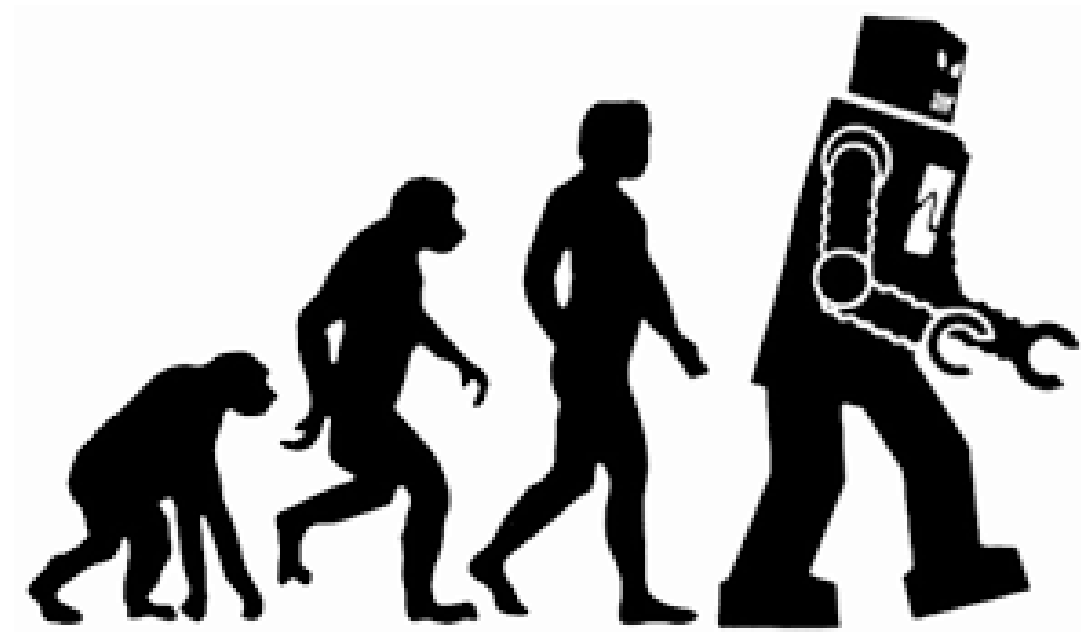




Frightful or fantastic?

Acceptance of Social Robots in Services

Jenny van Doorn
Professor of Service Marketing
University of Groningen



Strong growth of service robots

- › Worldwide **30% increase** in sales of professional service robots in 2023 to 205.000 units, 16% annual growth expected (IFR World Robotics 2024).
- › Countries like China and Japan are leading in service robot adoption - almost 80% of the sales in Asia-Pacific region, 16% in Europe.
- › **Strongest growth** in health care, logistics and hospitality.



Strong growth of service robots



Hospitality

Greeting and serving customers in restaurants, airports, and cruise ships.



Healthcare

Giving medication reminders, performing physical exercises, assisting medical staff, and being a social companion.



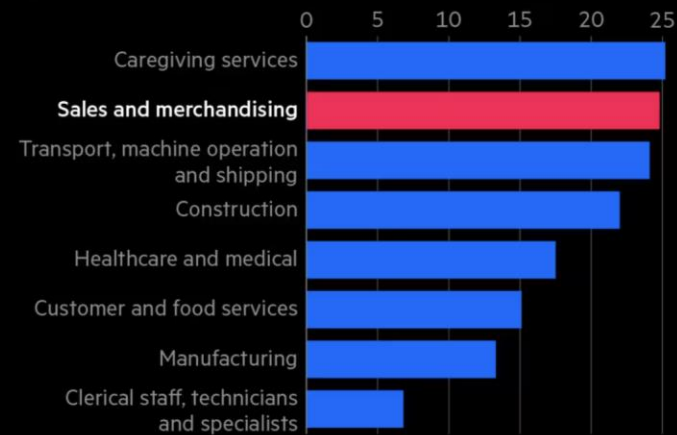
Retail

Delivering food, providing customer service, and monitoring product pricing and inventory.

Why? The Ageing Society

The retail sector's labour shortage is forecast to get worse

Projected labour shortage as % of labour demand by sector in 2040

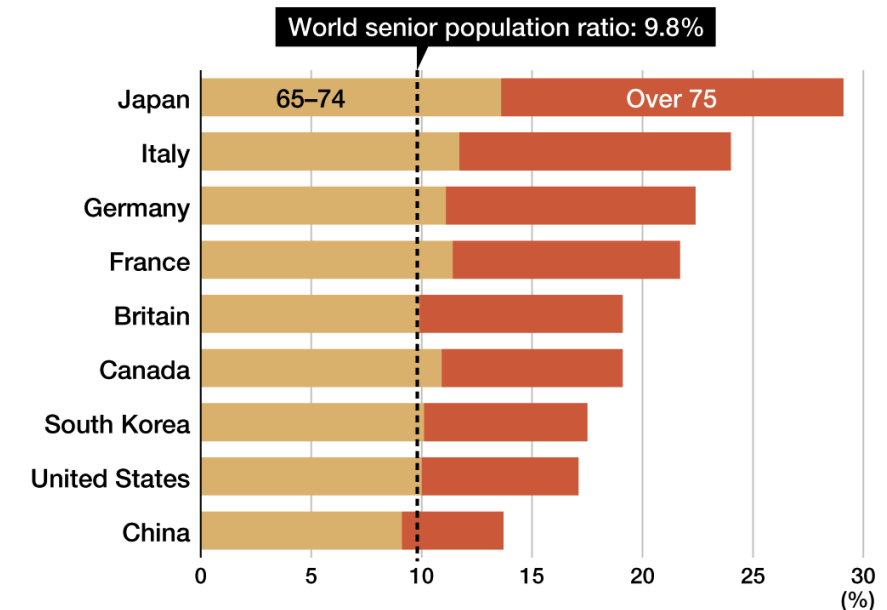


Source: Recruit Works Institute

FINANCIAL TIMES

Japanese retailers have shortened operating hours, installed avatars and hired foreign students to cope with the labour shortage

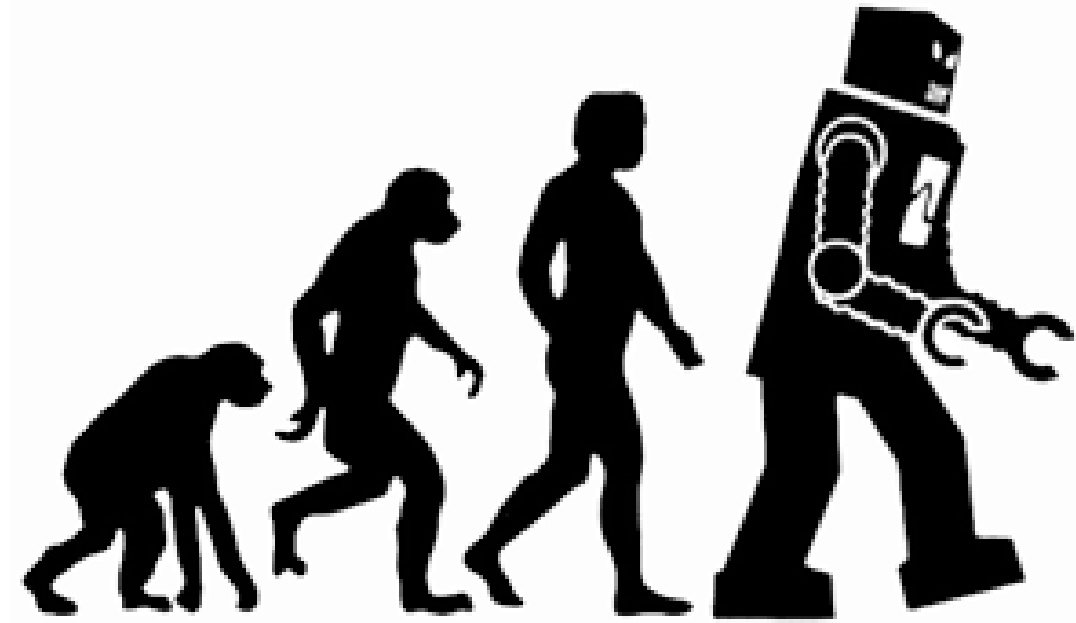
Senior Population Ratios in Selected Countries



Created by Nippon.com based on data from the Statistics Bureau, Ministry of Internal Affairs and Communications. Japan's value is based on population estimates as of September 15, 2022. Values for other countries are based on future estimates for July 1, 2022, from the United Nations' 2022 revision of *World Population Prospects*.

What is AI/AT, what is a robot?

- › Autonomous Technology = Machines capable of performing actions **without** (or with minimal) **human intervention** that can **change their behavior** in response to unanticipated events.
- › Robot = physical AT. Can also conduct physical tasks.



Are robots “better”?

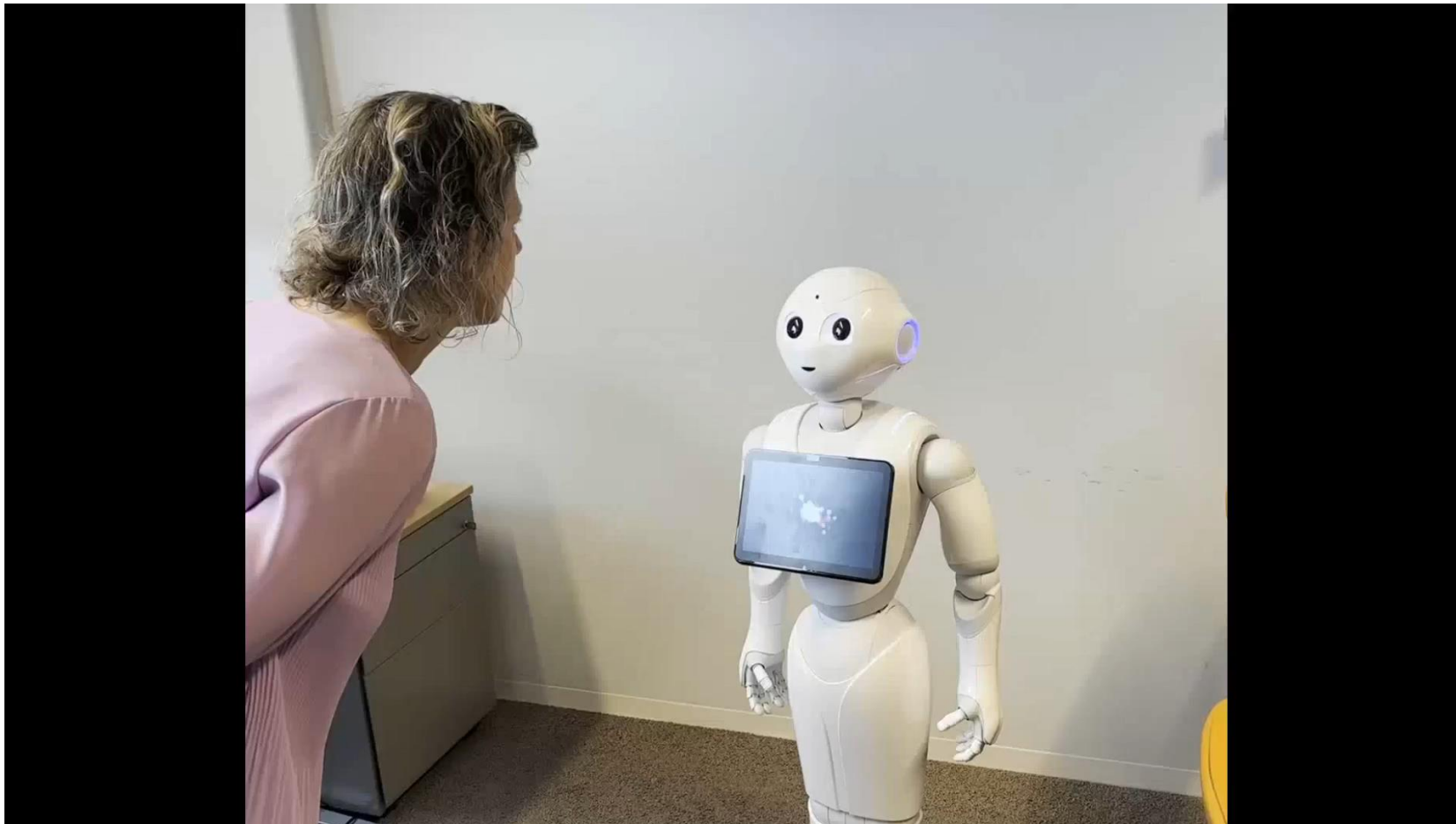
Compared with AI without physical embodiment robots offer advantages in interactions

- Higher **compliance** with requests (Bainbridge et al. 2011)
- consumers form **more personal bonds** (Wainer et al. 2006)
- **interact longer** with them (e.g., Kidd and Breazeal 2007).





Meet "Pepper"





Robots – What's the big deal?



VS.



Automated Social Presence (ASP)

"...the extent to which machines (e.g., robots) make consumers feel that they are in the company of another social entity."



Van Doorn et al. (2017)

How do people react to robots?



More human-like robot more accepted

vs.

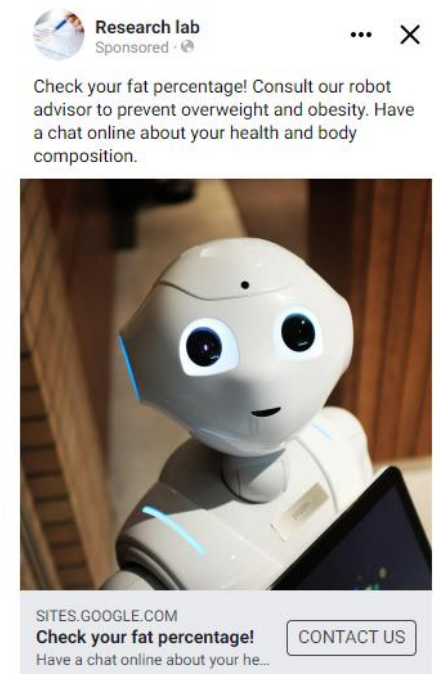
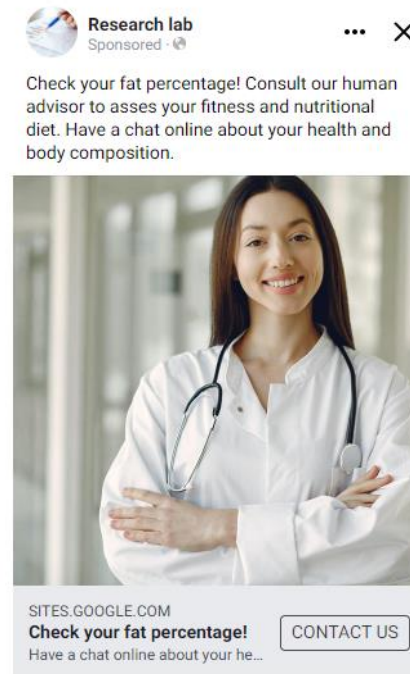
"The uncanny valley"



- › Humanoid robots in hospitality trigger **negative** feelings (eeriness, human identity threats) and compensatory behaviors (Mende et al. 2019, supported by MSI)
- › People react **very negatively** to embodied AI (robots) (Zehnle et al. 2025)

“Sweet spots” for robots

- › Robots work well in **embarrassing situations** and alleviate feelings of being socially judged (Holthöwer & van Doorn 2023)
- › **Machinize** the robot to avoid the uncanny valley (Mende et al. 2019).
- › Robots are versatile in **languages**, e.g., important for elderly with language loss (van Doorn and Telussa 2026).





Robots and languages



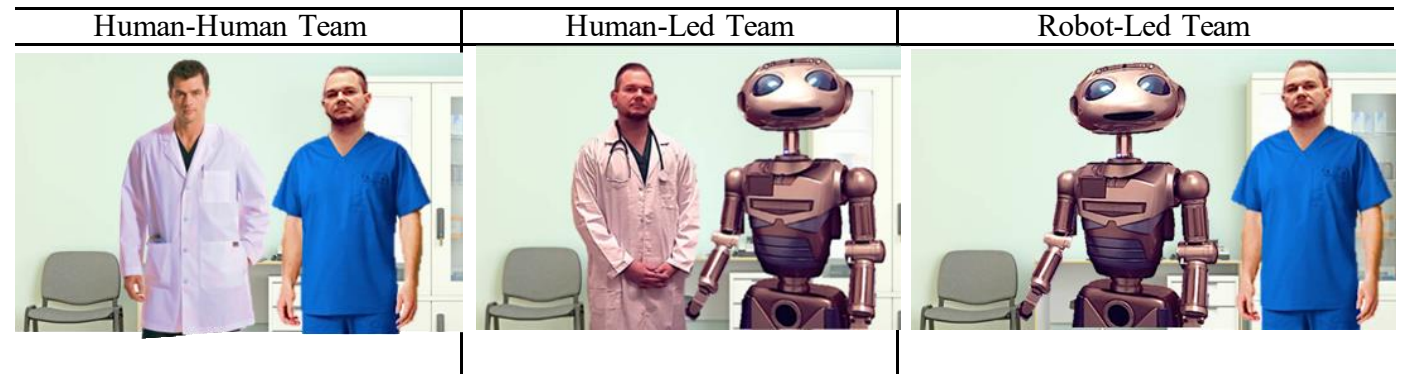
Human-robot teams instead of substitution



- › Today's technologies could automate more than half of current US work hours (Mc Kinsey 2025).
- › Occupations transform and will involve teams of humans and machines.
- › Imperative to **investigate human-robot teams.**

How do people react to human-robot teams?

- › People react negatively to **cobotic** (human-robot) teams in health care – in particular with a robot as **team leader** (Shanks et al. 2025).
- › It helps to stress a robot's performance, or let people choose between robots.
- › Invoking a **human** (nurse, doctor) increases compliance with robot advice because it increases **accountability** (Holthöwer et al. 2026).



Task division in human-robot teams

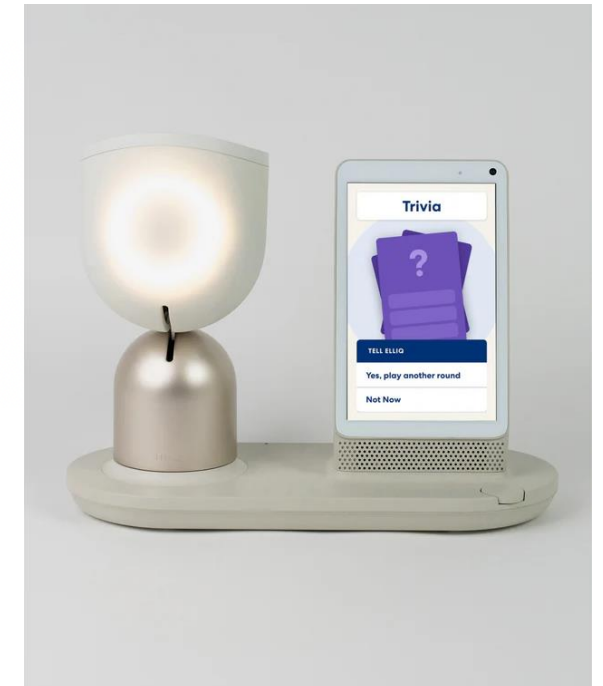
Due to Gen AI, social robots improve quickly and become usable on the large scale – e.g., ElliQ

(see also <https://www.nytimes.com/2026/02/12/us/elliq-ai-robot-senior-companion.html?smid=nytcore-ios-shareP>)

Imagining futures of care

How should we think about this future of chatty, joke-cracking, current affairs-savvy companion robots, with humans labouring at £8.00 an hour in the physically taxing jobs of lifting, toileting and feeding the bodies of ageing selves? In a strange reversal of humans and machines, robots seem designed to do the cognitive and emotional care work, humans the manual work of bodily care.⁷ It is clear that technology has been and will be designed to offer a kind of companionship

Pratt, Johnston and Johnson (2023)





Conclusion and take-aways

1. Interacting with robots is “**different**” than with other technology because robots have Automated Social Presence.
2. **Negative** responses to robots: Assess the impact on the customer experience!
3. Use robots for tasks involving **shame** or **criticism**.
4. Take advantage of robots’ **strengths**, for example in languages.
5. The future lies in **collaboration** between robots and humans.
6. The **human** employee needs to be in **charge**.
7. **Leverage** the **human employee** for higher compliance.