No, robot: Japan's elderly fail to welcome their robot overlords

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By Michael Fitzpatrick BBC News, Tokyo

Pick up line: Many of Japan's elderly would prefer human helpers, rather than this nursing robot called Ri-Man

In Japan robots are friendly helpers not Terminators.

So when they join the workforce, as they do often in factories, they are sometimes welcomed on their first day with Shinto religious ceremonies.

But whether the sick and elderly will be as welcoming to robot-like tech in their homes is a question that now vexes a Japanese care industry that is struggling with a massive manpower shortage.

Automated help in the home and hospitals, believe some, could be the answer. A rapidly ageing first world is also paying close attention to Japan's dalliance with automated care.

It wants to know whether it can construct the nursing-care and medical-care needed in a future with fewer younger people to take care of the elderly. Japan could show us how.

"The country sees it as an imperative to build carer robots and systems that can monitor health in the home. Because without them the nation's health care system won't cope," says carer Yasuko Amahisa.

"There will simply be too many elderly to care for as the nation faces a dramatic declining birth rate, an ageing population, and loosening of family ties."

Above all Japan wants, if not needs, its dreams of robots in the home to come true because its immigration policy is decidedly anti-immigration, she adds.

Closed borders.
Japan’s population is ageing rapidly, with over 22% of the population aged 65 or older.

Japanese robotics manufacturers are moving away from ‘humanoid’ robots.

Closed borders

The kind of cheap, often well-educated labour, that has filled London homes with nannies and Barcelona’s with Latin American carers for the elderly, is not an option.

Japan issues only about 50,000 work visas a year, a fraction of the 700,000 immigrants needed annually to prevent its population from shrinking, hence the focus on labour-saving tech such as robots for homes.

Humanoid-style care robots were once the ideal. Japanese car makers who are behind some of the more advanced "domestic" robots even suggested a decade ago that there would be a robot in every Japanese home.

Toyota President Katsuaki Watanabe said he wanted robotics to be a core business for Toyota, which is now testing its robots at hospitals with what it calls "partner robots". It had hoped to crack the market by this year.

"We want to create robots that are useful for people in everyday life," he said.

There are home robots but they are simply not useful enough.

"They should be able to do more. 200,000 elderly people fall and break a leg in the US each year. Robots could help here," says Joseph Engelberger, the founding force behind industrial robotics and the father of the modern robotics industry.

"Human help is expensive. Robots should cost the same as a Mercedes and could be rented out. That would be a bargain compared to paying $600 a week for help."

'Humans not machines'

Recently the Japanese government announced the outlines of a less glamorous "Home-use Robot Practical Application Project".

It has earmarked 7.6bn yen ($93m; £58m) to get these more prosaic drones and lifters into Japanese homes, to commercialise simple home-use robots and to develop safety technologies and standards, which have been major issues.

So far billions has been thrown at developing multitasking human like home robots that have very little practical applications now or in the near future.
"We think our robot will help make up for future labour shortages in an ageing society with fewer children," said Osamu Tsuchikura of Fujitsu's robotic arm, shortly before his department was closed for good.

The idea now, it seems, is to direct money and energy into more modest, more practical robot-like devices that will help care for the elderly.

"Robotic support of the infirm and elderly has got to be aimed at improving quality of life," says Geoff Pegman, managing director of one of the UK's few robot manufacturers R.U.Robots. "It should not just be for governments to save money in caring for them."

The Japanese government and care industry now seems to agree after robots have turned out to be too expensive, impracticable and sometimes unwelcome, even in "robot friendly" Japan.

The country's biggest robot maker Tmsuk created a life-like one-metre tall robot six years ago, but has struggled to find interested clients.

Costing a cool $100,000 (£62,000) a piece, a rental programme was scrapped recently because of "failing to meet demands of consumers" and putting off patients at hospitals.

"We want humans caring for us, not machines," was one response.

While sales of a revolutionary spoon feeding robot arm by Secom to help elderly or disabled people eat have fizzled out owing to its $4,800 (£3,000) price.

**Money, money, money**

For all its research, Japan has yet to come up with a commercially successful home robot says Yukihiro Goto, a senior medical tech analyst at Macquarie Japan.

"Currently such tech is at an early stage, so there is little penetration. One reason is cost. The introduction cost is still very high and the tech not mature yet," he says.

With over 22% of Japan's population already aged 65 or older, businesses are finding non-robot items such as remote-controlled beds and remote-monitoring gadgets are a better bet in a care technology market worth well over a billion dollars per year.

With an eye on this growing market, large trading firms such as Marubeni are stepping in to
promote devices such as a wearable health monitor designed by a team from Tokyo University.

The HRS-I system monitors people’s health by capturing data - such as electrocardiograph signals and body surface temperature - and then wirelessly transmitting that data to a mobile phone or a PC where a health professional or family member can access it remotely.

Health-related information is collected and analysed by a small sensor attached to the body. Marubeni says it has just launched a campaign to sell 1bn yen’s worth of units at a cost of around 30,000 yen mostly to companies that provide health monitoring in Japan.

"We are creating a new business here," says a Marubeni spokesman. "We expect such a business to grow exponentially as future demand for sensing, monitoring, processing and then transmitting such information takes off."

Japan’s mobile phone giants are also getting involved, while the country’s infamous hi-tech toilet makers are suggesting the existence of the millions of hi-tech lavatories in houses across Japan could also be adapted as health monitors.

Demand is strong they speculate, not only because of a dearth of home helpers but also because the Japanese do not subscribe on the whole to care homes for the elderly, a hangover from the days when old folks often lived with their married sons or daughters.

Your faithful friend

Now that Japan’s elderly face a much more lonely dotage some are exploring the idea that technology can be harnessed to keep an eye on the old and sickly using robot pets.

One modest commercial success is Paro, the robotic pet seal - a clean, safe choice for emotional care when Fido or family is not an option.

More than 1,000 Paros have been sold in Japan, where they are used in nursing homes and hospitals, as well as by private individuals.

The Danes too have been impressed. Following a trail in a dementia centre in Copenhagen using 12 Paro robots, the Danish Technological Institute announced that 1,000 of the electronic pets would be introduced in Danish nursing facilities by 2011.

According to its inventor Takanori Shibata from AIST, one of Japan’s leading science institutes, Paro was even listed in the Guinness Book of Records as "the world's most therapeutic robot".
But what makes the seal so practical is not its robotic skills but more its seemingly emphatic responses.

Thanks to its artificial intelligence and suite of sensors, Paro can grow active or sleepy, show pleasure when held, and get angry when hit. He also understands simple words like greetings and compliments, and responds with calls and facial expressions.

"We have been building pet robots as examples of artificial emotional creatures since 1995," says Prof Shibata.

"When we engage physically with a pet robot, it stimulates our affection. Through physical interaction, we develop attachment to the pet robot."

Prof Shibata spent $9m (£5.6m) developing the stationary Paro, which retails for about $2,800 (£1,735). But with only a few thousand sold, like Aibo before it, the robot still remains far from a commercial success.

Robots may have transformed the way cars are made, but for effective care technology, so far, they have only proved useful as a back-up to human care, no matter what Japan’s social services mandarins must be dreaming.