

## AGING GRACEFULLY

## Entrepreneurs are exploring robotics and other innovations to unleash the potential of the elderly

By Jacob M. Schlesinger and Alexander Martin

OKYO—At an office-building construction site in the center of Japan's capital, 67-year-old Kenichi Saito effortlessly stacks 44-pound boards with the ease of a man half his age.

His secret: a bendable exoskeleton hugging his waist and thighs, with sensors attached to his skin. The sensors detect when Mr. Saito's muscles start to move and direct the machine to support his motion, cutting his load's effective weight by 18 pounds.

"I can carry as much as I did 10 years ago," says the hard-hatted Mr. Saito.

Mr. Saito is part of an experiment by **Obayashi** (<http://quotes.wsj.com/JP/XTKS/1802>) Corp., the construction giant handling the building project, to confront one of the biggest problems facing the company and the country: a chronic labor shortage resulting from a rapidly aging population. The exoskeleton has allowed Mr. Saito to extend his working life—and Obayashi to keep building.

Conventional wisdom says a large elderly population undermines an economy, and that Japan's unprecedented aging condemns the country to a bleak future. The logic: Old people are an unproductive drain, squandering resources on pensions and health care, while doing little for growth through working, earning, spending or paying taxes.

One in four Japanese is 65 or older, compared with 15% in the U.S. There are now just 1.6 working-age Japanese available to support each senior or child under 15.

That ratio is already considered unsustainably low. By 2050, there will be just one working-age Japanese for every senior or child. During the high-growth 1980s, Japan had more than two, about the same as the current U.S. level.

Pessimists say the only way to keep Japan from inexorably drifting into bankruptcy is radical change, like a sudden, sharp influx of immigrants—an unlikely prospect given Japan's history as one of the world's most homogeneous cultures.

But a growing number of Japanese executives, policy makers and academics challenge that proposition. They are exploring whether modest adaptations can ease the woes of an aging society, or even turn the burdens into benefits.

The optimists' case starts with steering the growing number of healthy 60- and 70-year-olds from retirement into work. That makes them more productive members of society while helping staff jobs that otherwise would be impossible to fill as the population shrinks.

They also point to new aging-related growth engines, including an automation spending boom to stretch Japan's declining labor force, and a growing "silver market" of elderly consumers drawing down savings from a lifetime of hard work and thrift. Already Japan's senior consumer market is worth more than ¥100 trillion a year (about \$800 billion), and is expected to grow a trillion yen a year.

"We have to change our view from 'antiaging' to 'smart aging,'" says business consultant Hiroyuki Murata, author of Japanese best-sellers like "The Business of Aging: 10 Successful Strategies for a Diverse Market."

Japan's ability to craft a successful aging strategy has global implications, since other nations will soon follow its path. The United Nations projects that by 2050, 32 countries will have a greater share of senior citizens than Japan does now.

Some Japanese see opportunity to cash in as aging front-runners, just as earlier generations exported world-beating cars and electronics honed first at home.

For now, though, Japan shows more strain than gain from its demographic shift.

A public works program launched by Prime Minister Shinzo Abe has been constrained by a shortage of young manual laborers. While Japan's multinationals enjoy record profits—thanks to “Abenomics” policies of easy money and a sharply cheaper yen—they remain hesitant to invest earnings back home, sensing limited long-term growth due to a shrinking population. Looming over all of this are Japan's heavy debt levels, bloated by pension costs.

Still, the dire predictions rely on a core assumption that may not fully prove true—that once people turn 65, they must lean on the rest of society. Japan is redefining “aging,” as its 60-, 70-, even 80-year-olds prove more vigorous, and less costly, than earlier generations.

While a falling birthrate is one reason for Japan's graying, another is its remarkable advance in health through good diets, an emphasis on fit lifestyles and a national medical system which experts say saves costs by emphasizing preventive care.



Tomoyuki Ohashi, 72, is part of a group of senior citizens who work part-time at the Kohitsuji-en nursing home in Kashiwa City, helping fill a labor shortage. "I think I get a kind of advantage," he says. "Maybe in the future, I'll be allowed to live here." PHOTO: JEREMIE SOUTEYRAT FOR THE WALL STREET JOURNAL

Japan's life expectancy is 87 years for women, the world's longest, and five years more than in the U.S. For men, it is 81—the third-longest in the world, and four years greater than in the U.S. Japan's "healthy life expectancy"—an estimate of the age a person can reach and still live independently—is the world's longest for both women (75) and men (71), according to a study published in the *Lancet*, a medical-research journal.

A Japanese mountaineer two years ago became the first octogenarian to scale Mount Everest, and Japanese athletes regularly dominate competitions for older athletes.

Japan currently spends 10% of its economy on health care, about average for advanced economies and well below America's 17%, despite a population skewed toward the most medically expensive age group.

About one in five seniors work, nearly double the average for advanced economies in the Organization for Economic Cooperation and Development. More than half of Japanese men aged 65 to 69 hold jobs, up from about 40% a decade ago.

That, combined with more women workers, means the labor force has shrunk less than 1% over the past decade, even as the traditionally defined “working-age population” aged 15 to 64 dropped 8%, according to a June Barclay’s report.

The temp agency Koreisha Corp.—a pun meaning both “aging people” and “aging company”—dispatches workers up to 75 years old. Some tasks are menial. An appliance company hires Koreisha temps to ride with repairmen and stay with the car, fending off tickets in parking-challenged Tokyo.

Construction companies added 60,000 senior hard-hats to payrolls over the past year. The transportation ministry in April lifted the airline pilot retirement age to 67.

Off a narrow winding road in Nagano Prefecture, a company called Ogawa No Sho turns to seniors to make dumplings. It used to have a retirement age of 78, but employees can now stay as long as they like.

One recent afternoon, an 85-year-old woman wrapped eggplants and miso paste in dough. Two men—one 76, the other 91—grabbed them with tongs and placed them on a large iron pan hanging from the ceiling, flipping them from time to time.

“Making dumplings only involves using your hands, so it’s easier on the body than farming,” says the woman, Fujiko Matsumoto, who works three days a week.

Elderly workers are also playing a crucial role filling Japan’s biggest labor shortage—nursing care for the still-older elderly. With unemployment already low, the labor ministry estimates one-seventh of Japan’s unfilled jobs are in the nursing-care sector, a gap that will swell as needs expand.





Eiko Inouchi, 74, works at the Kohitsuji-en nursing home serving tea and coffee at lunchtime, and helping to dry residents' hair after their baths. "This place is giving me kind of guidance to my future," she says.

*PHOTO: JEREMIE SOUTEYRAT FOR THE WALL STREET JOURNAL*

That void could be filled if more unemployed seniors step in. One-third of home-care workers are now over 60, up from one-fifth a decade ago.

Fumio Fujizuka, 73, joined **Saint-Care Holding** (<http://quotes.wsj.com/JP/XTKS/2374>) Corp. , a nursing care provider, after his rubber-products company went out of business. He comes to the office five days a week, sometimes as early as 7:30 a.m., then bicycles to nearby homes, bathing and dressing clients in their 80s and 90s.

Japan's increasing reliance on a silver workforce is a mixed blessing. While many seniors say they happily seek work, others have no choice because of low pension payments or other economic hardships. Nearly one in four Japanese over 65 lives below the poverty line, about 40% higher than the overall population rate.

Employers see the elderly as cheap labor, sometimes hiring back retired full-timers as lower-paid temps. That is undercutting a government campaign to end a destructive decade of falling wages.

“Compared to younger people, we can curb their pay,” says Katsutoshi Sekine, who runs a farm cooperative in Chiba Prefecture and offers his nearly 20 senior fruit and vegetable pickers 80% of the going wage.

Elder workers can only go so far replacing the shrinking number of Japanese half their age. By choice or physical necessity, many put in just a few hours a week. At the Kohitsuji-en nursing home near Tokyo, its director estimates the 40 part-time senior workers there equal “three or four” full-time employees.

Other employers say they are wrestling with complexities such as how to deal with senior employees who suddenly forget vital information, such as numerical codes to enter their work facilities.

In some cases, the solution lies in technologies that help offset senior workers’ deficiencies, like the exoskeletons used by Obayashi at its construction site. The Fujisawa Aikoen nursing home about an hour outside Tokyo started leasing the “hybrid assistive limb,” or HAL, exoskeletons from maker **Cyberdyne** (<http://quotes.wsj.com/JP/XTKS/7779>) Inc. in June.

In Hokkaido, 60-year-old potato-pickers use rubber “smart suits” making it easier to bend over. Baggage handlers at Tokyo’s Haneda airport employ similar assistance.

In cases where older people simply can’t do the job or aren’t available, Japanese manufacturers are turning to robots, which help them keep costs down and continue growing.

Bank of Tokyo Mitsubishi UFJ, Japan’s largest bank, employs a small robot speaking 19 languages to greet customers, while a Nagasaki hotel staffed mainly by robots opened in July. **Komatsu** (<http://quotes.wsj.com/KMTUY>) Ltd. is

developing self-driving vehicles for construction sites, while industrial robot maker **Fanuc** (<http://quotes.wsj.com/FANUY>) Corp. is designing machines that repair each other.

**Toyota Motor** (<http://quotes.wsj.com/TM>) Corp. is testing in homes its “human support robot,” a videophone/remote-controlled android that allows family and friends to perform tasks for distant elderly people as if they were in the same home. In one demonstration, a young man uses a tablet to look around a bed-bound older man’s room, then directs the robot to open the curtains and bring the older man a drink.

**SoftBank Group** (<http://quotes.wsj.com/JP/XTKS/9984>) Corp. earlier this year drew global attention when it put on sale in Japan an automaton called Pepper, which it called the world’s first robot capable of understanding emotions. One of the earliest uses for the 4-foot-tall white humanoid is as a nursing helper.





Pepper, a humanoid robot developed by SoftBank, interacts with senior citizens during a demonstration at a nursing home. Facing a shortage of caregivers, the facility is considering purchasing Pepper and having it lead recreational activities.

*PHOTO: JEREMIE SOUTEYRAT FOR THE WALL STREET JOURNAL*

In a Kanagawa Prefecture test, Pepper entertained a room of 30 80- to 90-year-olds for 40 minutes. He led them in light exercises and tested their ability to recognize colors and letters. Women patted his head like a grandchild.

Showing a video of Pepper with a dementia patient on another occasion, Shunji Iyama, one of the developers, says the robot may sometimes work better than people. “That man keeps repeating himself over and over again,” Mr. Iyama said. “If Pepper were human, he’d get fed up, but he just repeats the same reaction and doesn’t get tired.”

Mr. Iyama’s company, a three-employee startup aimed at the burgeoning elderly tech market, is called Fubright Communications, a contraction of “Future” and “Bright.” “Japan’s future is considered dark,” he says. “But if you change your viewpoint, this is the only place where we can test such technologies in such an aging environment.”

While new labor patterns and technologies alter the supply side of Japan's economy, a parallel evolution is changing the demand side, with growth driven by an increasingly prominent "silver market."

Still less than one-third of the population, Japan's seniors control about 60% of the country's \$14 trillion in household assets and account for about half of consumer spending, with many no longer saving for anything.

Although consumer spending growth overall is weak in Japan, economists at UBS Securities there say they believe the expansion of the senior market could more than offset any declines that come from a shrinking population, at least for a time.



Booths at the Shukatsu Festa, a Tokyo trade fair of products and services for people preparing for their final years, offer balloons that lift cremated ashes, and funeral urns. PHOTO: JEREMIE SOUTEYRAT FOR THE WALL STREET JOURNAL

The elderly are already transforming aspects of Japan's consumer market. When the government this year reviewed the basket of 588 items in the consumer-price index, it added hearing aids and knee supports, dropping school lunches



and tennis-court fees.

Companies, meanwhile, are investing in new products and new marketing strategies to capitalize on senior spending.

**Panasonic** (<http://quotes.wsj.com/PCRFY>) Corp. last fall launched the “J Concept” line of “easy-to use, light-in-weight” goods for senior consumers, with laundry machines and refrigerators designed to minimize body-bending and with easy-to-read control panels. Earlier this year, Japan’s No. 1 electronics maker said it aimed to expand its “age-free” unit’s workforce as much as tenfold, to 20,000 employees.

**Ajinomoto** (<http://quotes.wsj.com/AJINY>) Co. , a food and chemical company, launched in 2013 an “active senior project” with the slogan “successful aging,” with medical tests claiming early detection of ailments, as well as health supplements marketed as forestalling muscle and bone debilitation.

“The domestic market is likely to be shrinking, but we can still find a way to grow,” says president Takaaki Nishii.

The silver market has also sparked a boom in home reconstruction, to make residences easier for the elderly to live in.

Stores emphasize delivery more: 7-Eleven now takes meals to 730,000 homes, and sees the business doubling every year. **Japan Post Holdings** (<http://quotes.wsj.com/JP/XTKS/6178>) Co. , which runs the postal service, has teamed up with **Apple** (<http://quotes.wsj.com/AAPL>) Inc. and **International Business Machines** (<http://quotes.wsj.com/IBM>) Corp. on a “watch” service where mail carriers, for ¥1,000 a month, check on elderly customers, reporting back to family members via customized iPads.

Retailer Aeon Co. two years ago started overhauling shopping centers into “Grand Generation’s Malls” with grocery stores selling extra-small portions for low-appetite seniors living alone, like half-heads of broccoli. The malls have added classrooms for knitting and computer lessons, as well as a recording studio for amateur musicians, to help lure more seniors who want something to



do.

Seniors now spend 50% more time in the store—and 40% more money.

There is even a potential market in dating services. For 16 years, Shizuka Koshikawa, a 72-year-old divorced man, has been running the Sanko (Three Happiness) Club matchmaking service for single Tokyo-area seniors as a kind of hobby and low-margin business. Next year he plans to expand to six cities around the country.

As awareness of the market grows, one of Japan's hottest business buzzwords has become “shukatsu,” or “end of life,” referring to the explosion of products and services aimed at people preparing for their final years.

One September weekend, 50 companies and organizations from jewelers to travel agencies set up booths at Tokyo's third annual “Shukatsu Festa” festival, as 3,400 customers streamed through. The event's mascot—a feline-costumed figure dubbed “Shu-Cat-su” with a red headband urging “Be Alive!”—posed for



Top: Singer Reira Takashima entertains senior citizens at the Aeon Kasai shopping mall. Bottom: The mall has a floor that caters to elderly customers called Grand Generation's Mall. *PHOTO: JEREMIE SOUTEYRAT FOR THE WALL STREET JOURNAL*

photos.

The Asahi Shimbun newspaper was there explaining its new service helping people compile their life stories: ¥999,000 for a staff journalist to write it from scratch. A kimono maker peddled ¥100,000 garb for people to get cremated in.



## Targeting a New Market: End of Life »



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A crowd listened to House Boat Club employees describe a cruise where passengers can scatter pretend ashes over Tokyo Bay to see if they would ultimately like to have their remains disposed that way. Nearby were representatives of two competing ash-scattering cruises. For ¥260,000, Balloon Memorial takes ashes into the sky on a brightly colored hot-air balloon.

Companies are pitching such products in part because a falling population has made it harder for families to tend traditional graves.

“Obviously, it’s better for society to have a large population of younger people,” says Yoriko Muto, founder and chief executive of the Shukatsu Association, speaking above the cacophony of hawkers.

“But in reality, Japan is already an aged society and we have to try not to think of this in a negative light...And there may be business chances in the process.”



## Illustrations: Jimmy Turrell



### POPULATION IMPLOSION

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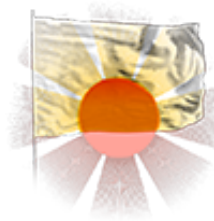
### GENDER GAP

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## Aging Gracefully | Graying Japan Tries to Embrace the Golden Years

By **JACOB M. SCHLESINGER** and **ALEXANDER MARTIN**

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