Technology Survey
Age 65 to 100

Extending Technology

Past the Boomers

A Study Sponsored by Linkage

In cooperation with the Linkage Membership

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Aging in Place Technology Watch

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link·age™

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*"As for the computer,
your mind is the best one ever made
and man did not make it!"*

WHO SHOULD READ THIS REPORT?

Technology platform providers

Telecommunication carriers

Investors and entrepreneurs interested in the 65+ market

Businesses seeking to cater to an aging demographic

Service providers with an interest in serving older adults

Media organizations that cover age-related issues

Social service agencies and not-for-profits focused on seniors

Government agencies and policy makers

Geriatric care managers

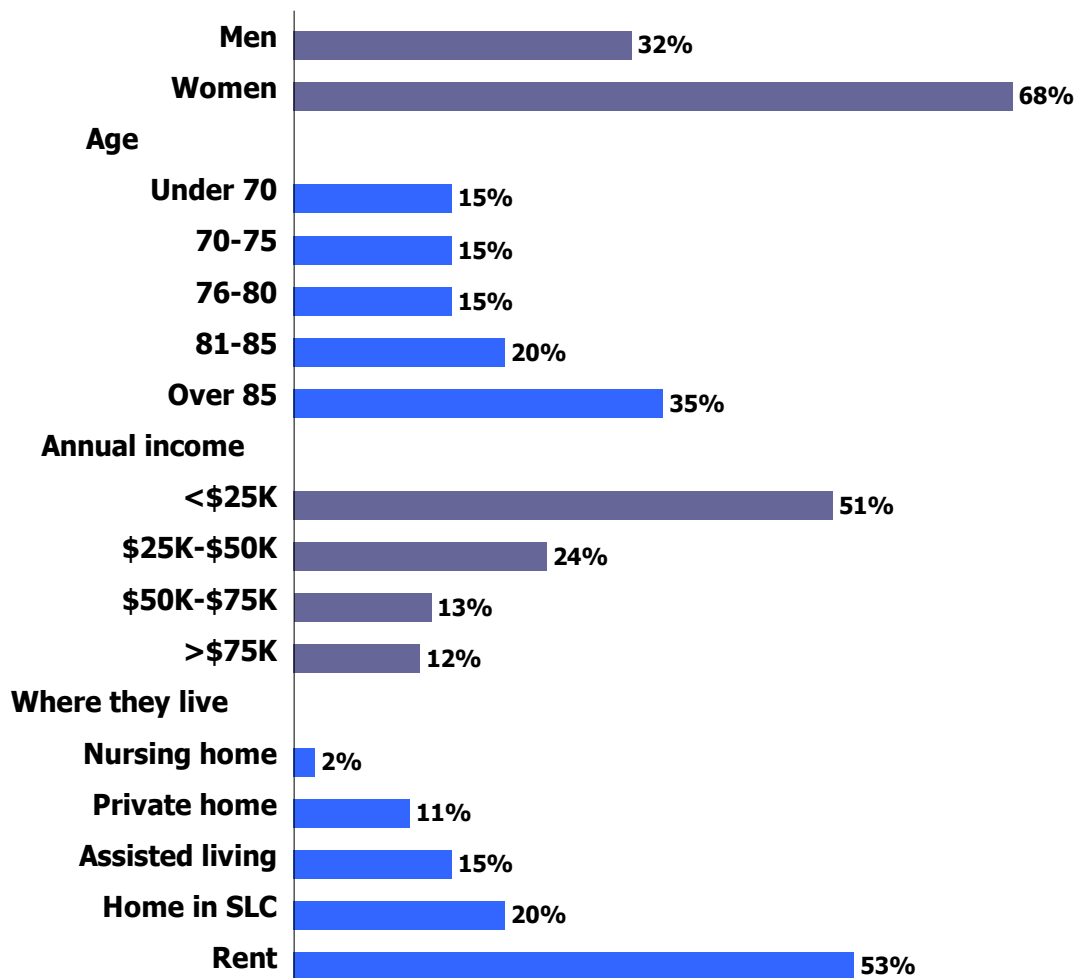Caregivers, seniors, and family members

EXECUTIVE SUMMARY

Every year finds new reports published by research organizations based on demographic segmentation. But these survey reports, from organizations like Nielsen, AARP, Forrester, MetLife, and Pew Research, generally do limited sampling beyond age 65. Or they combine what may be up to three or more decades of responders into a single segment. But we know that 65-year-olds and 95-year-olds have very different perspectives. So stakeholders interested in the technology profile of the older age decades have virtually no research to use to understand the needs of this population, whether they own technology products or whether they see their usefulness. Executive leadership of Linkage in Mason, Ohio, saw the need to survey the older age demographic. Principal member organizations of Linkage, representing 122,000 individuals age 65 to 100, made it happen.

The Linkage Technology Survey provides guidance to vendors and stakeholders about where seniors are today in terms of their utilization of technologies, their interest in having technologies they don't currently own, and what they expect to pay for them. A unique paper version made it feasible for members to prepare communities and residents for the survey. This also made it possible to collect responses from those who could not fill the survey out themselves due to vision or mobility limitations. Their responses were transcribed. The result is a survey sample that spans more than three decades of men and women, many who had never been surveyed before about their interest in or use of technology. With 1,789 responses that included 500 comments, better decisions can be made based upon the access to, interest level in, familiarity with, or lack of awareness of technologies. These decisions will improve understanding and enable improvements to safety and communication with long-distance family members and friends.

We are in a new world —- a society in which reported life expectancy averages don't tell the whole story. This is an era in which men and women aged 85+ represent the fastest growing demographic; and retailers, service providers, and product manufacturers don't understand enough about how our increasingly senior society thinks and wants to interact. The Linkage Technology Survey expands the research library of resources that underpin decision-making by organizations serving our aging society.

The Linkage Survey 2011 Responders? [n=1789]

Category	Value
Men	32%
Women	68%
Age	
Under 70	15%
70-75	15%
76-80	15%
81-85	20%
Over 85	35%
Annual income	
<$25K	51%
$25K-$50K	24%
$50K-$75K	13%
>$75K	12%
Where they live	
Nursing home	2%
Private home	11%
Assisted living	15%
Home in SLC	20%
Rent	53%

How the Survey Was Conducted

The Linkage survey population encompasses 122,000 individuals residing in one of the following: low income housing, independently owned homes, continuing care retirement communities, assisted living communities, and nursing homes. A total of 5,000 surveys were printed and provided to the survey focal point individuals, members of   Linkage's Innovation Council, to distribute. 1,789 surveys were completed and returned.   A customized memo describing their purpose was prepared and communicated to the Executive Directors of each organization, emphasizing the importance and anonymity of responses. The comments you will read throughout this report are direct quotes and a sampling of the total of 500 that were given.

Seniors and Technology...The Basics

Within the past few years, remarkable changes in technology have permeated society, driven by smaller, cheaper core technologies, slick designs, and must-have information, reinforcing the following:

The Internet is not optional. Adequate access to online information is becoming a basic prerequisite to understanding what benefits seniors are entitled to and what they have obtained. For example, the Social Security Administration recently announced that it would no longer mail out annual statements to workers about future entitlements. Recently, the federal government has encouraged individuals to apply for Social Security and Medicare benefits online.[1] Today, the Internet provides the ability to connect with family members, find new friends, locate a health care provider, learn about a new medical discovery, and buy lower-cost goods and services online.

Within the older age cohorts, access and interest is limited. Pew Research studies continue to show that, while Internet access among the 65+ is inching up, among the oldest age cohorts, two-thirds of the 74+ population do not own a computer (laptop or desktop); and virtually none have a tablet computer or smart phone.[2] Last year's Pew study reinforced this digital dividing line for Internet access (regardless of device), finding that only 30% of the 74+ population indicated that they go online at all (see **Figure 1**).[3]

Figure 1 The GI Generation (age 74+) does not go online

Source: Pew Research Generations 2010

	Millennials	Gen X	Younger Boomers	Older Boomers	Silent Generation	G.I. Generation	All online adults
	Ages 18-33	Ages 34-45	Ages 46-55	Ages 56-64	Ages 65-73	Age 74+	Age 18+
% online	95	86	81	76	58	30	79

Few technology vendors focus on the older age cohorts. The gap in online access among the older seniors is not surprising, given the complex process for getting equipment and the service to acquire it: First, a senior must obtain both an Internet service plan of some type and a relatively current computer that is fast enough to use with today's graphics-rich websites. The computer must be configured with a user's individual information; and someone must be available, especially early on, to provide training on the use of the device and support for questions about online tools. A few senior-specialty vendors have appeared in recent years to help simplify this complexity, but most technology innovation is targeted at the young.[4]

Quotes from our responders...

"Many seniors are intimidated by technology. Need basic - slow paced instruction working towards goals of expanding our minds in all things."

"People are living to be older. I am 93 years old and able to do anything. They aren't thinking of real old people."

"Technology is important and serves many areas of daily living but is also very intimidating and intrusive depending on your view of it in regard to one's personal preferences. As for a suggestive pricing of its value, personally it depends on its level of accommodation."

"I feel that some technology is needed for seniors. Computers help to keep their minds stimulated. A lot of technology should be available for seniors."

"In this day and age, I think wireless should be a part of the housing package, be it house, apt., assisted living or nursing home. For many, it's the only link to the outside world. I use it for contacting friends and family, news and shopping."

"I love computer technology. I had that equipment prior to my stroke, I've tried many times but touch system is not working, as it affected fine motor parts."

THE LINKAGE TECHNOLOGY SURVEY 2011

IDENTIFIES AND CLOSES GAPS

The Linkage Technology Survey 2011 was conceived to reach a large sample of seniors from ages 65 to 100 to identify the technology they use, or might want to and why. The following three major unique outcomes were identified.

- **Finding seniors missed by other surveys.**   This is a milestone. This is the first period in history in which the fastest growing age cohort is the 85+. Life expectancy has reached an all-time high. Those who live to be 85 are likely to live between 5 and 8 more years.[5] There is very little published research about technology interest and ownership among this oldest group in society. Linkage, a Mason, Ohio, organization, whose mission is to connect resources for a population that is aging, made surveying this population feasible by seeking and obtaining a broad response across all senior age ranges.

- **Gaining response required broad education and distribution.**   Participating senior-focused organizations, the Linkage Principal Members, represent 122,000 residents in 22 states across the USA. The members managed the distribution of 5,000 paper survey forms. The focal-point individuals trained member communities about the importance of completing the 13 questions on the survey, helping individual administrators and professionals to educate residents about its significance. Their intent was to ensure that participants understood the purpose and ultimate use of the survey, and their efforts helped obtain comments that bring a statistical profile to life.

- **Response volume and response rate are high for a technology survey.**   The Linkage membership succeeded in obtaining 1,789 responses collected over a six week period in the summer of 2011, providing an impressive 35% response rate. These responses represent a broad sample of income levels, housing types, and upper age ranges. Unlike more typical surveys, 71% of the Linkage Technology Survey Responders were older than age 75.[6] Some of them suffered from vision or mobility impairments (as indicated in the comments), and their responses were transcribed.[7] In terms of income and residence, the survey was also unique in that approximately half of the responders indicated that they rent their homes and have annual incomes of less than $25K (see figure on Page 4).

"I think computers are a great idea to find out and research information. You can keep in contact with your family and friends."

"I have no experience with technology. I have a cell phone that I cannot figure out how to work. But would still like to have access to it."

"Financially unable to take advantage of the technology."

"As a retiree, we have limited income. The many new and improved technologies available today are helpful; however , not affordable. Most of them are of interest and desired. Unfortunately, we cannot always have everything we want."

"I would feel lost and left behind in the world without my computer and cell phone to keep me up to date with my family. It is my way of learning and receiving health information and learning about things that interest me. It keeps my mind active and me feeling young. I wish I could afford to have all the updates in computers and printers."

KEY FINDINGS AND TAKEAWAYS

The Linkage Technology Survey provides guidance to vendors and stakeholders about where seniors are today in terms of their utilization of technologies, their interest in having technologies they don't currently own, and what they expect to pay for them.

- **Communication: Of greatest importance, using cell phones and PCs.**
  Linkage seniors showed the greatest level of ownership within the category of communication technologies, particularly PCs (41%) and cell phones (61%). The benefits and uses of communication technologies are apparent to the majority of responders, with the largest percentage (66%) viewing them as a way to connect with long-distance relatives, followed by reading and sending email (53%). More seniors own PCs than have their own access to the Internet, which could pave the way for greater use of kiosk/shared PCs in libraries, senior centers, or senior housing communities. (See **Figures 2-a and 2-b.**)

  Married responders are more likely to have incomes greater than $75K and were thus more likely to own a PC, have Internet access, read and send email, and have a wireless network.

Figure 2-a Communication technologies seniors own or are interested in.
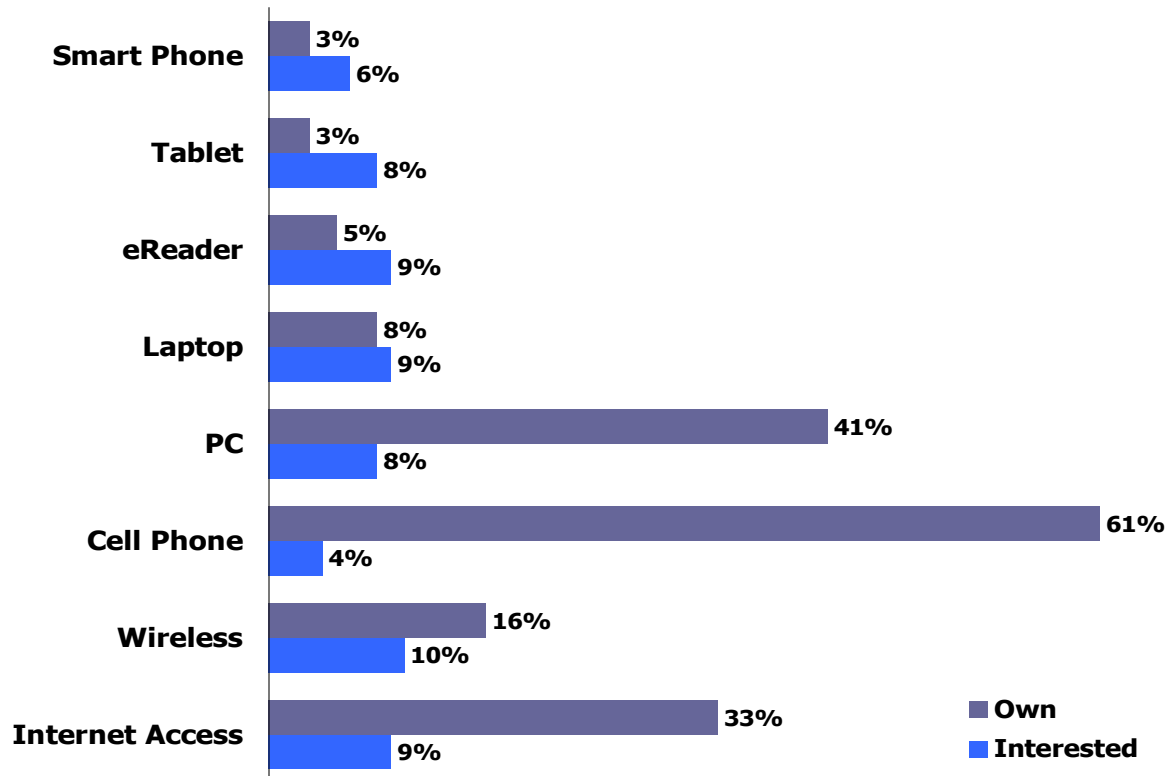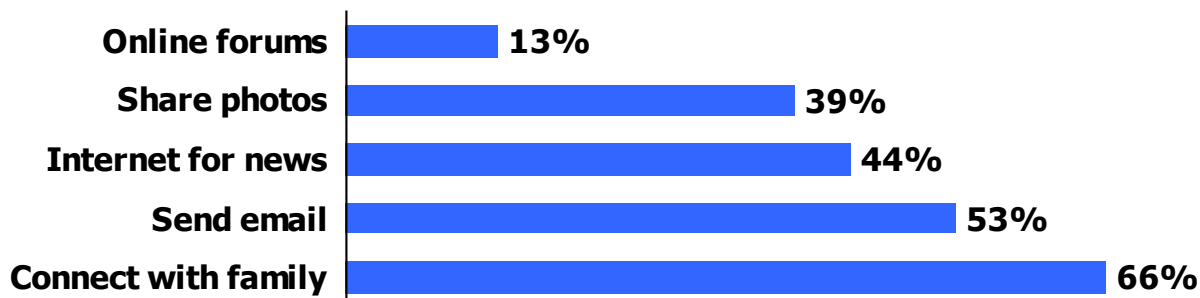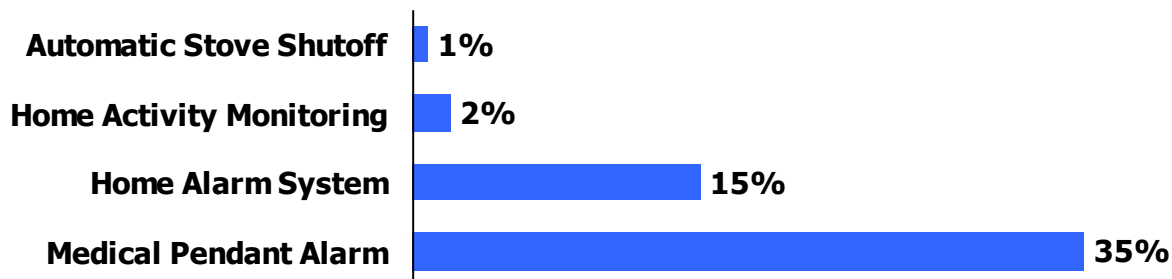
Figure 2-b Responders see the benefits of communication technologies.

Category	Percentage
Online forums	13%
Share photos	39%
Internet for news	44%
Send email	53%
Connect with family	66%

- **Safety and Security - Medical pendant alarms are well known**. Medical pendant alarms are the dominant safety/security devices owned (35%) by the responders overall. Of those aged 80+ women who are not currently married, 15% own one, which is a higher percentage than the generally accepted 4% market penetration publicly discussed by vendors (see **Figure 3**). However, those that don't have one don't want one (not even 2% of the cohort expressed any interest). Only 15% own a home alarm system, and just 15% of the Linkage responders were familiar with an automatic stove shutoff device.[8] Furthermore, only 6% thought that their family members should pay for them. Introduction and education about these devices could lower the risk of accidental fire and the subsequent resulting injuries and property loss among older age cohorts.

Figure 3   What home safety and security technologies do they have?

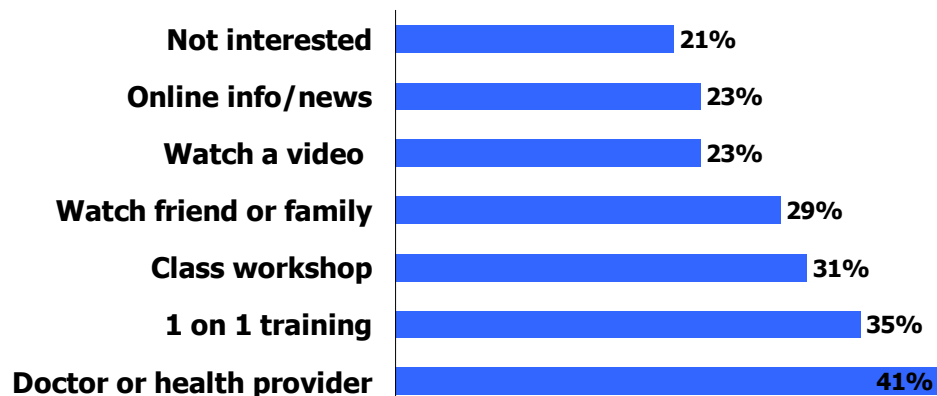| Category	Percentage
Automatic Stove Shutoff	1%
Home Activity Monitoring	2%
Home Alarm System	15%
Medical Pendant Alarm	35%

- **Health and wellness - Having the disease means owning a device.** A high percentage of seniors aged 65+ in the USA have high blood pressure (59%) and are estimated to have diabetes (27%, including both diagnosed and undiagnosed).[9] Among Linkage responders, 40% own a blood pressure cuff, and 17% own a device to monitor diabetes (see **Figure 4**). Assuming the responder base has the same level of chronic disease as the population at large, the Linkage Technology Survey highlights a need for greater awareness and testing of seniors to both verify they have these conditions and are receiving the appropriate monitoring and treatment.

Figure 4   Use of health and wellness technologies.

Chronic Disease Management 2%
Electronic Pill Box 2%
CHF scale 3%
Diabetes Monitor 17%
Blood Pressure Cuff 40%
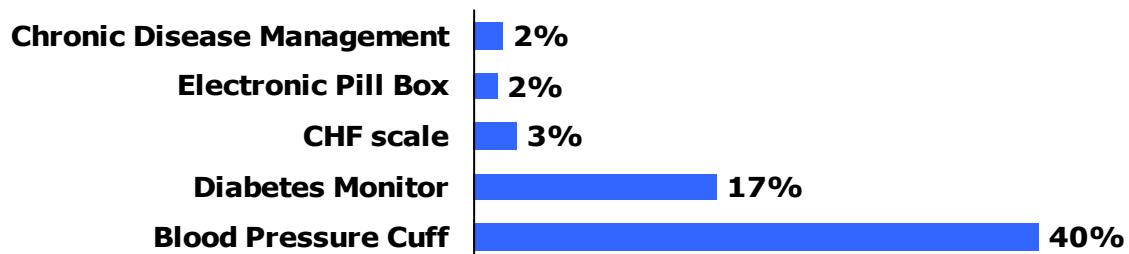
- **Learning about new technology- Trusted individuals one-on-one.** Responders prefer human relationships as the way to learn about new technology. They were not impressed with searching the Internet to find news or information about new technology, nor were they excited about videos explaining its use. Instead, they prefer human relationships. The doctor or health provider, not families, ranked highest as a source of guidance, followed by one-on-one "show me" sessions from people they trust (see **Figure 5**).

Figure 5   How do older adults want to learn about technology?

Not interested 21%
Online info/news 23%
Watch a video 23%
Watch friend or family 29%
Class workshop 31%
1 on 1 training 35%
Doctor or health provider 41%

- **Money matters - Assumptions about high price deters.** The survey responders are generally unwilling to pay for the technologies mentioned in the survey, regardless of income (see **Figure 6**). But they left a door open if the price was lower than $50/month. Their assumptions that technology costs more may keep them from new and useful products. For example, that price point may soon be a fit for new low-priced tablet computers combined with a high-speed Internet subscription that could be acquired for $49/month or less.

Figure 6   Those with low incomes are not willing to pay for technology.
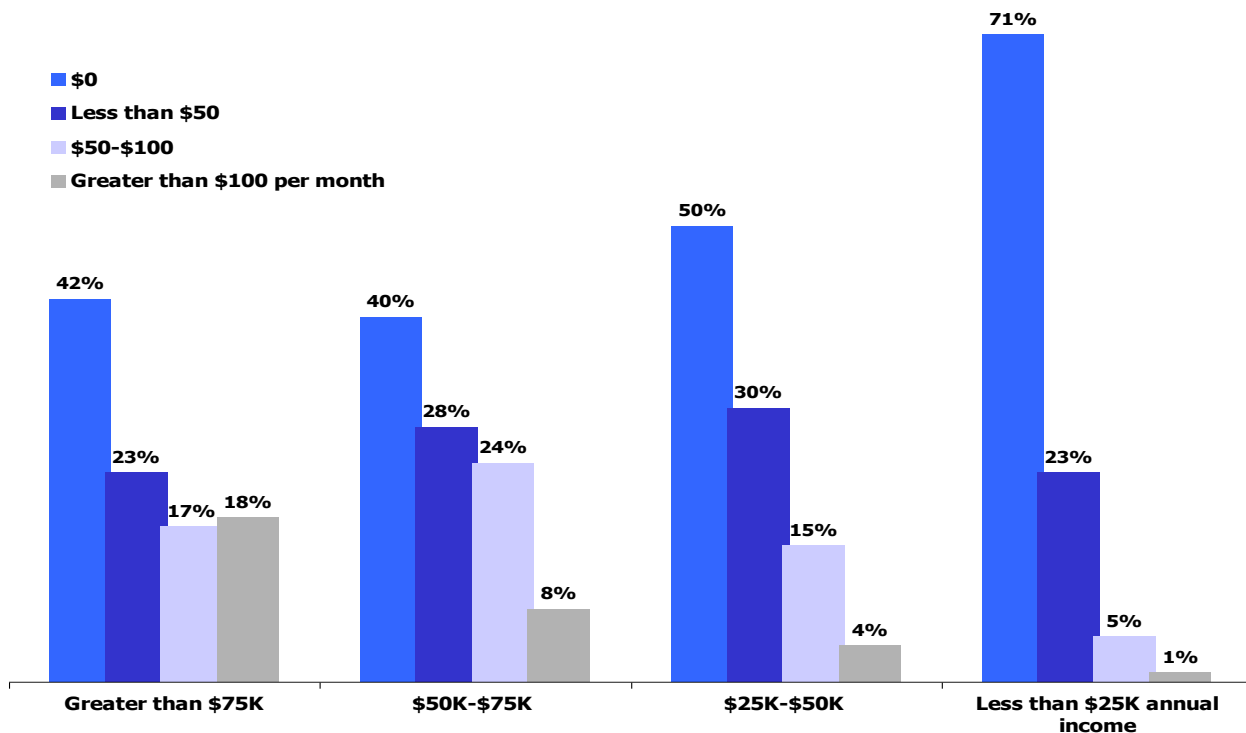
- **Vision loss - More dependency, less technology.** The survey did not ask about visual impairments, but responders wrote in comments. A number of the Linkage responders took the time to explain that their lack of technology use was less about cost and more about their inability to utilize devices they can no longer see to operate. That's no surprise because 21% of individuals in the USA aged 65+ report vision impairments including low vision, macular degeneration, and blindness; that percentage increases after age 75.[10]

*"I marked on **Tablet & Laptop with Camera**, "not interested" because I can't afford them however, it sounds very interesting to be able to keep up with new technology. This survey reminds me of the implication of being close to adolescence I've become since I taught school some years ago. Computerized grade books are used now instead of paper ledger. I'm a life-long-learner and still realize that language determines the way we perceive the world and I'm lost on all the new technology that exists today because I haven't been able to keep up...finances make a difference in one's life. Many of these questions have to be marked "not interested" because financially it's not possible to obtain it! My TV is an old Magnavox that's hanging on just for me! I enjoyed the survey!"*

"I think technology is great especially for younger people; the elderly need someone to teach us personally, I feel more safe & secure with my phone and connected to my older family members out of town."

"I'm mostly interested in learning how to send and receive e-mail and to own a laptop."

"I don't know what these things are: tablet, wireless network, CHF Weight Scale, Home Sensors & Electronic Pill Box."

"I am interested in the new technology, however I am unable to pay because I live on a fixed income."

"Because of limited vision I have not been able to take advantage a lot of the new technology."

"I am legally blind but I can hear very well!! Most of these devices require sight."

"I love when my son-in-law goes on line to read me the newspaper from my hometown. (I am blind)."

"My daughter provides a cell phone. Preferred method for learning about new technology is a talking book. A talking clock is the most constantly helpful device I've purchased. The library provides books on CDs and cartridges."

OPPORTUNITIES FOR STAKEHOLDERS

The Linkage Technology Survey provides multiple opportunities for those who want to attract, better serve, or reach untapped markets of a largely ignored and lower-income cohort. Stakeholders should consider a market that includes the country's fastest growing age groups.[11]

Technology vendors and carriers - design useable devices for all incomes and ages. Carriers expect that all will migrate to smart phones within the next few years, but most of today's devices don't do the job for anyone with vision or dexterity issues, given screen and key size.[12] The iPad, apparently not intentionally, is the closest fit of a user interface experience to this age demographic, but it is not marketed to or priced for them.[13] Eighteen percent of responders were aware of the existence of smart phones, but ownership is below 10% in all age groups, consistent with Pew survey results of the 65+ (11%). What should vendor and carriers do?

- **Design for all to accelerate adoption.** Make devices (screen sizes, font, menus, audio volume, and apps) easier to see and adjust for ranges of vision and hearing impairment.
- **Design for devices shared by multiple people.** Make it easier to configure for settings in which multiple users share a single device that supports personalization for each person's preferences and data.
- **Boost awareness.** Make older adults aware of device usefulness through a variety of methods. As the Appendix illustrates, the younger age ranges (up to age 75) generally indicate greater technology interest than those aged 76 and up.
- **Form partnerships.** Organizations that interact with seniors (like AARP and Agencies on Aging) should partner with vendors/carriers to demonstrate benefits and dispel false assumptions about high product prices.

"I think it is important to educate the older generation so they can continue understanding the world they have been blessed to continue to live in, with awareness of the world around them."

"I am not very much interested in the vast variety of technological equipment - it is quite overwhelming to me. I am 90 years old and can make limited use of the computer. Would like to have a 1 on 1 person come regularly for periods of time (perhaps 5 weeks at a time) to help me learn things of use on the computer such as the Internet, ordering books, making flight reservations and perhaps others."

Doctors and other health providers - recognize trust; introduce technology.
Social isolation is as disabling as a physical ailment, causing individuals to neglect self-care, eat little, and generally decline. Doctors and health providers rank high on the list of those trusted to guide about new technology. Yet, in reality, they don't offer any technology guidance or even recognize their role.

> **Change the status quo.** Provide seniors with trusted resources about their health condition.

> **Suggest that they contact a technology provider that they trust.** This will help patients acquire and learn about tools that others take for granted.

> **Avoid future penalties**. Consider how technology access, like medication monitoring, can prevent penalties by keeping patients from returning to the hospital post-discharge.

"All should be covered under Medicare and prescribed by professional care & medical advisors."

"I use talking instruments such as scale, BP Monitor, BP Cuff for stats plus magnifiers for my computer, used mostly for e-mail. I feel the need for health care educators about diabetes, on a weekly or monthly basis."

"I do not know what a smart phone is. My doctor should train me in med devices ."

Government agencies – raising awareness first can save money later.
Switching platforms can be done with older populations, as proven by the analog to digital cutover, with the right preparation and communication. Understanding technology usage by older adults can avert miscalculations, like the Social Security Administration eliminating printed reports in favor of Internet access without understanding the degree of Internet access among those in the older decades.

> **Inform and educate.** State and federal agencies should size potential health benefits and related lower costs emerging from a well-informed and less socially isolated senior population.[14]

> **Become an enabler for aging in place.** With ever lower price points and greater ease of use, boosting access to technology would help seniors to age in their own homes instead of an institutional setting.[15]

"Please provide learning assistance within any of your HUD rental assistance apartment facilities. Perhaps this would be made available for any individual in one on one training, observation of a user of an information technology application, or certainty of a volunteer giving assistance on usage."

Resellers and retailers - combine new offerings, promote technology.

Since the primary recognized safety and security technology of the Linkage survey respondents is a Medical Alarm, vendors who want to target other types of home safety, security, or health-related technology need to communicate and cooperate (versus compete) with each other.

Bundle Solutions. Medical alarm system, plus medication dispensing, plus activity monitor would make sense.

Offer in-store training sessions. The in-store experience for older adults in large retail environments does little to guide senior choices.

Capitalize on video. Short video training demos might help move more products into an age range where 89% already have cable subscriptions.

"The instructor should be qualified and certified individuals specializing in breaking in first timers, perhaps a company representative/technician. For many seniors the entire concept of these new systems is totally alien and baffling."

"Often it is hard to keep up with the technology—a prescribed tempo someone decided and mandated to be normal. Probably science says it is and I'm not! I'll adjust."

Senior Housing executives - upon move-in, engage seniors with technology they can use.

Those who own their own home in a senior living community are more likely to be married, own a PC, have internet access, own a cell phone, read and send email, and have a home alarm system. Beyond the PC "terminal rooms," this makes them good candidates for including other technologies in the base rental/purchase price and the on-campus experience.

Include a low-cost tablet with the unit. Many organizations are evaluating whether tablets are an enticing inclusion to move-in for streaming video or Skype calls with families.

Establish a demonstration center. For example, a senior living community in Pennsylvania operates a Silver Smart Technology Center to serve as a resource for residents' families.[16]

CONCLUSION

Although Linkage is a part of the aging services industry, executives were surprised by how vocal the responder population can be. *"They want their voices heard,"* said Scott Collins, President and CEO of Linkage. *"This is an important segment of our society—one that is rapidly growing, and one that has needs and desires. But is anyone listening to the true consumer? Are too many vendors and service providers making unsupported assumptions about products and services? Do these products and services meet their needs— economically, physically, psychologically, and emotionally? Our commitment has always been to support those who care for a population that is aging. We strongly believe in asking our members what they need and what we can do to help them meet their needs. This is why we sponsored this survey."*

For questions regarding this survey or Linkage Membership, please contact Linkage at 4770 Duke Drive, Suite 307, Mason, OH 45040, 513.492.7936.

The staff of Linkage and Aging in Place Technology Watch would like to sincerely thank the Member Organizations of Linkage and all of the participants of the survey. Without their commitment and willingness, this survey could not have been so successful.

APPENDIX: SURVEY DATA

Personal computers   [n=1727]

Percent who...	Own	Aware	Interested	No interest
<70	51	13	13	23
70-75	43	12	11	33
76-80	46	10	10	34
81-85	46	12	7	36
>85	35	10	6	50

Tablets   [n=1494]

Percent who...	Own	Aware	Interested	No interest
<70	5	32	15	48
70-75	3	19	13	66
76-80	6	16	12	66
81-85	3	18	8	72
>85	3	11	7	79

Laptops with cameras   [n=1579]

Percent who...	Own	Aware	Interested	No interest
<70	19	22	19	41
70-75	12	17	16	56
76-80	13	18	10	59
81-85	8	14	11	67
>85	4	10	5	81

eReaders   [n=1510]

Percent who...	Own	Aware	Interested	No interest
<70	6	22	18	53
70-75	6	17	13	65
76-80	10	17	10	63
81-85	5	15	12	67
>85	4	11	17	78

Internet access   [n=1689]

Percent who...	Own	Aware	Interested	No interest
<70	41	14	17	29
70-75	37	12	15	36
76-80	39	14	10	38
81-85	40	11	8	41
>85	26	10	5	58

Wireless access   [n=1595]

Percent who...	Own	Aware	Interested	No interest
<70	29	19	17	35
70-75	24	16	13	46
76-80	23	16	10	51
81-85	17	15	9	59
>85	8	12	8	71

Cell phone   [n=1745]

Percent who...	Own	Aware	Interested	No interest
<70	75	10	4	11
70-75	73	7	7	14
76-80	67	11	3	20
81-85	68	8	3	21
>85	47	10	3	40

Smart phone   [n=1487]

Percent who...	Own	Aware	Interested	No interest
<70	9	26	13	52
70-75	4	19	10	67
76-80	3	23	6	68
81-85	3	21	6	70
>85	1	11	4	83

Medical Pendant Alarm [n=1698]

Percent who...	Own	Aware	Interested	No interest
<70	16	41	15	29
70-75	25	38	12	25
76-80	35	39	12	24
81-85	40	30	6	24
>85	51	24	5	21

Home Alarm System   [n=1638]

Percent who...	Own	Aware	Interested	No interest
<70	12	32	8	48
70-75	17	23	8	52
76-80	21	20	7	51
81-85	18	22	5	55
>85	14	22	2	61

Automatic Stove Shutoff [n=1618]

Percent who...	Own	Aware	Interested	No interest
<70	1	24	19	55
70-75	<1	15	18	67
76-80	1	15	16	68
81-85	1	13	14	72
>85	1	11	8	80

Home Activity Monitoring [n=1636]

Percent who...	Own	Aware	Interested	No interest
<70	2	22	11	65
70-75	2	16	9	72
76-80	4	15	8	74
81-85	2	16	6	76
>85	2	14	4	80

Electronic Pill Box [n=1671]

Percent who...	Own	Aware	Interested	No interest
<70	3	18	8	71
70-75	< 1	10	8	82
76-80	2	12	6	80
81-85	2	9	7	82
>85	2	8	5	86

Chronic Disease Management with Nurse [n=1642]

Percent who...	Own	Aware	Interested	No interest
<70	2	27	12	59
70-75	2	16	8	74
76-80	0	22	8	71
81-85	3	15	8	74
>85	3	16	7	75

Blood Pressure Cuff [n=1706]

Percent who...	Own	Aware	Interested	No interest
<70	39	19	14	28
70-75	46	15	9	30
76-80	45	15	10	30
81-85	45	12	6	38
>85	33	18	3	46

Diabetes Monitor **[n=1680]**

Percent who...	Own	Aware	Interested	No interest
<70	26	21	6	47
70-75	25	15	6	54
76-80	21	18	4	58
81-85	16	13	5	66
>85	10	13	2	76

CHF Scale **[n=1630]**

Percent who...	Own	Aware	Interested	No interest
<70	3	24	12	61
70-75	2	16	12	69
76-80	3	15	9	73
81-85	4	15	7	74
>85	3	16	5	76

REFERENCES

[1] http://www.kval.com/news/consumertips/119453594.html

[2] According to the February 2011 report of the 10% of the 75+ cohort that owned a laptop, 28% owned a desktop computer and 48% owned a cell phone.

http://pewinternet.org/~/media//Files/Reports/2011/PIP_Generations_and_Gadgets.pdf

[3] http://pewinternet.org?Reports/2010/Generations-2010/Introduction/Generations-online-and-offline.aspx

[4] See "Aging in Place Technology Watch Market Overview 2011" and "Connected Living for Social Aging"

[5] Life expectancy; http://health.usnews.com/health-news/family-health/living-well/articles/2011/03/17/health-buzz-us-life-expectancy-hits-all-time-high

[6] For the 85+ category, 46 comments included written in ages, as follows:

86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
2	2	1	1	8	7	5	6	3	5	0	2	1	1	2

[7] Although the survey didn't ask, 28 of the responders identified a vision impairment within the comments.

[8] An example of a stove shut-off device; http://www.cookstop.com/

[9] http://www.upi.com/Health_News/2011/03/05/US-1-in-4-have-high-blood-pressure/UPI-42951299301550/

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