

# Technology, Aging and the Coming Fifth Wave

Our perceptions of older people, as well as tools and services to improve their lives, are evolving toward an era of agelessness.



Two powerful forces are converging to shape the future of aging: technology and rising expectations. In their youth and middle age, the coming generation of older adults have enjoyed the most dramatic quality-of-life improvement in history. Now, they expect that to continue in old age—new and innovative ways to live a better life.

At the same time, technology continues to advance at an extraordinary rate. Smaller, cheaper, faster, smarter and increasingly connected technologies are enabling people of all ages and capabilities to

live easier, more engaged and empowered lives.

These trends—high expectations and technology—have been unfolding independently. Their convergence, however, is set to transform the very concept of aging.

Technologies have been applied to the problems of old age for decades, of course. But soon, consumers will demand that they address not just physiological symptoms of age-related disorders, but all aspects of life. Many of these tools will be indistinguishable from those

used by consumers of all ages—removing any unfortunate, lingering stigma from the use of assistive technologies. The effect will be a new definition of what it means to be old.

Today, the ideas we associate with aging are socially constructed, which can limit new thinking, particularly by developers of advanced technologies and innovative services. Though our societal definition of older age has developed over many decades, it's likely to change suddenly as high expectations drive demand for new technologies and ways to live.

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Sometimes, widely held social beliefs do change suddenly. When fresh ideas develop, like waves reshaping a shoreline, they remold our thinking and willingness to consider new possibilities. Previous, strongly held beliefs may linger, but they eventually become part of a changing landscape. The transformation of aging is already underway.

Aging is undergoing five waves of definitional change, which are influencing and being influenced by new technology. Currently, most of us are somewhere between Wave 2 and Wave 3 in our understanding of age: We still think of it in terms of the limitations it imposes. As technologies, together with consumer expectations, continue to transform what's possible in old age, however, our definitions will change accordingly. Ultimately, the fifth wave will represent an utter departure from our current, socially constructed definition of old age.

### Wave 1

#### Aging as Disability and Assistive Technology

The power of technology to improve the experience of aging has been a recurring theme in research and practice for decades. The first wave of change defined old age as synonymous with disability. For example, federal transportation

policy categorizes services for older people as part of a larger program for "Aging and Disability." That definition, though certainly not altogether incorrect, is incomplete. Wave 1 technologies include devices that address key disabilities, such as next-generation wheelchairs and walkers.

### Wave 2

#### Aging as Disease and Health Technology

The second wave defines aging as a medical problem characterized by chronic conditions and related costs to public and private health insurers. Wave 2 has spurred the development of countless technologies designed to monitor, manage and motivate health behaviors. These include "smart" scales that monitor weight, glucose sensors that track blood sugar levels and intelligent medication reminders that glow, beep and even shout—all connected to call centers that "manage" the conditions in question.

### Wave 3

#### Aging as Care and Smart-Home Technology

Fewer children, busy children and children who live far from their families all contribute to the third wave: defining aging in terms of care. Technologies that connect us with older loved

ones, ubiquitous home sensors that indicate whether Mom is awake and well and robots that stand in for absent family members are examples of Wave 3 innovations.

### Wave 4

#### Aging as Independence and Tech-Enabled Services

The fourth wave introduces profound change in the way we think about aging. Rather than innovating one device at a time, the fourth wave connects smart appliances, phones and the larger Internet of Things with services that are typically focused on consumers of all ages. As the sharing or on-demand economy—e.g., Uber for transportation, Honor for home care, Hello Alfred for everyday tasks—becomes the new normal, lifestyle improvements designed for younger adults may serve as a virtual provider of assisted living for older people.

### Wave 5

#### Aging as Living and Technology Is Ageless

Ultimately, the fifth wave actualizes science fiction writer Arthur C. Clarke's third law, where technology becomes invisible and performs like magic. Previous waves of technology are subsumed within everyday items, and future innovations serve all ages. Consider the driverless car in its full realization: Whether you're 10 or 100 years old, your robotic driver will transport you safely and seamlessly wherever you wish to go. In the fifth wave, age is similarly irrelevant and capability invisible.