



can't use technology. Remember, a baby boomer, [Tim Berners-Lee](#), invented the [World Wide Web](#), so why should we be surprised that they continue to create, adopt and use new technology?

[Middle-aged and older adults are embracing technology](#) for a variety of reasons. Recent [national data](#) reveals that Americans are more digitally connected than ever before. With approximately 70% of [seniors now connected to the internet](#), these devices are a part of their daily lives to stay informed, connect to friends and family, shop, make travel plans, and make reservations for travel and transportation. [Apps](#) such as Medisafe, Google Maps with parking spot reminders, HomeAway and Lumosity are also becoming popular among the older population.

As [experts in aging and health](#), we focus on the factors that promote successful aging, enabling [older adults](#) to connect, create and contribute. In particular, we have been studying [technology use in older adults](#), examining both positive and negative aspects of technology and challenging the myths surrounding older adults' use and adoption of new technology. [Our research](#) posits that aging, technology and health issues will be inextricably linked in the future.

## **Older adults more dependent upon technology**

The march toward an ever-aging society underscores a major demographic and technological shift—the [well-being of many of aging boomers](#) will increasingly depend upon technology. The number of caregivers in the job market is not expected to keep pace with those who want and need help for older adults aging in place. By 2050, the [potential ratio of caregivers](#) to those needing care in the high-risk 80-plus age group will drop to three to one, revealing a mismatch between care needs and care providers.

[The President's Council of Advisors on Science and Technology Report](#)

details how the aging population's need for support will be dependent upon adoption of technology in the form of [robots](#), wearable devices, "smart" homes, autonomous vehicles and artificial intelligence.

But few seniors and even developers of software and tech devices understand what this trend may mean in terms of costs and benefits, privacy and security, and equity of care, especially for those living in rural and low-income urban areas.

A [recent report](#) from the National Science and Technology Council addresses many of these issues by acknowledging four important facts about technology adoption.

- **Cost factors in comparison to the benefit of technology:** In addition to concerns over [form factors](#) such as screen and keyboard size, many older adults fail to see the added benefits for the cost of smartphones. [Seniors often prefer](#) the lower costs, superior form factor such as large bright displays or durable construction and longer battery life of flip phones as compared to an US\$800 smartphone, which may require a headset and daily if not more frequent charging.
- **Mobile apps require updates and relearning of operations:** App vendors frequently update their products, sometimes to add features, but also to fix bugs and close security holes. Nearly 50% of older adults 65 and older and 40% of those ages 50-64 feel they [need someone to assist them](#) in learning and using a new technology device, as compared to approximately 20% of those ages 18-29.
  - [Security and privacy threats](#) fuel fears of technology: Older adults have concerns about new technology's potential to disrupt their privacy and the potential for invasions of personal and financial security.
  - Age, educational level and economics are primary drivers of

adoption: While the desire for aging in place cuts across demographic groups, internet use and technology adoption are largely driven by the financial and educational acumen of older adult adopters. Younger, relatively affluent or more highly educated seniors are [driving much of the recent growth in tech adoption](#).

## Older adults like technology

Despite these concerns, older Americans who use the internet tend to view technology in a positive light and are likely to increasingly incorporate digital and voice-activated technology into their daily lives. According to Pew Research's [Tech Adoption Among Older Adults](#), fully 58% of adults ages 65 and older say technology has had a mostly positive impact on society, while roughly three-quarters of internet-using seniors say they go online on a daily basis—and nearly one in 10 go online almost constantly.

While not yet common, there is an increase in the availability of [training and tips for software developers](#) to consider the physical and mental characteristics of older adults in the design process.

And yet, while some older people are savvy tech users, many face unique, [age-related physical and cognitive challenges](#) that may act as barriers to being fully engaged in an increasing digital world. Declines in [visual clarity](#) make reading small font on smartphone screens challenging. Color vision also diminishes with age, and older users may have difficulty distinguishing colors and need higher levels of contrast between colors. If a smartphone or smartwatch's interface relies on colors as user guides from one feature to another, older adults may face challenges.

And, [age-related hearing loss](#) is common for adults over 65. As a result,

older users may fail to hear alerts and soft high-pitched pings that a device or app uses to announce upcoming calendar events, push notifications or alarms. [Hand-eye coordination](#) may also make using smaller devices difficult. [Finger swiping on the screen](#) comes naturally to younger adults raised with electronics in their hands, not so much for older adults.

## Golden on the horizon

What forces will propel more attention to technological solutions for addressing the needs of older persons? Certainly, it's the sheer numbers of projected older adults worldwide, and a recognition that technology will be needed to help maintain [older people](#)'s health and independence given the shrinking population of available caregivers.

We believe our aging population, which represents both opportunities and challenges, is a compelling [business opportunity for the private sector](#), particularly among companies urgently trying to find how technology can best support older adults. The [economic power](#) of older adults is a secret in plain sight, and the corporate community is just beginning to appreciate why academic institutions are investing in learning more about aging.

Public health and aging researchers like us are [creating the fact base](#) for 21st-century entrepreneurs to think strategically to overcome aging stereotypes. For maximal benefit, technology must be responsive to new generations of older adults who are aging in place with more investment and interest in new technology. We can best accomplish this by developing an inclusive policy and public framework for the use of digital devices, social networks, AI and robotics that enable older [adults](#) to connect, create and contribute in their golden years.

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