and continuous) fee. If consumers elevate expectations, vendors and providers will listen.



FUTURE PROPOSED REPORTS from AGING IN PLACE TECHNOLOGY WATCH

Health and Wellness Technology at Home

Deep Dive – Technologies that Engage Seniors

Market Potential of Aging in Place Technology Vendors

Why Caregivers Need Technology Assistance

Aging in Place – What Scenarios and Technology Matter in the Year 2020?

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Elizabeth Boehm, Principal Analyst, Forrester Research

Julie Menack, Author and Geriatric Care Manager

Sources

Center for Aging Services Technologies (CAST)

Continua Health Alliance

Dr. Wendy Rogers, Georgia Tech

Craig Smith, Senior Housing consultant

QuietCare

GrandCare

Gilbert Guide

AARP Aging@Home

And leaders and marketing strategists from Intel, Microsoft, Caring.com, Clarity, Visonic, Home Guardian, PrestoConnect, Jitterbug, Celery, Alarm.com, Living Independently Group, Big Screen Live, Landel, Healthsense, Crossloop, and many others.

About the Author:

Laurie M. Orlov, a tech industry veteran, writer, speaker and elder care advocate, is the founder of **Aging in Place Technology Watch**, a market research firm that provides

Aging in Place Technology Watch

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Laurie M. Orlov

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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 technology background and years as a technology industry analyst, Laurie is a certified long-term care ombudsman in Florida and the author of **When Your Parents Need Elder Care (Authorhouse, 2006)**.

In her previous career, Laurie Orlov 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 has spoken regularly and delivered keynote speeches at forums, industry consortia, conferences, and symposia. In 1996, Orlov was named to **McGraw-Hill/Open Computing's** list of the top 100 women in computing. She is a featured columnist on numerous websites about topics related to boomers and seniors. Learn more at www.ageinplacetech.com.

References:

¹ http://assets.aarp.org/rgcenter/general/profile_2005.pdf

² <http://www.census.gov/population/www/projections>

³ http://www.clarityproducts.com/research/Clarity_Aging_in_Place_2007.pdf

⁴ AARP Healthy@Home 2008 survey ranking by 907 65+ individuals

⁵ Lewis, Aging, : The Healthcare Challenge, 2002

⁶ Department of Health and Human Services <http://www.longtermcare.gov/LTC>

⁷ http://www.aarp.org/family/caregiving/articles/state-by-state_long-term.html

⁸ <http://www.aaltci.org/consumer/travel.html>

⁹ Number of nursing home beds, ALF, and CCRC flat and incremental growth curves. AAHSA

¹⁰ www.caregiving.org

¹¹ Care Managers: Working With the Aging Family, Cathy Jo Cress, 2009

¹² <http://www.cdc.gov>

¹³ <http://www.cdc.gov/nchs/data/nhsr/nhsr005.pdf>

¹⁴ <http://www.census.gov/population>



¹⁵ Pew Internet and American Life Project 2009, Pewinternet.org

¹⁶ <http://www.caregiving.org/data/04finalreport.pdf>

¹⁷ 90% believe they would have difficulty persuading the person they help use a personal computer to stay in touch. AARP Healthy@Home April 2007.

¹⁸ <http://www.cnn.com/2008/HEALTH/04/22/doctor.email.ap/index.html>

¹⁹ According to Forrester Research, fewer than 10% of seniors today own a video game console, home network, read blogs, visit social networking sites, or send or receive text messages. 2008 North American Technographics Benchmark Survey, 2008, Forrester Research. Seniors are defined as 64+ in their studies.

²⁰ CAPS, National Association of Home Builders.
<http://www.nahb.org/generic.aspx?genericContentID=9334>

²¹ Eight-six percent of the American population is predicted to be overweight or obese by 2030.
<http://www.newsweek.com/id/153309>

²² Deloitte 2008 Survey of Health Care Consumers, <http://www.deloitte.com>

²³ Cathedral Builders Wanted, Coughlin & Lau 2006
http://agingsociety.org/agingsociety/publications/public_policy/previous.html

²⁴ <http://www.continuaalliance.org/home>

²⁵ www.forrester.com

²⁶ www.forrester.com

²⁷ Today 86% of households have PCs, but in terms of regularly using them for online access to the Internet, 23% of seniors use it at least once per day. As boomers age, however, that number will grow ó 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

²⁸ See "101 Things to Do With A Mobile Phone in Healthcare"
<http://www.themobilehealthcrowd.com>

²⁹ http://tech.yahoo.com/news/ap/20090123/ap_on_hi_te/high_tech_senior_living

³⁰ <http://www.nia.nih.gov/HealthInformation/Publications/LongDistanceCaregiving/>

³¹ This conservative estimate of current market size (an overlay of numerous other markets) is based on a combination of published market estimates, including the \$225 million 2008 brain fitness market (SharpBrains), with \$200 million (estimate) of all privately held home monitoring companies. Low senior penetration in larger markets like home security, PCs, cell phones, and video games make up the remainder.



³² The PERS market alone is forecast at an 11.6% CAGR through 2012.
<http://www.marketresearchworld.net>

³³University of Florida certificate program: <http://www.distancelearning.ufl.edu>

Aging in Place 2009 Technology Categories and Vendors (Example vendors)

Today's market is a combination of general purpose technology vendors with a senior offering and small specialist vendors solving narrowly defined problems. Some technologies are only marketed or seen within staffed facilities and senior centers, but changing consumer expectation could make them more readily available. For inclusion as a technology to facilitate aging in place, the vendor meets one of these criteria (these are examples, not an exhaustive list):

- a) Incorporate messaging to and about seniors.
- b) Boomers and seniors have broadly 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.

Example Vendors by Category with Example Price Ranges Derived from Online Sites

| Category | Sub-category | Purpose | Platform | Contact | Cost/mo plus Device |
|-------------------------------------|-------------------|----------------------------------|--------------------|-------------------------------|-----------------------------|
| <i>Communication and Engagement</i> | | | | | <i>Example Price range</i> |
| Celery Printing Mailbox | E-mail | Printing e-mail | Appliance/Fax | mycelery.com | \$139/year plus fax machine |
| Presto Printing Mailbox | E-mail | Printing e-mail | Landline | Presto.com | \$12.50/mo plus \$149.99 |
| Landel Mailbug | E-mail | Email appliance | Appliance/Landline | landel.com/ | \$12/month plus \$129.99 |
| AiGuru SV1 | Videophone | Skype-based, no PC | Internet | skype.com/ | Skype plus \$299.99 |
| VidTel | Videophone | No skype, no PC | Internet | vidtel.com/ | \$14.95/mo |
| D-Link DVC-2000 | Videophone | Videophone | Internet | dlink.com/ | Broadband plus \$395.00+/ea |
| Jitterbug No-contract | Cell phone | Easy-to-use cell phone + service | Cell | jitterbug.com/ | \$14.99/mo plus \$147.00 |
| ClarityLife C900 | Cell phone | Amplified 20db cell phone | Cell with | clarityproducts.com/products/ | GSM carrier plus \$234.95 |
| Consumer Cellular No-contract | Cell phone | AARP-endorsed pla | Various phones | Consumercellular.com | \$9.50/mo plus phone |
| HP TouchSmartiq500t | All-in-1 Computer | Touch-screen display | PC | hp.com | \$1,199.99 |

Example Vendors by Category with Example Price Ranges Derived from Online Sites

| <i>Communication and Engagement</i> | | | | | <i>Example Price range</i> |
|-------------------------------------|--|--|-----------------------|-------------------|---|
| Asus Eee Top PC ET1602 | All-in-1 Computer | Touch-screen display | PC | Amazon.com | \$479 |
| HP Mini 1000 XP | Mini Laptop | 2.25 pounds | PC | hp.com | \$349.99 |
| GO Computer | PC Laptop | Pre-config'd software for seniors | Senior PC and service | Thegocomputer.com | \$19.95/mo plus \$799 |
| BigScreenLive | PC Ease of Use Software | Pre-config'd software | Senior PC software | Bigscreenlive.com | \$9.95/mo |
| FamiliLink | PC Ease of Use Software | Pre-config'd software | Senior PC software | Famililink.com | \$9.99/mo |
| PointerWare | PC Ease of Use Software | Pre-config'd software | Senior PC Software | Pointerware.com | \$8.00/mo |
| CrossLoop | PC Remote diagnostic service | Free connection software, pay-by-use service network | Technical help | Crossloop.com | Fee for service, Prepaid help cards available |
| The FloH Club | Telephone Support for older computer users | Monthly or yearly | Technical help | FloHClub.com | \$24.99/mo or \$249 per year |

| <i>Home Safety and Security</i> | | | | | <i>Example price range</i> |
|------------------------------------|------------------------------|--------------------------|----------------------|-----------------------------|--------------------------------|
| SafetyCare – Alarm.com EMTLinkPlus | Security plus PERS to EMT | Consumer, Caregiver | Sensors, cell, video | Safetycare.net, Emtlinkplus | \$64/mo plus \$499 |
| ADT | Security plus PERS | Consumer | Appliance | <u>ADT Home Health</u> | \$34.95 plus \$99 |
| QuietCare | Home monitor | Remote monitoring | Appliance | Quietcare.com | \$80/mo plus \$199 |
| GrandCare | Home monitor | Remote Monitoring | Appliance | grandcare.com | \$50/mo plus \$2000 |
| Healthsense™ eNeighbor™ | Home monitor | Resident Monitoring CCRC | Wifi sensor network | www.healthsense.com/ | \$60/mo plus \$1300 |
| WellAWARE | Home monitor | Resident Monitoring CCRC | Wifi sensor network | www.wellawaresystems.com | \$125/mo plus \$250 activation |
| Visonic Amber | Security, PERS two-way voice | Consumer, or Partner | Platform | <u>Visonic Amber</u> | \$218 approx |
| Halo Monitoring | Chest strap fall detection | Resident Monitoring CCRC | Zigbee body sensor | Halomonitoring.com | 89.99/mo plus \$249 |
| Philips Lifeline | PERS | Consumer | Appl. | Lifelinesys.com | Range \$35 - \$59.00/mo |

Example Vendors by Category with Example Price Ranges Derived from Online Sites

| <i>Health and Wellness</i> | | | | | <i>Example price range</i> |
|---|-----------------------------------|---|----------------------|--------------------|--------------------------------|
| BrainAge | Cognitive fitness | Consumer – Brain exercises on Nintendo DS | Wii | Amazon.com | \$19.99 |
| 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-installed program | Positscience.com | \$395-495 |
| WiiFit | Exercise | Consumer: Balance board, fitness games | Wii | Amazon.com, others | \$90.00 plus \$272.99 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 |
| Philips Lifeline with Philips Medication Dispensing Service | Medication dispenser and reminder | Consumer: cup-based dispensing | Appl. | Lifelinesys.com | \$75/mo plus \$85 installation |
| MedSignals | Medication dispenser and manager | Consumer, 4 drugs, instructions | Phone | Medsignals.com | \$15.00/mo |
| Med eMonitor | Pill Reminder | Consumer: Portable pillbox | Web | Informedix.com | \$39.95/mo plus \$39.95 |
| OnTimeRx | Automated reminder | Web, Palm, BlackBerry | Web | Ontimerx.com | \$9.95/mo for 40 minutes |
| EMMA | Medication management | Remote configuration | Appl. | Inrange Systems | \$350/mo |

| <i>Learning and Contribution</i> | | | | | <i>Example price range</i> |
|----------------------------------|------------------------|---|-----------|---|----------------------------|
| Grandparents.com | Social networking | Shared topics of interest to grandparents | Internet | Grandparents.com | None |
| Time Goes By | Social networking | Elder blog for women | Internet | Timegoesby.net | None |
| SeniorJournal.com | Social networking | Content and topics of interest to boomers and seniors | Internet | Seniorjournal.com | None |
| Amazon Kindle | eBook Reader | Download books in adjustable reading formats | Internet | Amazon.com | 9.99/book plus \$299 |
| LifeBio | Legacy | Produce a book based on template | Internet | Lifebio.com | \$39.95 |
| Ancestry.com | Legacy | Create family tree | Internet | Ancestry.com | \$20.95 |
| SeniorNet.org | Education and Learning | Technology training and access | Internet | Seniornet.org | \$40.00/yr |
| Dorot University Without Walls | Education and Learning | Telephone-based learning | Telephone | Dorotusa.org | \$15/course |
| RetiredBrains.com | Education and Learning | Directory of online courses | Internet | Retiredbrains.com | None |
| Computer School for Seniors | Education and Learning | Online school to learn computers | Internet | cs4seniors.com | \$36/semester |
| New York Times Knowledge Network | Education and Learning | Online courses, certificates | Internet | http://www.nytimeknownow.com/ | Various |