AI & Longevity:
Impacts on how we live, work and care

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Massachusetts Institute of Technology

MIT AgeLab: 100 Years of Quality Living

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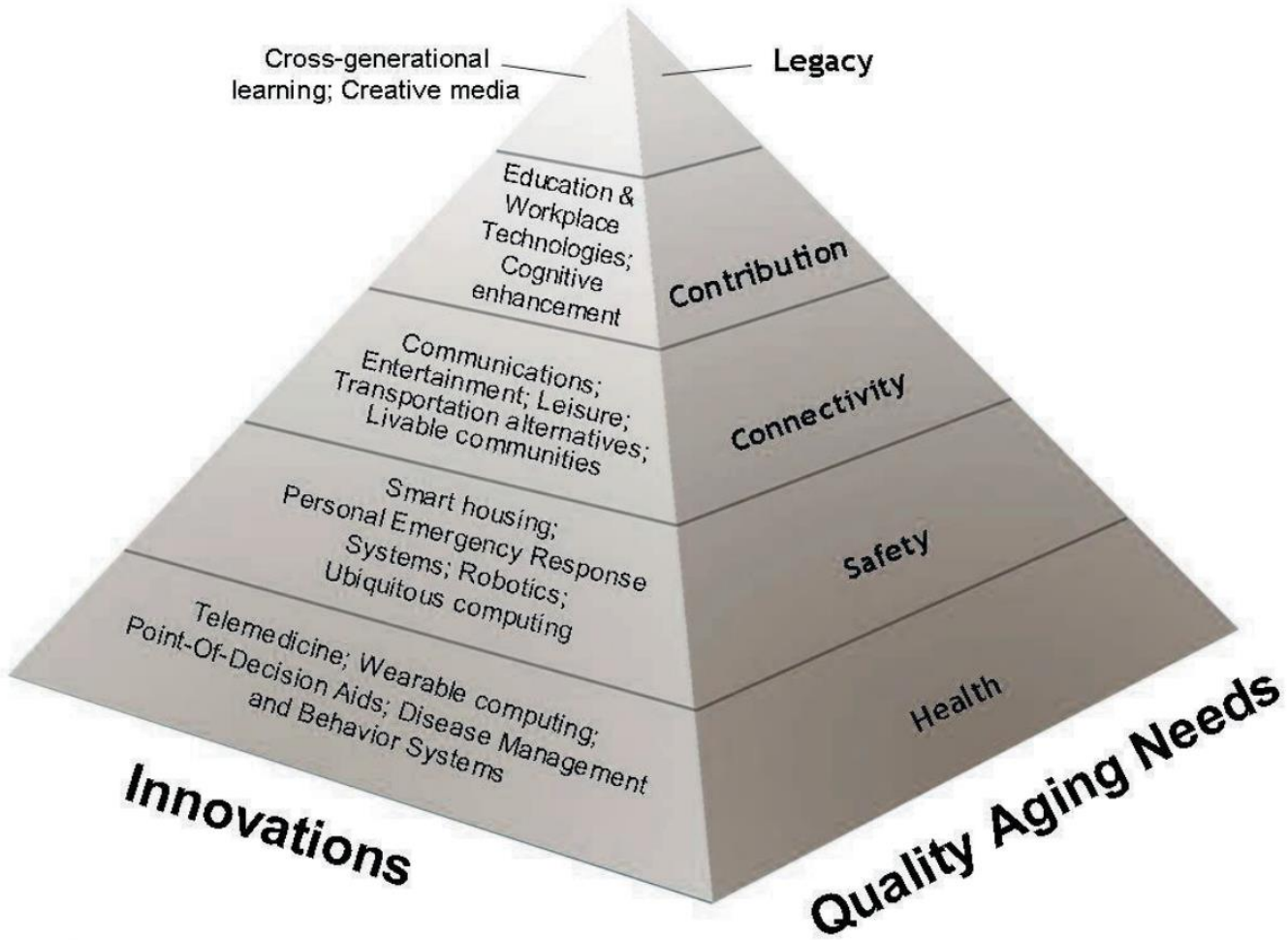
- Population aging as an innovation opportunity, not a problem to be solved
- Research to understand the role of technology in navigating longevity
- Academic work and outreach activities dedicated to improving quality of life for older adults and those who care for them
- Multidisciplinary perspectives and implications: design, engineering, policy, sociology, psychology, public health, consumer behavior, and more

Opportunities and emerging needs



Source: *Coughlin & Lau, MIT AgeLab, Adapted from Maslow (1943)*

Emerging needs

Convenience

Connectivity

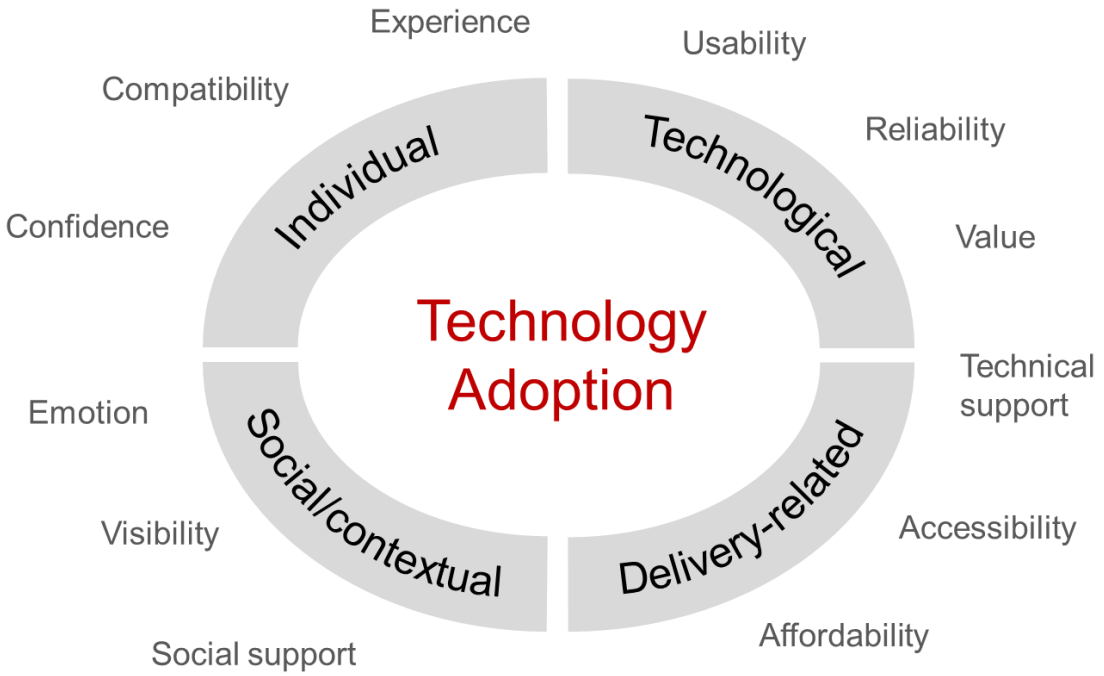
Care

Creating

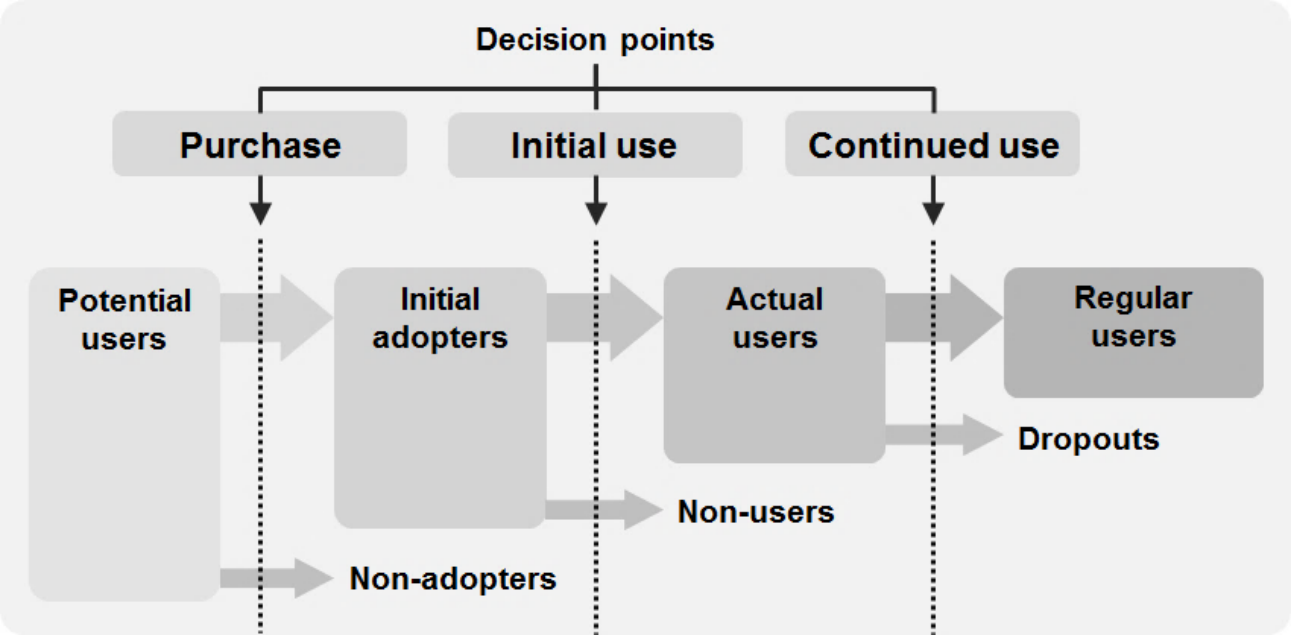
Contributing

A holistic approach

- Understanding complexities in user experience and adoption to inform design



Modified from Lee, 2014; Lee & Coughlin, 2015



Lee, C. (2014). User-Centered System Design in an Aging Society: An Integrated Study on Technology Adoption. MIT.

MIT AgeLab: research domains

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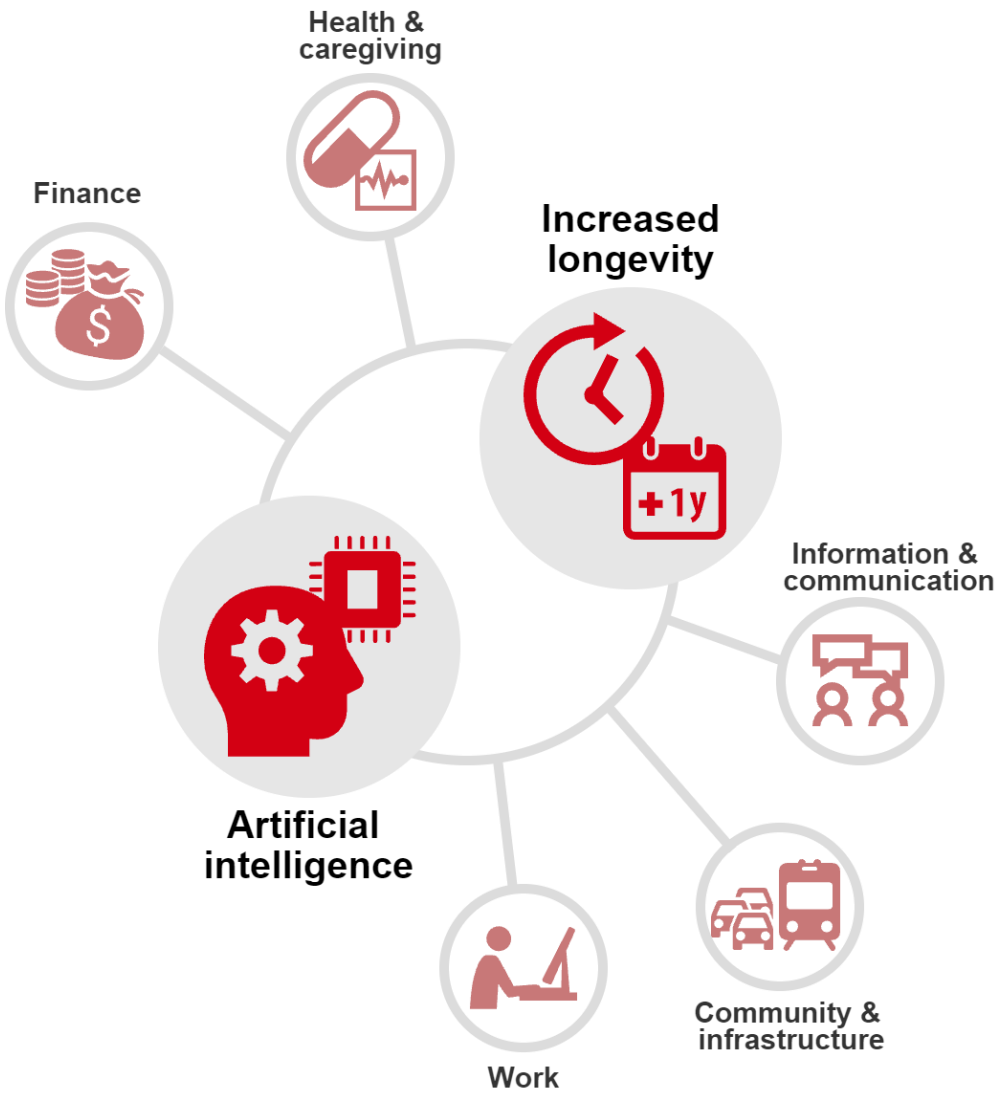
AI & longevity: exploring the intersection

- New technologies will continue to disrupt many established industries, disciplines and practices, and potentially create new ones
- Study objectives
  - Understanding ways in which AI may impact lives of people across generations
  - Describing how increased longevity and higher ubiquity of AI may transform how we live and work
  - Imagining how AI may provide benefits to a longer life – on convenience, cost and care



A two-part study: expert and consumer perspectives

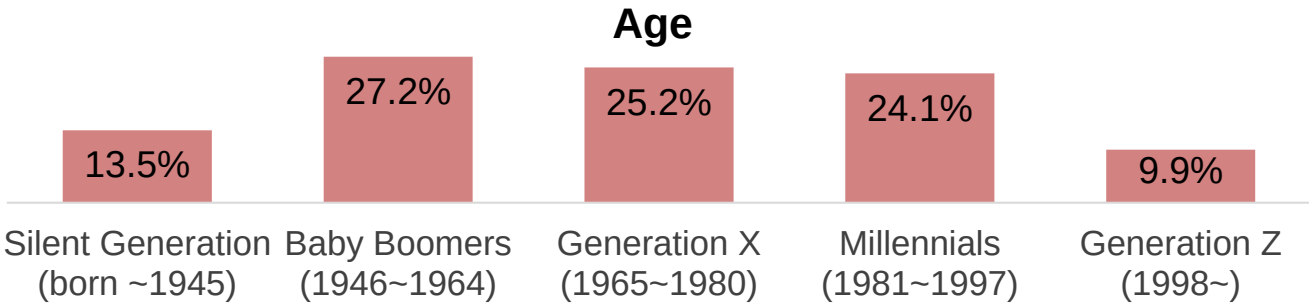
- Survey conducted with an expert group and a consumer sample to allow for direct comparisons around perception of AI's potential benefits and risks, confidence in AI's capabilities, and acceptance of AI applications

Expert panel

- N = 25
- A mix of academics and industry experts
- A diverse set of AI-related expertise and backgrounds: computer science and programming, data science, computer vision, human-computer interaction, health care and medicine, biomedical engineering, robotics, AI philosophy and ethics, and more

Consumer sample

- N = 911

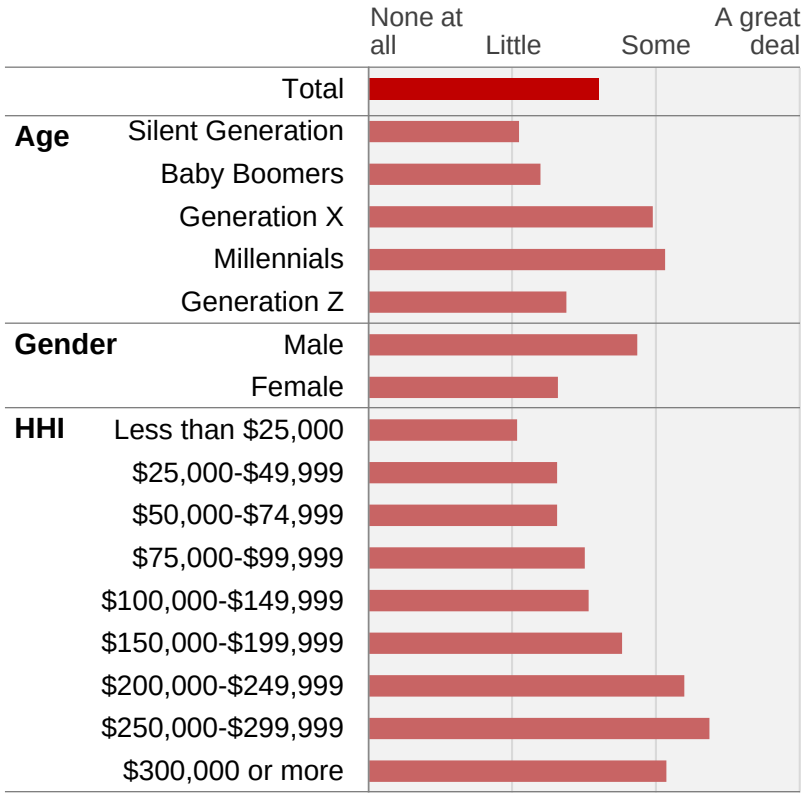


- Balanced gender split (male: 51.0%, female: 48.6%) and household income
- Represented various education levels, employment status and geographic locations within the US

Consumer knowledge

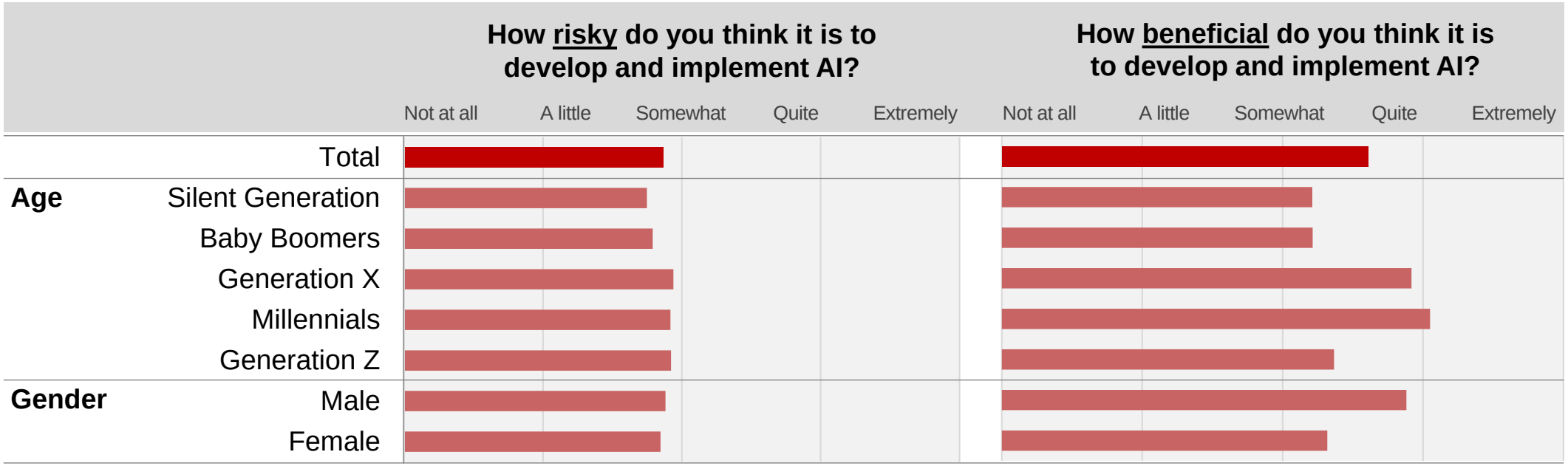
- AI definition provided to establish a consistent baseline understanding - *“machines that are able to make predictions and decisions when presented with novel information within a defined task setting”*

Consumers’ self-rated level of knowledge in AI



- On average, consumers believed that they have little to some knowledge about AI
- Millennials and Gen X reported higher self-rated knowledge of AI, while Gen Z, Baby Boomers, and the Silent Generation reported being significantly less knowledgeable
- Other characteristics associated with having a higher self-rated knowledge of AI included being male, having a higher income, having a higher level of education, and being employed

Benefit & risk perception among consumers



- Public attitudes reflect a general belief that AI is likely to be beneficial
- Despite the belief in AI benefits, the public remains somewhat concerned about its potential risks, which may reflect public uncertainty
- Perception of benefits varied across domains and between demographic groups, but risk perception stayed consistent

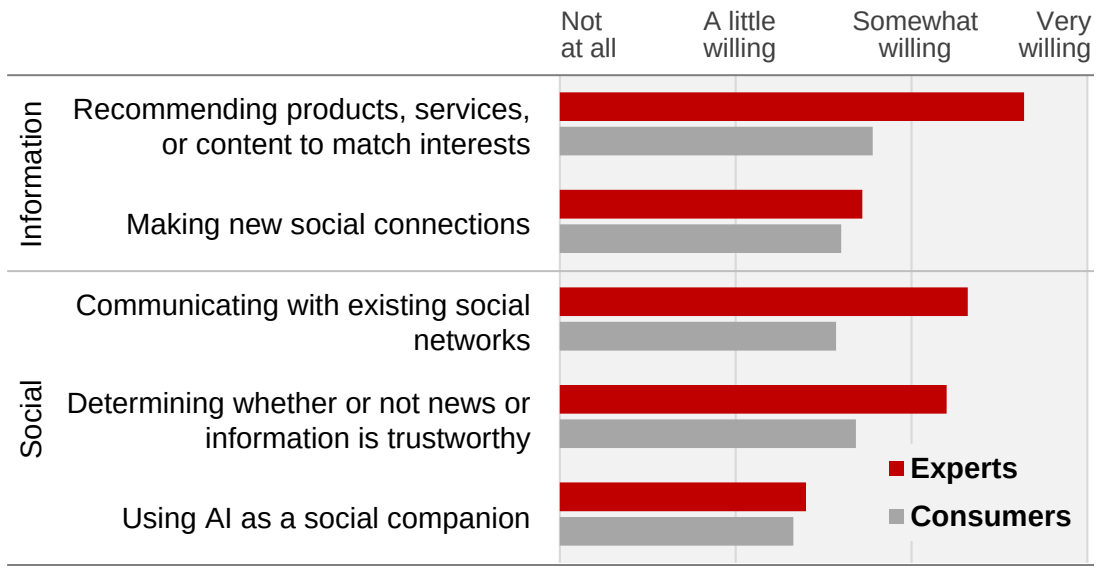
Promises and benefits

- Across domains and scenarios, experts had high confidence in AI and consumers showed moderately high acceptance
- Benefits around convenience, connectivity and care for everyone, including older adults
  - Making financial services more accessible
  - Helping older adults stay socially engaged and manage challenging life transitions
  - Supporting medical professionals and family caregivers
  - Highly connected and convenience environments and community infrastructure
  - Supporting and automating administrative and analytical tasks in the workplace
- However, many issues remain

Remaining issues – 1) potential adoption gaps

- Expert overestimation of consumer acceptance
  - Experts had higher confidence in AI & overestimated consumer willingness to use AI
  - Consumers felt more uncertain and hesitant
  - The gap may point to a potential adoption lag in near future where new AI products and services are met by consumer resistance
- Differences among the consumer sample
  - Characteristics associated higher confidence in and willingness to use AI: being a millennial or gen X, having a higher income, being employed, having a higher level of education, and being more generally technology savvy
  - Suggests a future where access and acceptance gaps exist between different consumer segments
  - Addressing gaps in technology awareness, knowledge and access will still require time and effort

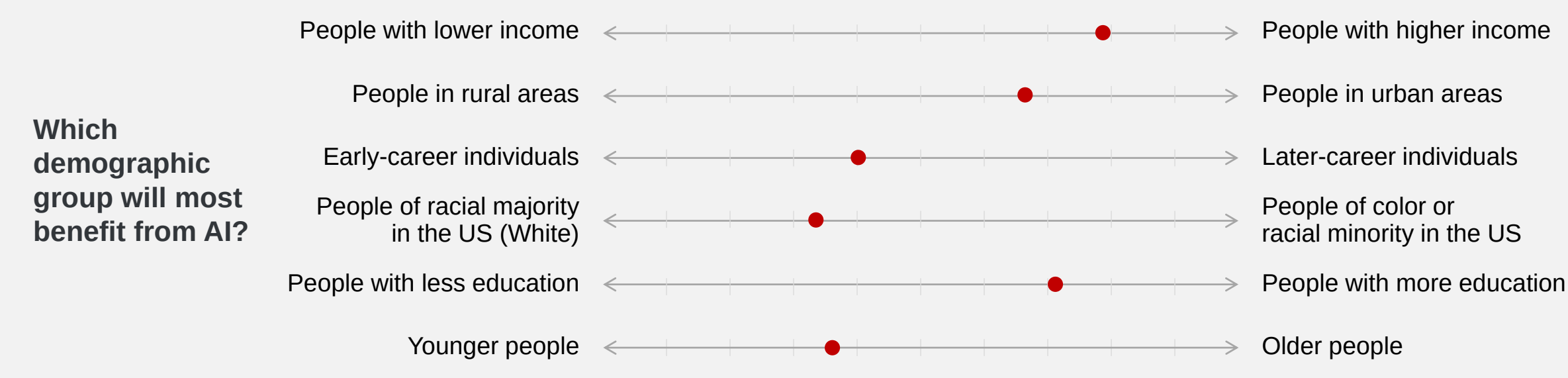
Willingness to adopt AI*



* Experts: How willing do you think the general public would be to adopt AI in the following applications?
Consumers: How willing would you be to adopt AI in the following applications?

Remaining issues – 2) diversity & inclusion

- Overall, results suggest that potential benefits of AI may not uniformly reach people of diverse characteristics and backgrounds in a short term



"There are heavy biases that still exist socially that propagate through to these algorithms."

- A biomedical informaticist

"Those with money, power, education will be best equipped to receive the benefits and capitalize on them."

- Director of AI in the finance industry

Remaining issues – 2) diversity & inclusion

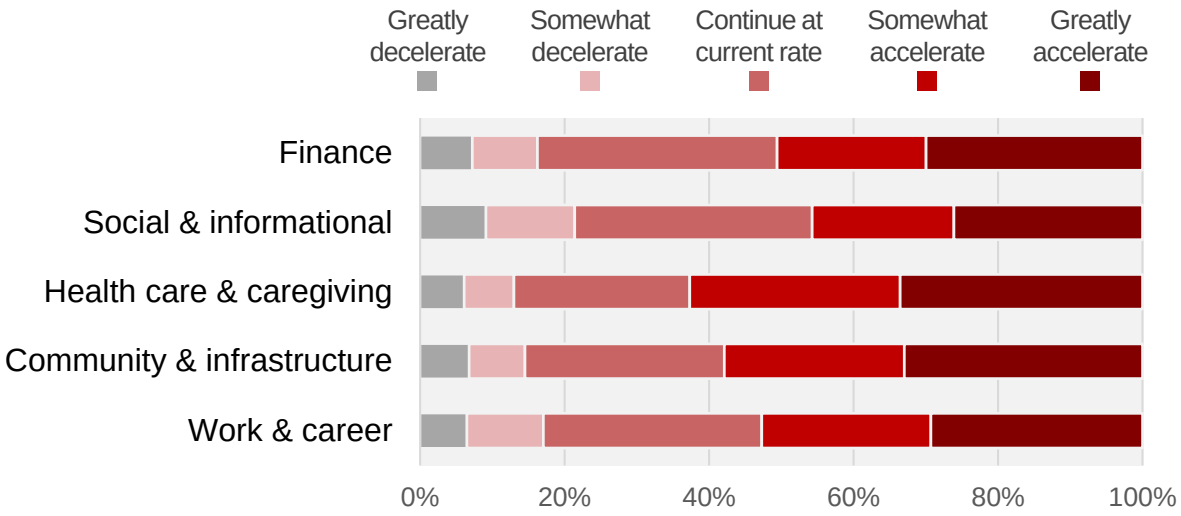
- Challenges across domains
  - AI will improve social relations and eliminate bias and discrimination in work settings
  - AI could help older adults stay socially engaged and manage life transitions, but that there may be risks around bias and maintaining personal communications
  - Low confidence in AI's ability to provide more equitable access to healthcare
  - For financial services, consumers who may already have limited access were also less accepting of AI
- However, experts believe that efforts are being made to ensure equitable access and unbiased implementation

Expert responses:
In the next 10 years, how likely is it that AI helps us achieve the following?

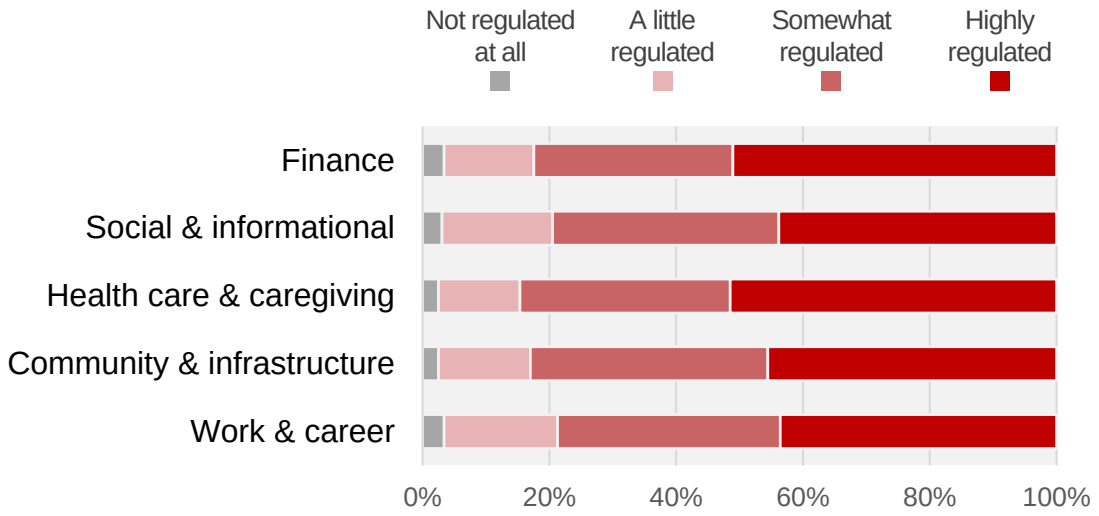
Remaining issues – 3) regulation, policy & governance

- Consumer support for regulated development

Support for development and implementation



Need for regulation

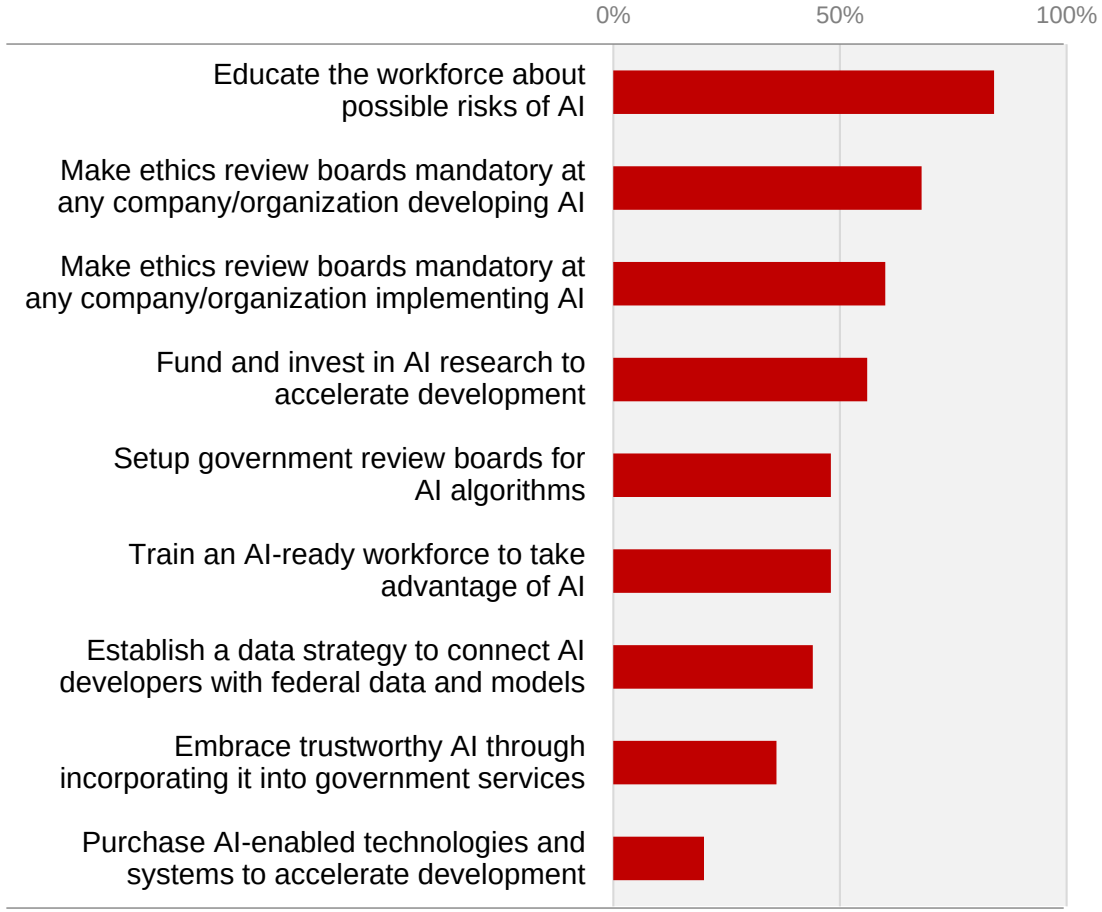


- While showing support for development, consumers universally agreed on the need for regulation
- The emphasis on regulation was consistent across generations, as well as across other demographic groups

Remaining issues – 3) regulation, policy & governance

- Expert recommended policy actions toward workforce education and training, and requiring ethics review for development and implementation of AI
- Stakeholder responsibilities around potential issues (bias and violation of ethics, limitations in accuracy, system failures, and loss of autonomy and control)

Expert responses: What action(s) should policy makers take towards the development and implementation of AI?



Topics to consider

- Consumer education
  - Responsible and accurate reporting of what AI is and isn't to minimize confusion (e.g., self-driving cars, voice-based interactions)
  - Tailored messaging for both end users and purchasers/distributors
- Technologies to support older adults don't have to be ones specifically designed for them
  - General and universal use cases and applications
  - Avoiding and debunking stereotypes
- Inclusive approach to AI development and implementation
  - Potential to improve equitable access, but diversity needs to be considered from early phases
  - Heterogeneity: older population isn't a uniform group

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