

Japan 2.0 Past

The Use of Robotics To
Deal With Japan's Aging Workforce

History of Japan and Technology

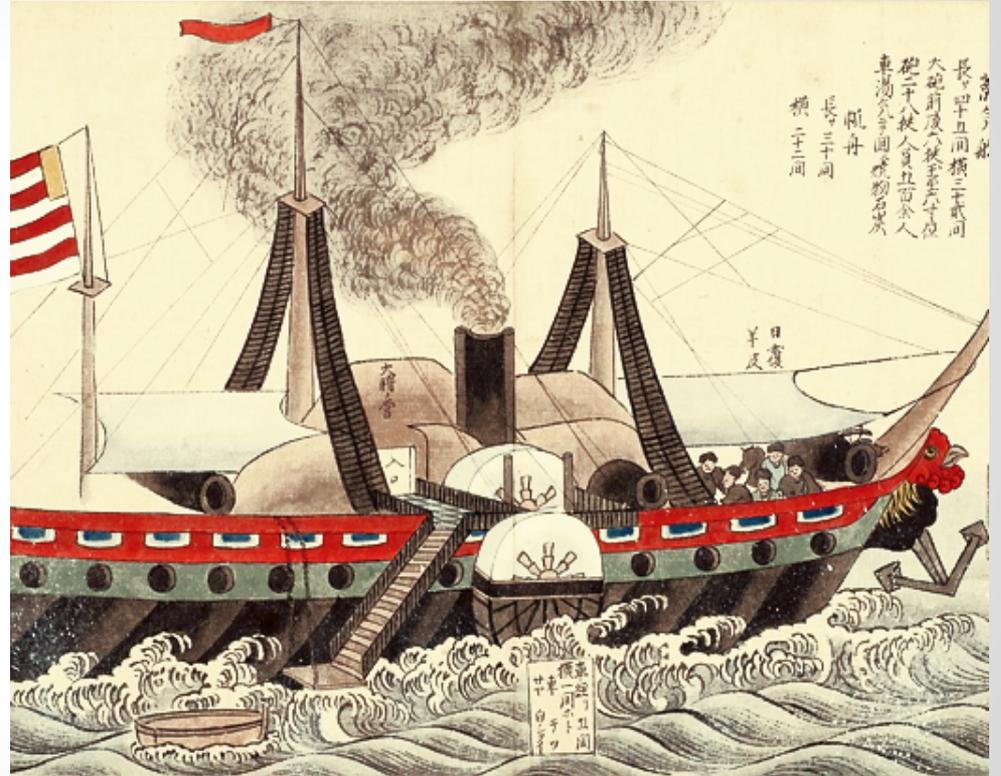
Take you back in time to 1853

Japan was an isolated nation much like you might think of how North Korea is today.

Some trading existed with Dutch and Chinese traders but for the most part, Japan's ports were closed to everyone.

Commodore Perry from the United States rolled into the port with steam ships. This made such an impression on the Japanese people that, the decision was made (under the gun as it might be) to modernize.

Within 50 years, Japan caught up to the rest of the industrialized world.



Valued in Japan (continued)



Fruit is buffed with wax

Packaging is extensive
keeps item fresh but also
looks sharp

Presentation is just as important as the functionality of the product or the taste of the product.

Mixing Tradition With Creativity and Technology



Japan has a reputation for taking ideas and perfecting them. But when you dig under the surface, you notice that Japan puts its own unique, creative mark on just about everything it touches.... Including **new technology!**



Standardized Radio Exercise

Same, memorized movements

Same song

Same voice used when counting

(usually over a bull horn or PA system)

All ages can participate

Nobody is too good/busy to be exempt

Even the principle of the school participates



<http://www.youtube.com/watch?v=6jIP0HvG6s>

http://www.youtube.com/watch?v=S_I-hcs9EaA

<http://www.youtube.com/watch?v=QnZJINpzhs8>

Japanese Baseball

Another example of Japan making something uniquely their own



<http://www.youtube.com/watch?v=9OIK6akjBzc>



Values Instilled by Japanese Society

- Group > individual
- Everybody benefits when citizens obey the rules. The concept that you're being a good citizen by resisting authority does not exist.
- Top down society
- Hierarchy based and positions usually based on seniority



Inside Japanese Schools



Many of the schools were built in the 1940s
Built simply without a whole lot of frills
No central air or heat



Seems to be by design instead of for lack of funds
Minimalism and “suffering” builds character.
Examples: enduring the cold; eating food

Students Cleaning Classroom and Halls



At the end of each day, students clean the classrooms themselves; no janitors



Schools in Japan (continued)



Borrowed a lot from Germany and Holland. Such as the leather backpack called a Randoseru.

When possible, students are required to walk. Is against the rules to have parents drop you off by car. (walking, bus, train is ok).

Uniformity is key. Uniform for everything



Uniforms - Gym and PE



Andrew Gray | Photosensitivity.com

Uniforms - serving lunch in the classroom



What This Means For the Workplace

It's the quality of the final product that matters.

Gaming the system or finding shortcuts is frowned upon.

Workers often stay at the office until everybody is done.

If the boss takes you out to drink when the office closes, that's considered "work". You would tell your friends and spouse that you went drinking with the boss until 11 o'clock last night and everybody would agree that you worked till 11pm.



The Traditional Family Unit in Japan

Not uncommon for Grandparents, oldest son, and children all live in the same house

The eldest son usually will take care of his aging parents and will also inherit their assets once the parents have died.

If the family only has daughters, they will sometimes “adopt” the daughter’s husband. This allows the family name to continue on and the inheritance.

Marriage in Japan is not only about romance or even money but also about parents having a care taker once they are at an age where they need help to take care of themselves.



Japan 2.0 Present

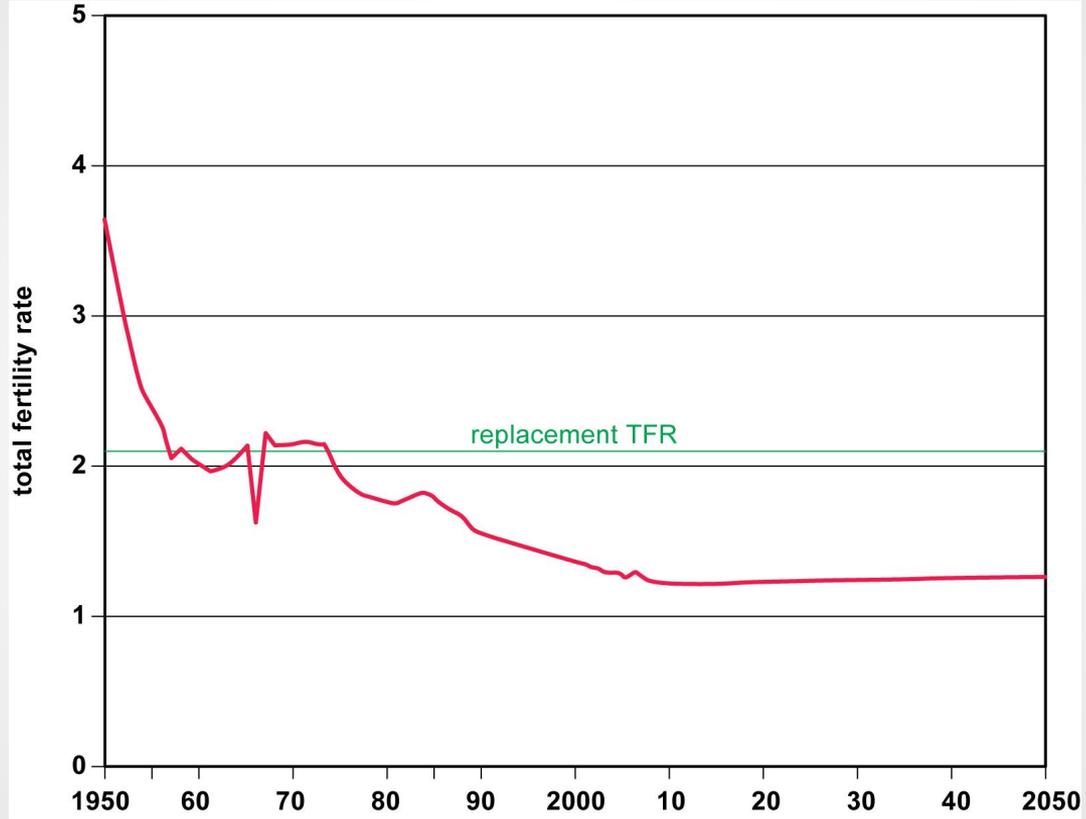
Where Japan Stands Now

The Problem:

In Japan, there is a rapid growth in the older population, and a rapid shrinking in the younger generations.

The Cause

- Women are becoming more independent
- Japan's pay is linked to age
- Once a woman does have a child, she often gets stuck at home



Births In Japan, 1850 - 2050

Table 14.2 *The labour force participation rates for men and women aged 55–64, 1979–2000*

Country	Men (percentages of populations aged 55–64 working)			Women (percentages of populations aged 55–64 working)		
	1979	1990	2000	1979	1990	2000
Australia	69	63	61	20	25	36
Finland	56	47	48	41	41	45
Germany	67	58	55	28	28	34
Japan	85	83	84	45	47	50
Netherlands	65	46	51	14	17	26
UK	—	68	63	—	39	43
US	73	68	67	42	45	52

Source: OECD, 2002

The labour force participation rates for men and women aged 55 - 64 (1979 - 2000)

The Emergence of a “Silver Market”

Japan is the country most affected by the demographic shift. So it is constantly trying to come up with new products and services for the aging population.



Products and Services

- Health care
- Nursing care
- Technology for those that are disabled

Gerontechnology

“Technologies used in products allowing an active, independent, and autonomous again.”

Technology Currently Available

- Robot Nurses
- Robot Suit HAL
- Conversation Robot
- Smart Walking Stick
- Computer Grannies
- Seniorcom.jp
- Learning Robot

Robot Nurse

Efforts are being made to accelerate the create more practical and affordable robots to help the elderly perform daily tasks and to cope with a projected shortage of caregivers in the future.



Robot Suit HAL

A cyborg- type exoskeleton suit that can supplement, expand or improve physical capability.



Conversation Robot

Standing at 15” tall and weighing in at 3.5 lbs, this is PALRO, the “pal robot.”



Smart Walking Stick

A walking stick with satellite navigation that can monitor things such as heart rate and temperature. Its location can be followed online and can send email alerts if it thinks the user may have fallen over.



Computer Grannies

Due to an aging population, and youth leaving their homes, there has been an increase in seniors living alone. Computer Grannies was created to keep loneliness of seniors away, and to prevent a lonely death.



Seniorcom.jp

“Seniorcom.jp has more than 300,000 members, including 30,000 bloggers, all over 50 years old. Senior Communication uses these members as a giant focus group, gathering information that it can sell to brands and retailers. It also uses the data to design and sell advertising targeted at seniors, collaborate with companies, organize events and retrain and find jobs for retirees.”

Learning Robot

http://youtu.be/OC2TTslf_YM?t=3m24s

Japan 2.0 Future

Where Japan Could Go

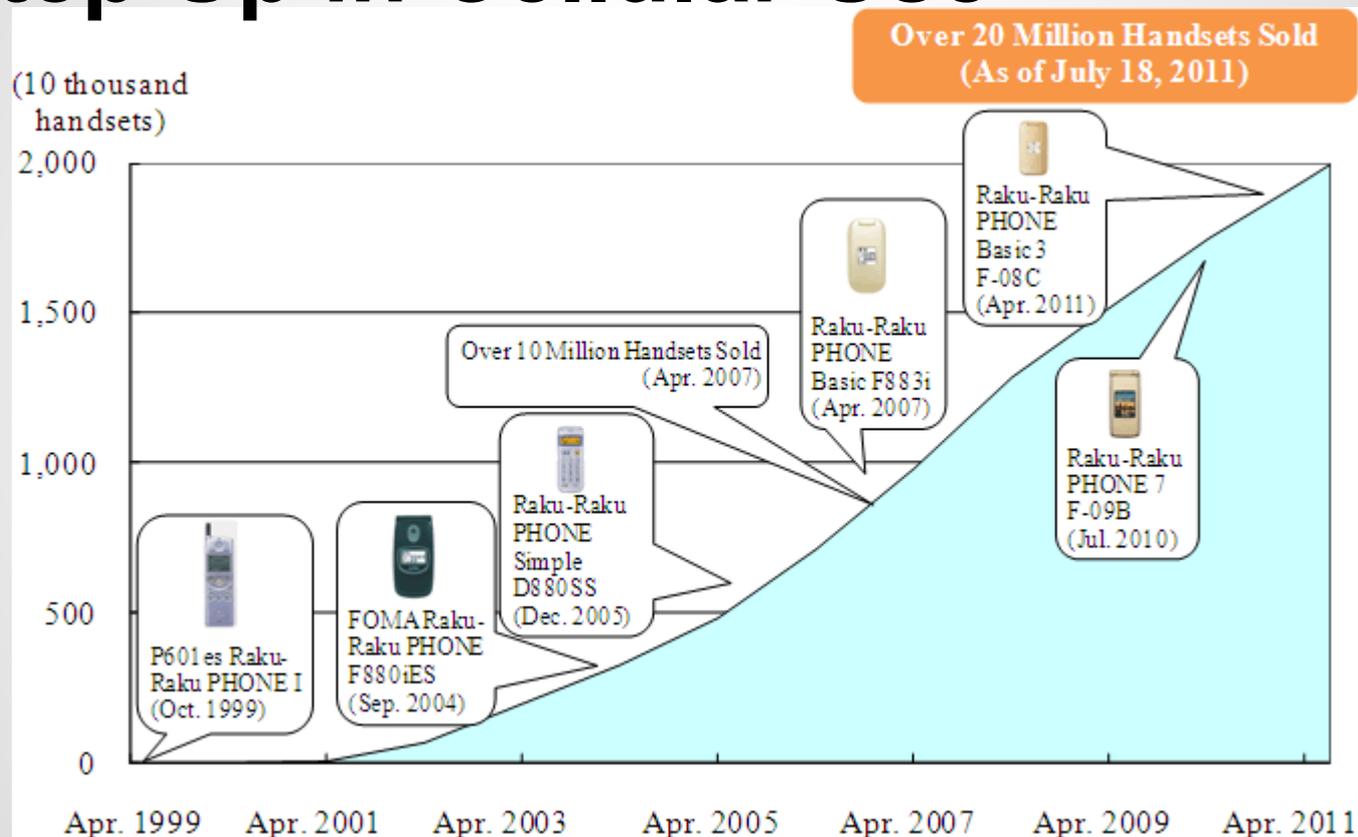
Stepping Stones

Mobile phone usage has risen since 2001, after devices designed for senior use became a trend with Docomo's push of *raku-raku* phones.

Similar phones can be found from Jitterbug.



A Step Up in Cellular Use



Let's Step Back a Bit

Industrialisation

- Tokugawa Era Proto-Industrialisation
 - Road networks, irrigation, agricultural improvements
 - Confederation of territory
- Meiji and onward
 - Accepted western technology to develop a formidable navy
 - Headstrong into Electricity 1920's

A Step into a Present Future

Japan's acceptance of new technology grows. While most advances in robotics and AI are mostly prototypical, some advances are already undergoing field tests.

Beginning 2010, *Saya* was deployed into Tokyo as Japan's first robotic Instructor.

A Step for Saya-kind?



https://www.youtube.com/watch?v=aF_8gM4urmA

A Step Towards a Future Present

Uncanny Valley

“A range of appearances, mannerisms, and/or behaviors subtly different from humanoid in an otherwise humanoid figure that may cause negative reactions, such as fear, discomfort, or revulsion.”

Origin

Loan Translation of 不気味の谷 (*Bukimi no Tani*)
eerie/weird valley

A Step Towards Perfection



<https://www.youtube.com/watch?v=MaTfzYDZG8c>

A Step into Disturbance

- Acceptance to Change Mostly for Infrastructure
 - Industrial, Governmental
 - Family traditions and obligations mostly intact
- Recent changes to nuclear structure.
 - Economic Decline since 1990
 - Declining Birthrate
 - Fewer young workers
 - Relational Defiance

A Step to Herbivore

Herbivore

“A social phenomenon in Japan of men (and women) who have little to no interest in relationships or marriage.”

As of September 2010, **36%** of Japanese men between the ages of 16 and 19 perceived themselves in this way. Of single men in their 20s and 30s, **61%** and **70%** considered themselves grass-eating men.



A Step to Change Identity

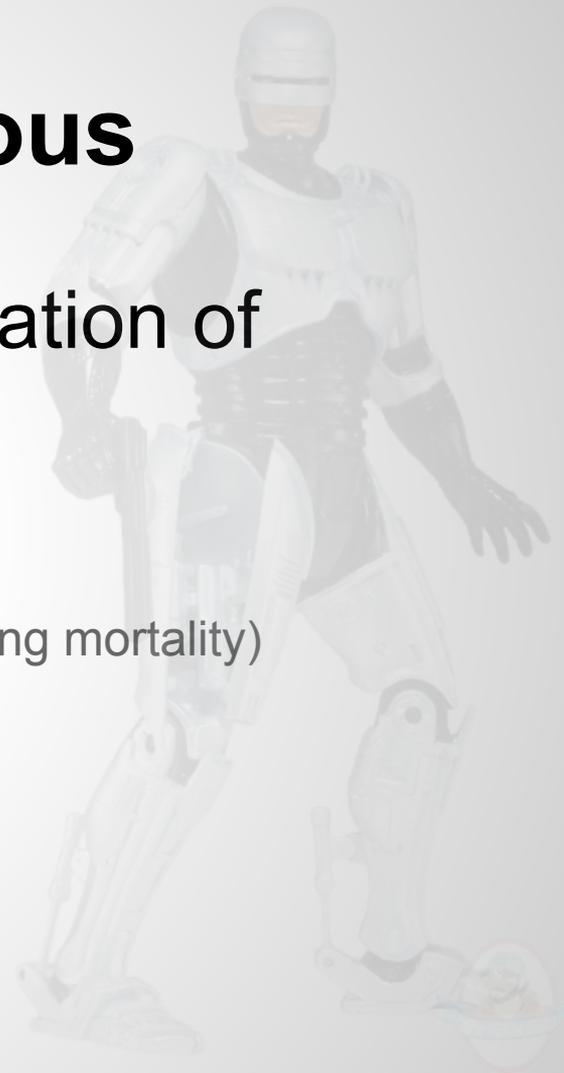
Recent trend among Japanese youth to reject societal norms. Young men and women are rejecting pressure to form families in pursuit of personal interests.

引き籠もり (Hikikomori) - *reclusive youth who often seeks extreme degrees of isolation and confinement.*

A Step Toward the Ridiculous

It is possible to witness the proliferation of already existent subcultures.

- **Robosexuality** (subset of Object Sexuality)
- **Extreme Personal Isolation** (affecting mortality)
- **Testing the Singularity**



A Step Away from the Ridiculous

Could Japan be a successful model?

Japanese methods of development could show how to not only build a better robot, but how to properly integrate the artificial into society



A Next Step

As Japan moves toward a future of some hybrid society of robot and human, it is worth watching how the country takes to adapting into new cultural paradigms



Thank you

