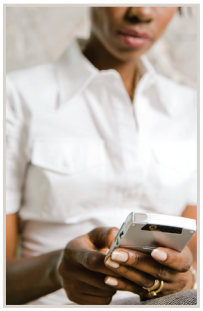
Connected Living for Social Aging:

Designing Technology for All



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AARP®

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Designing Technology for All

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Foreword

Technology is a part of everyone's life, no matter how old they are. It may be a TV, telephone, computer, video game player, cell phone, smartphone, tablet—and for some, technologies that more specifically enable independent and connected living as people age. What is true for all technology is that there is good design, and there is bad design. There is design that is intuitive and easy to use at any age, and there is design that is so frustratingly challenging that it raises one's blood pressure. There is design for all (think new tablet computers), and there is design for none (think TV remote).

AARP's mission is to enhance "quality of life for all as we age. We lead positive social change and deliver value to members through advocacy, service, and information." This AARP Thought Leadership Study and white paper, "Connected Living for Social Aging: Designing Technology for All," addresses the centrality of technology as one key to enhancing quality of life for all as we age.

A single conclusion emerged through a series of interviews with a range of thought leaders—to ensure this outcome technology must be designed for all. To achieve this, the "lens" of every user group must be a conscious part of the design function. Our hope is that through papers like this, through the sharing of research insights about end-users and the needs and opportunities they present, that the technology industry—both big companies and startups—will embrace the goal of design for all as its standard. And what will follow will be action on a scale that can make a difference, by launching an array of designed-for-all technology products and services, information, and tools, that address the needs and wants of the 50+ and enhance the quality of life for all as we age.

Jody Holtzman
Senior Vice President, Thought Leadership, AARP

AARP Thought Leadership Program

AARP's Thought Leadership Program is an initiative that strives to stimulate innovation and new activity across public and private sector audiences in ways that are aligned with and contribute to the broad goal of AARP's mission - to enhance quality of life for all as we age. Through outreach, convening visionaries and experts, and actionable research insights, the Thought Leadership program encourages and challenges other organizations, and ourselves, to meet the needs and wants of the 50+ with the ultimate goal to create a better society for all.

Executive Summary

Baby boomers and seniors age 50+ are increasingly likely to have a cell phone, a laptop, or a game console, representing the fastest growing age segment to adopt social networking technology. The opportunity? A connected lifestyle that blurs boundaries across home, work, leisure, and retirement, smoothly connecting our online and offline lives. However, this tech-enabled lifestyle is not yet widespread among older age ranges, hampered by technology choices that are complex and devices and software that are difficult to use, even as their use becomes a necessity. To enable a connected living and social aging experience, vendors need to step up and begin to design for all, enabling user experiences that can appeal to all age groups.

Who Should Read This Report?

This report looks at the Technology category of Communication of Engagement as described in the Updated 2011 Market Overview.[1] As follow-on to that overview, it focuses on technologies that enable connected relationships and specifically the market of technologies that has evolved in recent years to include computers, cell and smart phones, software, games, and television. As such, it is relevant to:

- Vendors within or considering entry into the 50+ market
- Technology platform providers
- Telecommunication carriers
- Service providers
- Media organizations
- Social services and nonprofits focused on the 50+
- Government agencies and policy makers
- Geriatric care managers
- Caregivers, seniors, and family members

Our Social Lives, Linked in and Separated by Technology

Communicating is what we do. Connecting with family, friends, and our community provides the value that makes picking up the telephone or signing onto a social network worth doing. This need to communicate is basic and spans the multiple dimensions and phases of our lives—independent of age. Those dimensions include family, friends and community, volunteering, socializing, politics, hobbies and culture, work, learning, health and fitness, and access to support services. But it is not so easy to find the right method of connecting and engaging today, because:

- **People are dispersed, their relationships more disconnected, superficial.** Families are fragmented today as people follow the geographic directions of school, jobs, temporary assignments, or the lure of retirement destinations.[2] A plethora of technology choices provides a new kind of anonymity, enabling young and old to hide from each other in plain sight, whether text messaging, emailing, or playing video games. And vendors offer new and powerful ways to multi-task. Says Verizon's Jeff Kramer: "Our bundled offering of Internet, television, and telephone (FiOS) enables users to integrate search, viewing videos searching for video clips by image, sending email through and while watching TV."
- **Boomers and beyond want to be online...** Baby boomers (age 46-65) reflect the multiple modalities of their families, lives and jobs. A day in the life of a 50-plus could include reading email on the job, reading and updating Facebook pages, texting with their children, reading or writing a blog post about work or family, Tweeting an idea or a status, and at the end of the day, playing online bridge or having a Skype call with a long-distance sibling. And among older seniors, Rob Goudswaard, Senior Director of Product and Service Innovation, Philips Home Healthcare, cited a recent survey of Philips Lifeline callers, average age of 82: "We were surprised to learn that 18% were Facebook users." And Lyn Jeffery, Director, Institute for the Future observes: "Friendly communication (family, friends) drives most connectivity—it's the people you know."
- **...But to what purpose and effect?** While boomers are the fastest growing demographic on Facebook, their email usage (on their mobile devices) is growing at the same time as younger adults' use is declining.[3] But is so much online access good for our minds?[4] According to Professor Gary Small of UCLA, we are spending too

much time on the Internet—it is impacting our brain wiring. Says Gary: "Studies of young people show that they are neglecting human contact face-to-face skills, not recognizing subtle non-verbal cues and facial content."

- **Communication devices for older adults are stuck in yesteryear.** Vint Cerf, Chief Internet Evangelist for Google, observes: "Technology for communication is what binds people together. For a long time in the 20th century, even as families dispersed, we coped with a 19th century technology—the telephone." However, in terms of today's ownership of devices that enable bonding with their families, only 4% of seniors and 11% of older boomers have a smartphone. Meanwhile, while 67% of seniors have cell phones, only 15% of those that have them use them to send or receive text messages (see Figures 1 and 2).

Devices	GenY (18-30)	Younger boomers (Age 45-54)	Older Boomers (55-65)	Seniors (66+)	Total US
Cell Phone	88%	84%	80%	67%	82%
Smart phone	23%	14%	11%	4%	17%
Desktop PC	66%	74%	67%	51%	66%
Laptop PC	62%	50%	44%	26%	50%
Video game console	66%	40%	20%	7%	39%
HDTV	51%	48%	49%	41%	49%
Internet TV	5%	6%	6%	5%	5%

Figure 1: Which age ranges use what devices? [Forrester Research, Sept 2010][5]

- **Online access declines at an age when it is most needed.** In the U.S. overall, according to Pew Research, 79% of Americans are 'online'; that is, accessing the Internet wirelessly or via broadband. Boomers are well represented: 81% of younger boomers (46-55) and 76% of older boomers are online. But online participation declines to 58% of 65-73 year-olds, and only 30% of the 75+ population, even though an online connection potentially could sustain their engagement in activities like sports, volunteering, hobbies—enable seeing 'more' of their families, and provide access to health information and other services (see Figure 3).

Activities	GenY (18-30)	Younger boomers (45-54)	Older Boomers (55-65)	Seniors (66+)	Total US
Send or receive SMS/Text msgs	85%	53%	34%	15%	57%
Receive SMS/ text alerts	53%	27%	16%	5%	34%
Send/receive picture msgs	48%	21%	13%	5%	28%
Send/receive personal e-mail	34%	18%	14%	6%	23%
Send/receive instant msgs	28%	15%	12%	7%	17%
Access social networking sites	27%	8%	4%	1%	14%
Send or receive work e-mail	10%	8%	6%	1%	8%

Figure 2: What activities are done on handhelds? [Forrester Research, Sept 2010]

- **Today's technology options are as fragmented as 'connections' they enable.** Remember the Little Mermaid's lament: I've got gadgets and gizmos a-plenty; I've got whozits and whatzits galore. But I want to be where the people are. I want to see them dancing."[6] If she only knew—today's multi-generational family owns some of every device and multiples of many. Each of these many devices (and websites)

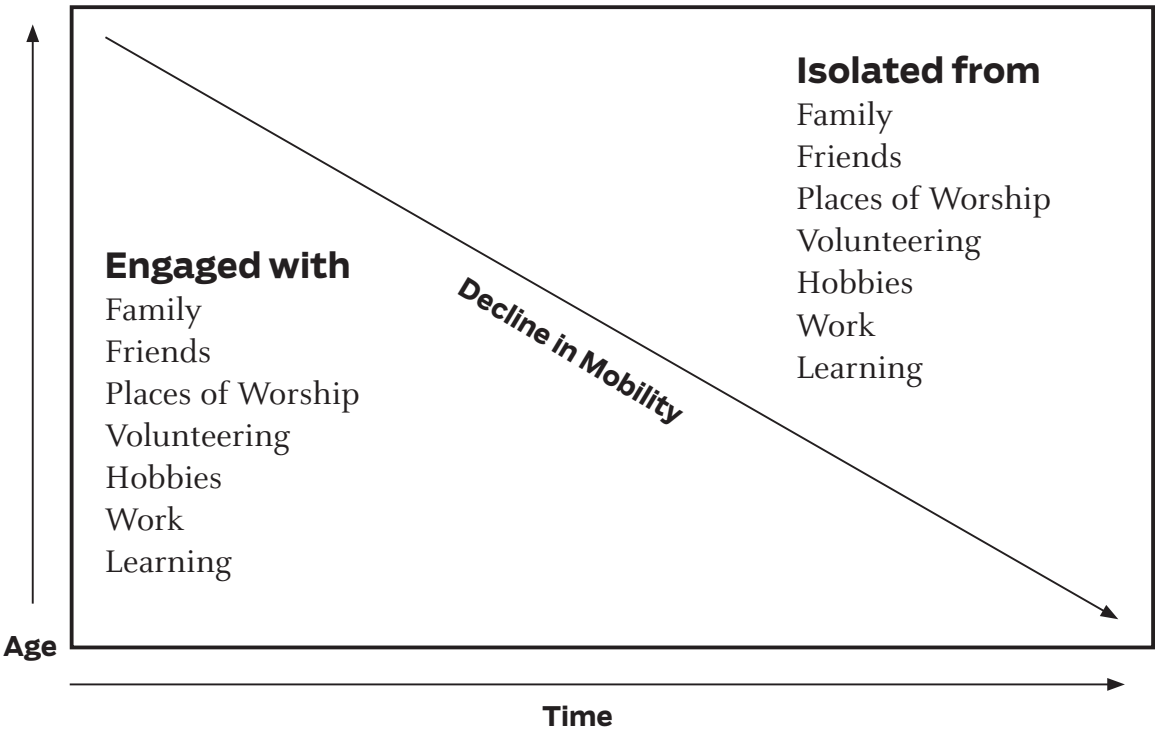

Figure 3: As older adults become more homebound, they risk isolation.

requires separate user profiles, passwords, administration and upkeep. Mobile connections can be a cycle of dropped calls, too-hastily transmitted messages with misconstrued meaning. And each time a new gadget is acquired, its user interface, no matter how appealing and attractive, requires training and discovery to learn what's new and different.[7]

Connected Living—Real Today and Imagined for Tomorrow

Despite the challenges that 'too much, too many' technologies present, people do transcend limitations, seizing on what they need and value—using cell phones to collect charitable contributions (earthquake in Haiti), and reach families during disasters (trapped Chilean miners) and storms (Chicago's Lakeshore Drive during the 2011 storm). Beyond the most publicized media examples, more and more people reach beyond their offline lives and create a world of Connected Living, defined as (see Figure 4):

Using technology to enable people to achieve aspirations and live their best life

Examples of Connected Living are the best way to illustrate the definition—including:

- **Virtual communities—not just websites.** Social networking existed long before Facebook—think of forums on AOL —and will survive long after Facebook has morphed into something else. Says Mary Furlong, founder of SeniorNet and ThirdAge: "People participated in the early portals (Prodigy, AOL, Compuserve, SeniorNet) because they want to engage, produce, share, and connect—they wanted to tell their stories." And today they need support and guidance that transcends their doctors or nearby friends.[8] Today, there are 62,000 health-related websites, dominated by WebMD. Some of which, like PatientsLikeMe, enable shared stories of coping with rare illness. And CaringBridge enables sharing status changes of critically ill patients with invited family members and friends.
- **Local communities—moving online to help neighbors.** In the small town of Great Falls, VA, online equals local—the community provides a portal for neighbors to share news, awareness about crime, finding services, doctors, tutors or local activities. Says John McKinley, founder of OurParents.com who lives in Great Falls, "Based on what we have, I imagine a world of 'Point-Click-Fix' in which I see a broken

swing in the park —the town might not get to it, but neighbors who knew could fix it by Saturday." The monster storm of 2011 left many older adults and people with disabilities trapped in their houses. So Boston neighbors created a local social network to request and provide volunteer shoveling assistance.[9] And Professor Laura Carstensen of the Stanford Center on Longevity, imagines an online street dashboard of participating neighbors: "Neighbors can signal a need for an ingredient to finish a recipe—or a ride to go shopping—and connected neighbor viewers could signal a willingness to help out.[10]

	Now	Future
Home interaction model	Passive (TV), telephone	Active (Multi-modal), engaged, visual
Interpersonal contacts	Face-to-face, local	Add online, mobile, distributed
Work-life	Distinct boundaries	Continuous
Work-retirement	Date-certain	Gradual
Learning model	Classroom, in-person, distance	Online, blended modes
Volunteer	In person, geographic	Social network, distributed
Health	Doctor-centric, one-size fits all, location-based	Self-care, calibrated, remote

Figure 4: Connected Living Will Transform Communication and Engagement

Mobile connectedness—to people and information, long-distance, continuous. Our cellular world has become a fully inhabited place of people we know and care about, enabling us to feel and be connected even when standing in an unfamiliar city or country. The ever-smarter phone enables turn-by-turn voice directions, finding a friend or a restaurant in a city, or to be found if we are lost. Far-flung families can connect frequently —no matter how briefly—to long-distance loved ones and view new photos of grandchildren. Says Madeline Pantalone of Great Call: "A cell phone provides you with personal freedom when you leave your home."

- **Immersive experiences that overcome passivity.**[11] In "Reality is Broken," Jane McGonigal describes: "In 2010, more than 57,000 gamers with no background in biochemistry worked in a 3D game environment folding virtual proteins in new ways that could help cure cancer or prevent Alzheimer's, beating supercomputers at more than half of the game's challenges."[12] Interactive television holds promise for

enabling health monitoring of chronic disease sufferers, not to mention viewing of family photos or using the screen as a video phone to chat with grandchildren.[13] A new startup, Readeo, has developed a video book reading service for grandparents to read picture and story books to long distance grandchildren, each viewing pages online all the while seeing each other in a separate chat window. And this was probably not the first year in which a grandparent was included through Skype at a Thanksgiving meal that they couldn't travel to, but could enjoy a dinner conversation.

Connected Living Should Inspire Us to Live our Best Life

When we buy a device, pay for an Internet service, or connect with others online, we believe that what we gain exceeds the cost in time and money. No matter what the starting age point, this Connected Living helps us now and will continue to help us:

- **Maintain our interests, activities, and values at home and outside.** The ability to contribute at any age forms the basis of self-worth—Connected Living enables all ages to maintain those interests whether they are home-bound or out and about. Just like their younger cohorts, baby boomers will exploit technologies like location-based services to make it easier for them to know if there is a nearby activity that they want to join (see Figure 5). And groups like colleges, places of worship, community centers, and clubs will reach out online to their in-person membership, offering them ways to participate even if they can't make the trip. Says Susan Ayers Walker of Smart Silvers Alliance: "Older adults will not give up on technology—even at my computer, my iPad sits next to me—I tap on the time, weather, news, blogs, flight arrivals. If you have a device like this, you will know its relevance."
- **Blur the boundaries of work, retirement, and home.** The arbitrary age of retirement (along with its defined benefit pension) is so last century. Replacing it in a time of diminished savings and growing life expectancy will be phased retirement in flexible workplaces. Says Anne Formalarie, HR Senior Manager for Flexible Work Practices at Cisco: "We all have cameras, many working out of their houses in flexible schedules and work arrangements. During a WebEx conference, we show six people at a time and set a norm of turning the camera on, even requiring it in some groups. We also offer a program called 'Home for the Holidays,' hosting a scheduled telepresence meeting for families that enables non-employees to get into the building and visit long-distance."[14] Once fully retired, ex-employees will stay connected to former colleagues through social ex-employee networks and forums like LinkedIn, Plaxo,

	Total	Ages 18-29	Ages 30-48	Ages 50-64	Ages 65+
Have a page on a social networking site like Facebook	48%	68%	55%	42%	20%
Organize group activities with members via text messaging	42%	56%	48%	38%	24%
Have their own blog	30%	39%	34%	28%	15%
Communicate with members through Twitter	16%	24%	16%	14%	8%

Figure 5: Where new digital technologies fit into group behavior (Pew Research)
Social Side of the Internet, January, 2011 N for those active in groups = 1,833

Facebook, etc. And beyond their work circles, they will find ways to continue to contribute through post-retirement social jobs and volunteering.[15]

- **Transcend the dissonances of life phases.** Our lives are punctuated by sharp changes in status—marriage, empty nest, illness, loss of a job, death of a spouse and other discrete events. Connected Living, however, enables us to maintain a continuity of persona and contacts across these life-changing events—we are the same person as we were. We can still check Facebook pages, chat online with former co-workers, and let friends know what's happening and happened and where we are now, in our lives. If it benefits us to have our location known to others, like today's teens and twenty-somethings, we too will let those in our network be aware of our location. Says Vint Cerf: "I expect a hotel room may tell your mobile where you are so that if you had an emergency call, the mobile device knows you're in room 128."

- **Exploit the possible in everyday life.** Telepresence and holography have already shortened the communication distances in organizations, enabling firms to limit increasingly difficult air travel, eliminate expensive office complexes, and more effectively communicate messages and share ideas. For example, on the way through towards security in the Manchester (UK) airport beginning in January 2011, travelers encountered first the hologram images of two staffers informing them not to carry liquids on board—and then a few feet further, they encountered the real staffers repeating the message. In the future, says Gary Small, "you will have a hologram in the room—and you won't recognize whether these colleagues are real or virtual."

Connected Living Today Is Fraught with Challenges

Despite the wonders of technology all around us, for boomers and beyond, living in a connected world requires patience, time and persistence because:

- **Technology products, challenging in their complexity, are designed for none.** Just as we have dissonances of life that we can't avoid, we have abrupt technology changes that dismay us with new user interfaces, startup-shutdown processes, battery charging changes, password expirations, and sudden version updates. Recent news touts how sensitive product designers are becoming to the limitations of aging, now that the first slice of baby boomers have turned 65.[16] But in reality, technology product designers (unlike car or lighting manufacturers) seem to design products for themselves, launch quickly, and then solve one issue at a time. Says Arlene Harris, founder of Jitterbug: "I call this the perpetual void. The people responsible for making new things don't want to focus energy on the less tech-savvy people who have already been around—instead, they focus on themselves and their youngsters."

- **New technology doesn't live up to hype and potential.** We know friends and co-workers who overcame barriers to each 'new, new thing' to thrive on its use in their daily lives. When that happens, as bystanders, we feel pressured to find out what we are missing—we could lose out on something potentially and near-mystically wonderful.[17] Wanting to keep up, we get our own smartphone—and try not to reveal our awkwardness with a device that may make us feel physically clumsy and less than smart. Says Michael Rogers: "Smart phones have real problems—some of which are in the way you interact with it physically—the form factor does not optimize usability."

- **Non-users lack a voice in an increasingly online society.** One of the key drivers behind broadband expansion initiatives is recognition of the widening gap between those with online access and those without.[18] Says Jeffrey Cole: "The most compelling positive thing to come out of the Internet is empowerment. You can tell reporters how they got it wrong. You gain power over physicians with symptom and research possibilities. You gain power over the sales process (buying cars), not to mention power in politics and volunteer causes. What the Internet does best—shine a light into dark places." If you're not online, you don't count.

- **Older age groups need a champion to pull them in, give them a voice.** Even the most tech-resistant seniors were forced by the analog-to-digital conversion to accept

change to keep watching TV—many social services organizations played a much-needed advocacy role during the transition. But who could blame boomers and seniors who don't buy the latest gadget if they don't have to—or if their families haven't insisted? Some have yet to see the value and lack a go-to champion who can help, especially when they encounter a virus or malware. Says Debra Berlyn, founder of Project GOAL: "Even among those with computers and broadband, in a recent meeting, half said they would not buy online—they are worried about identity theft and they lack confidence—although they may not know that they pay more for airline tickets bought on the telephone and may have their identity stolen in the store."

What We Need From Technology, A Wider Lens: Design for All

To compensate for the lack of interest in and adoption of generally available computers and software, numerous vendors and projects emerged over the past decade to help introduce technology to seniors. But these stopgap measures only further isolate the people they are meant to protect. In reality, the problems they were solving can easily be solved today by extending concepts and paradigms already available—like 'Swype' of an Android phone, touch and backlighting of an iPad, voice-activation of Google search, or the eInk in eReaders, etc. Phone, game interface, vendors of hardware, software, websites, and devices must mirror their other industry brethren and offer Technology Design for All, defined as:[19]

User experiences that appeal to all age groups, persisting across versions and devices

Design for All technology enables young and old, with and without physical limitations, to benefit from the same products. Consider examples of products today that are intended to appeal across age ranges—like the television, the eBook reader, and cars—that have:

- **Personalized user experiences.** Each year, televisions reflect more of the design-for-all principle—enabling users to add or remove closed captioning, change displayed language, brighten the picture, adjust volume, configure a remote control with larger buttons or connect with other devices like speakers or game consoles. For example, televisions are becoming "Smart," with miniature computers and WiFi built in. But although a TV in one person's home may be set up differently from another, they

are all standard devices. In a design-for-all world, we can select a narrow subset of capabilities within a product or present multiple user experiences driven from a single smart device—for example, the Motorola Atrix smartphone, webtop and multimedia dock, named "Best of Show" by Crunch Gear at the 2011 Consumer Electronics Show (CES).

- **Networked smarts about where we are and what we do**. Just as cars are designed with an eye to a broad age spectrum of buyers, so too is the free Kindle Reader software from Amazon. Today, although the reader software is available in multiple device versions, each must be downloaded separately. But once loaded, each connects to the same Amazon site and recognizes the books that may have been purchased through the other devices. In the future, design-for-all technologies will provide our own personalized network of devices that recognize where they are through our authorized and turned-on GPS location tracking; they automatically know streets have changed and offer the latest directions—no need to download new maps. As we age, the devices may change, but the personalized network of our information remains the same. Says Liz Boehm of Forrester: "With an iPhone app like GoldWalker on our smartphone, it will tell us that the only way to get to the next town is to walk."

- **Remembered preferences across multiple users.** The car, with adjustable and remembered positions of mirrors, seats, and steering wheels, represents a design-for-all use across the age spectrum of drivers—even though older drivers may prefer Jaguars and young adults may buy sports cars, at some point during the car's lifetime, a young driver may inherit the used Jaguar. But despite different users and comfort settings, it is still the same car. So too, software is increasingly capable of being designed for all as it is shifting to become cloud-centric and less device-specific, enabling multiple owners of a single type of device to create a unique different user experience and multiple users of software to feel like it has been designed for them. Says Michael Takemura of HP: "We must always question age-based assumptions, forcing ourselves to look at the context of the total customer experience."

Technology Characteristics That Deliver New Interaction Models

Within the context of communication and engagement technologies, attributes are beginning to emerge and will become pervasive in devices and software within the next five years, contributing to realization of design-for-all technology. They include:

- **Adaptive user interface.** Interaction designs (devices, software, dashboards) increasingly support customization by the individual—but owning multiple

applications from different vendors means needing to tailor each application separately. In a design-for-all world, applications will recognize an interaction style of a user and automatically set minimum profile characteristics on the new device to match (like retaining Gmail preferences across smartphones and tablets). Says Jim Osborn, Quality of Life Technology Center: "Technology should self-adjust to your mode of interaction—based on how you have used the device."

- **Multi-modal device interaction.** For those who don't want to or can't type on tiny buttons or QWERTY keyboards, design-for-all devices will standardize on what are sometimes called 'immersion' technologies—multiple engaging interaction models so that users can select what works best for them. These include the ability to swipe, touch, speak, project out to a wall, or say 'camera on' and add video. Says Lyn Jeffery: "We will expect to be able to take a photo of a menu and have it read out loud or leave voice messages that turn into Instant Messages for your daughter."

Attributes	Design for All	Examples
User Interfaces	Adaptive: selected feature subsets, Customizable user experience (volume, size, font, brightness, audible)	Televisions (LG, Sony, Panasonic) 2010 and beyond
Interaction modes	Multi-modal: Voice, touch, gesture, speech-to-text, text-to-speech	Motorola Droid2 Global
Software	Cloud-based: functionality separated from interface, centralized privacy management	Netflix, Amazon, Salesforce.com

Figure 6: Design for all will shape technology characteristics

Cloud-based software. Instead of the model of download-install-upgrade-repeat, in a design-for-all world, the functionality will be in the 'cloud' and accessed when the device is turned on, thus enabling user interfaces and content to be extracted and shown to the user (like Recently Viewed on Netflix), instead of loaded at installation and then bound to the user device. This cloud-based model must adapt to work across devices and activities—as Eric Dishman says: "We must have a centralized way to manage our complex network of online communities, based on trust and very secure."

Connected Living in a Design for All Technology Universe

The world of connected living and social aging is feasible in many ways today—all it requires is product design and device integration that acknowledges the need for flexibility, choice, and the ability to use a product by all ages. For example, consider:

Day in the life scenario for working man age 50+.

Michael, age 53, divorced and living on the East coast, rises in the morning and grabs some coffee, glances at his mobile phone to quickly look at a video sent from his college-age son before going out for a quick jog. When he comes back, he docks his mobile device so that he can view his stats from his jog trended with prior jogs over the past week. The data is displayed to him on his kitchen television, where he takes another look at the video—speaking a quick response to his son (who is not yet up) into the microphone of his mobile device, which is then converted into an MP3 file and sent off as an email. After he changes, he takes his mobile device into his office and sits down at his desk, prepares for a conference call by reviewing a previous audio call, then turns on his camera for the first of a series of meetings. At the end of the day, he turns off his camera briefly for dinner, then on again to play a quick game of Kinect ping pong with his nephew (who lives in the Midwest, 1000 miles away), then switches to a streamed movie offered to him based on his personalized profile, spends a few minutes reviewing his finances, makes a contribution to his favorite charity and then he's off to bed.

Day in the life scenario for retired woman age 80+.

Margaret, age 88, rises in the morning, still wearing her waterproof and two-way miniature mobile phone with built-in fall detection. The device senses that the room is still dimly lit and automatically enables a lit path to the bathroom. After dressing, she eats a small breakfast and chats with her long-distance daughter via video about the day's plans, which include a transportation pickup (scheduled online by her daughter) to take her to lunch with a few friends. As the bus approaches, Margaret is notified on her mobile —no need to charge it, because it has months of battery life. Later when she is home, she pops it into its dock, turns on her TV and participates in her online hobby forums through her interactive TV, later she joins a discussion with her wellness coach, spends a pleasant hour in her online history class and finally, right after she eats dinner, gets a video call from her grandson.

Our Future of Connected Living Will Be Different

In a fully realized world of Connected Living supported by technologies that have been designed for all, living our best life will be markedly different for many who are separated from what and who they care about. For example:

- **Distance for all will be shortened by universal broadband.** Today's geographic limitations on broadband availability and access will be replaced, pushed by government initiatives to move more access to social services online. Combining universally available broadband with interactive TV will enable high-definition televisions to turn into videophones. Says Michael Rogers: "The FCC requirement will move to 4 megabits for Internet access, required anywhere in the US at a reasonable price. That will be an important watershed for the 50+ population who do not live in big cities."

- **Children will better know their long-distance grandparents.** Video interactions have transformed the world of long-distance grandparents. They can become a greater part of the lives of their grandchildren, beyond the occasional visit and required 'warming up' period. Says Coby Neuenschwander of Readeo, a video book reading service: "It is possible for a grandparent now to be more than a picture on a wall—they can have a meaningful experience with their grandchild that can blend smoothly into the next visit."

- **Knowledge workers will be able to work longer on their own terms.** Over time, connected workers will retire from the workforce almost imperceptibly, reducing hours, accessible online but living where they choose, empowered by the value of their knowledge to name their terms of employment.

Advice to Vendors—Get Started Now

There is no time to waste—a swelling rank of baby boomer consumers, money in hand, are ready to buy better products that will help them stay connected and live social lives. Already marketers in non-technology categories see that this baby boomer demographic means products must appeal to all age ranges.[20] What should vendors do?

- **Transform senior technology products to be health-specific.** A design-for-all world will gradually eliminate the need for niche vendors who market software, hardware,

devices for a senior audience. Instead, vendors will create health condition-specific offerings for chronic disease management or assistive technologies that cross all age ranges. As Andrew Carle, Director of Senior Housing Administration at George Mason University, observes: "GPS shoes could become pervasive—everyone knows how to put on their shoes. And there will be no need for passive remote monitoring if you can see Mom's location."

- **Separate user interfaces from physical devices.** Software version changes, new functionality and invasive viruses plague us. If the computer is infected, as prices drop we may be as likely to discard it as repair it, in the same way we send our now-obsolete cell phones into the recycle bin when we discover the smartphone carried by our peers and family members. In the future, we will pop on a new external 'skin' and pay to subscribe to new features as they appear in the cloud, our existing device adapting to new capabilities rather than starting over. Says Vint Cerf: "Vendors need to define the functionality, then build an interface, presenting the user with different ways of rendering the interface to that product."

- **Craft a total customer experience that blends online and offline worlds.** Just as customers today expect to be able to chat online if they have a problem, they delight in vendor experiences that are as great online as they are offline—like Lexus. Says Michael Takemura of HP: "They offer a personal experience including the ability to schedule service online, wireless in the waiting area, personalized service manager, loaner car, and outstanding follow-up. Even when my car is ready and they're ready for me to leave, I want to stay."

- **Create public-private partnerships to lower cost of connection.** With more widely available high-speed infrastructure, vendors will benefit from sliding scales of access pricing, facilitated by partnerships with governments and nonprofits. Why should they want older adults online, subsidizing to make it happen? They want to lower their costs of service, ensure that programs offered can be utilized, and keep an aging population connected to alternatives for better health, working, and social meaning.

- **Understand that design-for-all means experienced by all.** To reach a broader audience across income and age spectrums, vendors must expand programs that reuse no-longer-need devices, formalizing and advertising ways to enable

What to do	Examples
Conduct focus group of device users at events	AARP National Event, Washington Home & Garden Show
Use video to observe older users trying complete a specific task	Send a text message, create a calendar entry, view a video
Analyze leading customer support issues identified by opt-in age-specific segment callers	Ask callers to participate in survey about preferences and experiences, request age and other demographics
Evaluate assistive technology for features that matter to all	Including vision-enhancing, hearing amplification and mobility
Train service and sales staff on building loyalty among the 50+	Observe training programs for sales and service in adjacent categories like cars
Look outside the U.S. at technology use by older adults	NTT DoCoMo, a major wireless provider in Japan, has expanded support staff[22]
Upgrade the showroom experience to appeal to a 50+ market—follow the Genius Bar model	Use focus groups to translate to more appealing environment
Device vendors—Integrate health apps	To help older adults to see a need for smartphones, for example
Pilot training videos for the prospective 50+ market	'Is there a Tablet in your Life?'
Health technology vendors—Find the 50+ —they're out there	Overcome the young-adult age bias apparent when viewing iTunes Health and Fitness apps

Figure 7: Advice to Vendors to Help Older Adults Use Technology

iPads to be reconfigured for community and senior center use, laptops to replace desktops, and smartphones to replace cell phones. And Pew Research studies show that smartphone users, particularly older adults, download apps that they don't use because they don't know how.[21] Offering training programs and support structures like the Geek Squad, Genius Bars, and use-your-phone training sessions should be expanded by smart entrepreneurs into franchises or in-store services that create jobs for experts who have mastered the old and complex devices, demystifying them for their new owners.

- **Engage with older adults to turn bystanders into buyers.** Too often market research can be self-fulfilling prophecy. The data shows us that certain age groups aren't buying—therefore we shouldn't market to those age groups. Instead, vendors should assume the opposite—go out and find why products aren't penetrating specific age brackets and learn about barriers or missing capabilities. Using input from all age groups will expand market reach—yielding benefits for all (see Figure 7).

Interviewees

Debra Berlyn, Founder, Project GOAL (Get Older Adults Online)

Elizabeth Boehm, Principal Analyst, Forrester Research

Andrew Carle, Director of Senior Housing Administration, George Mason University

Laura Carstensen, Stanford, Author of "A Long Bright Future"

Vinton Cerf, Chief Internet Evangelist, Google

Jeffrey Cole, USC Annenberg School, Center for the Digital Future

Eric Dishman, Director of Health Policy, Care Innovations and Intel

Anne Formalarie, Senior Manager, Human Resources, Cisco Systems

Mary Furlong, Author of "Turning Silver Into Gold"

Rob Goudswaard, Senior Director, Product & Services Innovation, Philips Home Healthcare

Arlene Harris, Founder of Great Call and the Jitterbug phone

Charles Hillman, CEO, GrandCare Systems

Jody Holtzman, Senior Vice President Thought Leadership, AARP

Lyn Jeffery, Director, Institute for the Future

Jeff Kramer, Executive Director, Public Policy and Strategic Alliances, Verizon

John McKinley, Founder, OurParents.com

Luisa Monge, Business Development Director, Microsoft Health Vault

Gary Moulton, Product Manager, Microsoft

Coby Neuenschwander, Founder, Readeo

Jim Osborn, Quality of Life Technology Center

Mark Ruthorford, Senior Director, Marketing, Philips Lifeline

Madeline Pantalone, Vice President, Strategy and Business Development, GreatCall

Ajit Pendse, Founder, Sonamba

Eric Rock, Founder, Intuitive Health

Michael Rogers, Practical Futurist

Wendy Rogers, Georgia Tech, Human Factors and Aging Laboratory

John Sherry, Director of User Experience, Intel

Gary Small, UCLA Center on Aging, author of "iBrain"

Michael Takemura, HP, Director, Accessibility & Aging Program Office

Susan Ayers Walker, Smart Silvers Alliance

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Pew Internet & American Life Project: Searching for Health Information Online, January 2011

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Laurie Orlov 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 her previous career, Laurie 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. While there, she was often the first in the industry to identify technology trends and management. She has regularly delivered keynote speeches at forums, industry consortia, conferences, and symposia, most recently on the business of technology for boomers and seniors. She is featured on Caring.com, MatureMarkets, SilverPlanet, Mobile Health News, and her blog entries are widely syndicated. She advises large organizations as well as nonprofits and entrepreneurs about trends and opportunities in the age-related technology market. Her segmentation of this emerging technology market and trends commentary has been presented in the *Journal of Geriatric Care Management* and ASA's Aging Today Online. Her perspectives have been quoted in *Business Week, Forbes, Kiplinger*, the *New York Times*, and the *Wall Street Journal*. She has a graduate certification in Geriatric Care Management from the University of Florida and a BA in Music from the University of Rochester. Laurie is a participating expert on the Think Tank for The Philips Center for Health and Well-Being.

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