Ethical and policy frameworks: Old and new

| Old practice paradigm	New practice paradigm
Intended purpose (research, QI, clinical care, public health) ⬇ Policy ⬇ Collect data ⬇ New technology (R&D)	Data ⬇⬆ New technology ⬇ Intended purpose (research, QI, clinical care, public health) + administration, commercial development, +? ⬇ ??Policy?? Ethical Frameworks?
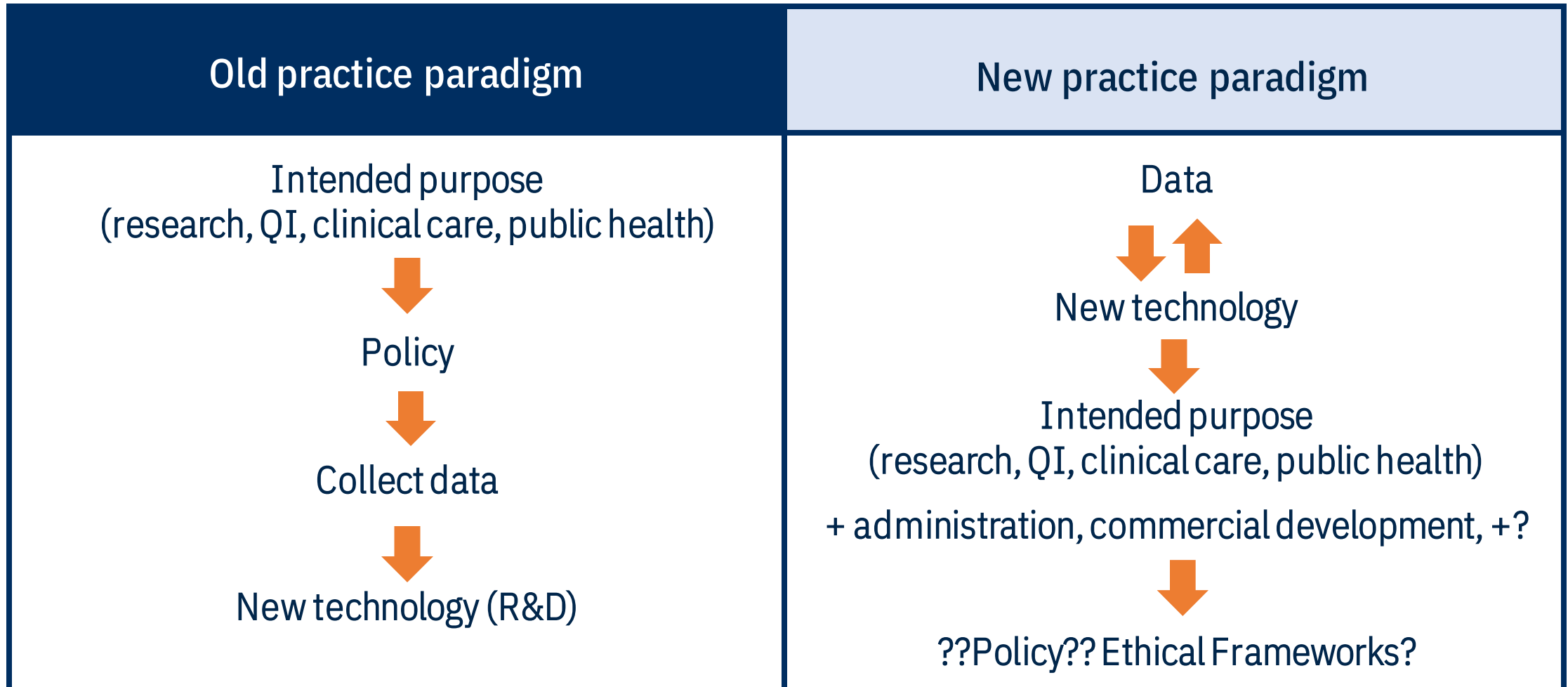
Policy solution 1: Do nothing

Our digital world will mirror the challenges, biases,
and inequity in our three-dimensional world
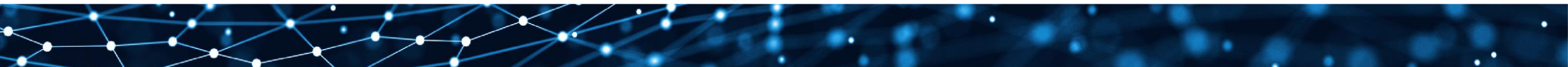
Project Summary and Goals
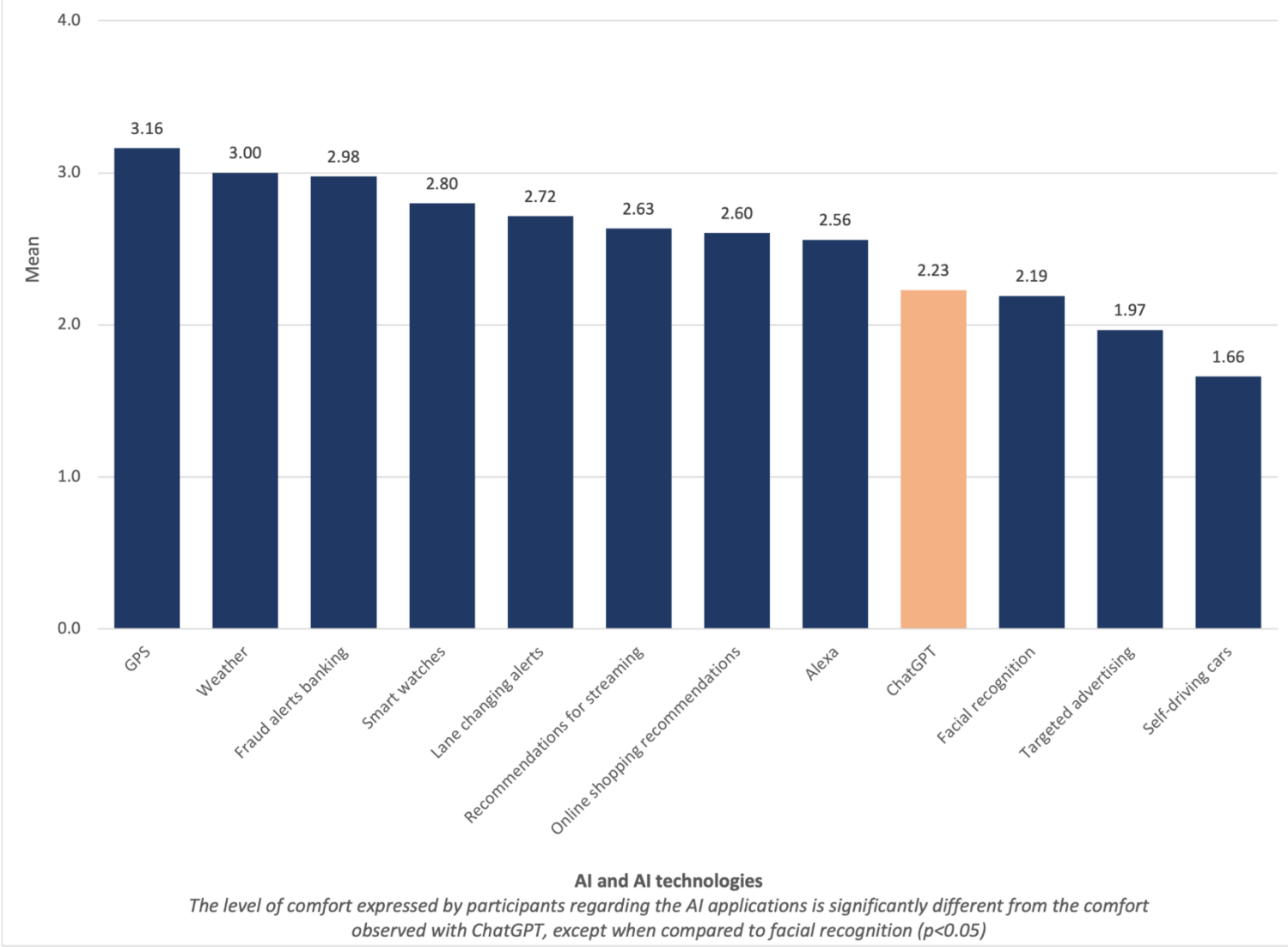
- Conduct a survey to examine attitudes of cancer patients about trust in AI as well as ethical issues in health that are associated with comfort with the use of AI in radiation oncology
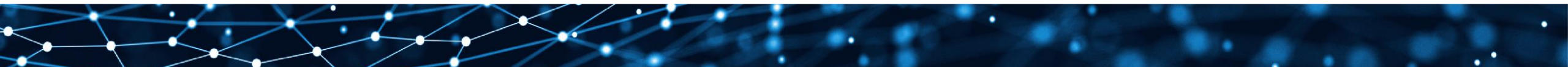
Demographic characteristics of survey participants (n=1,028)		N (%)
Sex	Male	584 (56.8%)
	Female	444 (43.2%)
Age	18-29	59 (5.7%)
	30-44	137 (13.3%)
	45-59	199 (19.36%)
	60+	633 (61.6%)
Race/ Ethnicity	White, NH	727 (70.7%)
	Black, NH	141 (13.7%)
	Hispanic	112 (10.9%)
	Other (Asian/ PI, 2+, Other)	48 (4.7%)
Education	< High school	50 (4.9%)
	High school or equivalent	231 (22.5%)
	Associate's degree	475 (46.2%)
	Bachelor's degree	144 (14.0%)
	Professional degree	128 (12.5%)
Seen health provider in the past year		940 (91.4%)
Has health insurance		973 (94.7%)

Figure 1. Comfort with the use of AI in society (n= 1,787)

AI and AI technologies
The level of comfort expressed by participants regarding the AI applications is significantly different from the comfort observed with ChatGPT, except when compared to facial recognition (p<0.05)

Participants were asked: *"Artificial intelligence (AI) and smart technologies are often used outside of healthcare. How comfortable are you with these technologies being used in society today?*

In survey of cancer patients

GPS: 3.18
Self-driving cars: 1.60

Comfort with AI in healthcare

- Your doctor has told you that you are at risk for developing cancer. Your healthcare system has recently added a new **'chatbot'** into the patient portal. This AI tool allows you to ask questions about cancer prevention and treatment. It provides computer-generated answers to your questions based on the latest medical research and guidelines.

- **62% Not or somewhat comfortable***

Mean = 2.3 (< Alexa; > ChatGPT)

- As a part of your cancer treatment, suppose you receive radiation therapy. The goal of the radiation is to destroy tumor cells, and avoid healthy cells as much as possible. Your doctor uses an AI tool that **analyzes your medical images** to identify the tumor cells that should get radiation and the healthy cells to avoid.
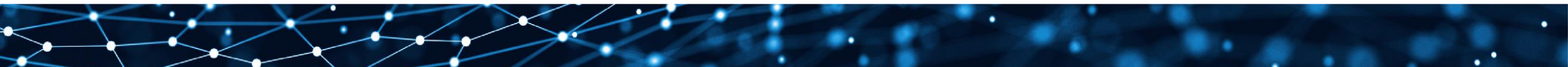
- **45% Not or somewhat comfortable***
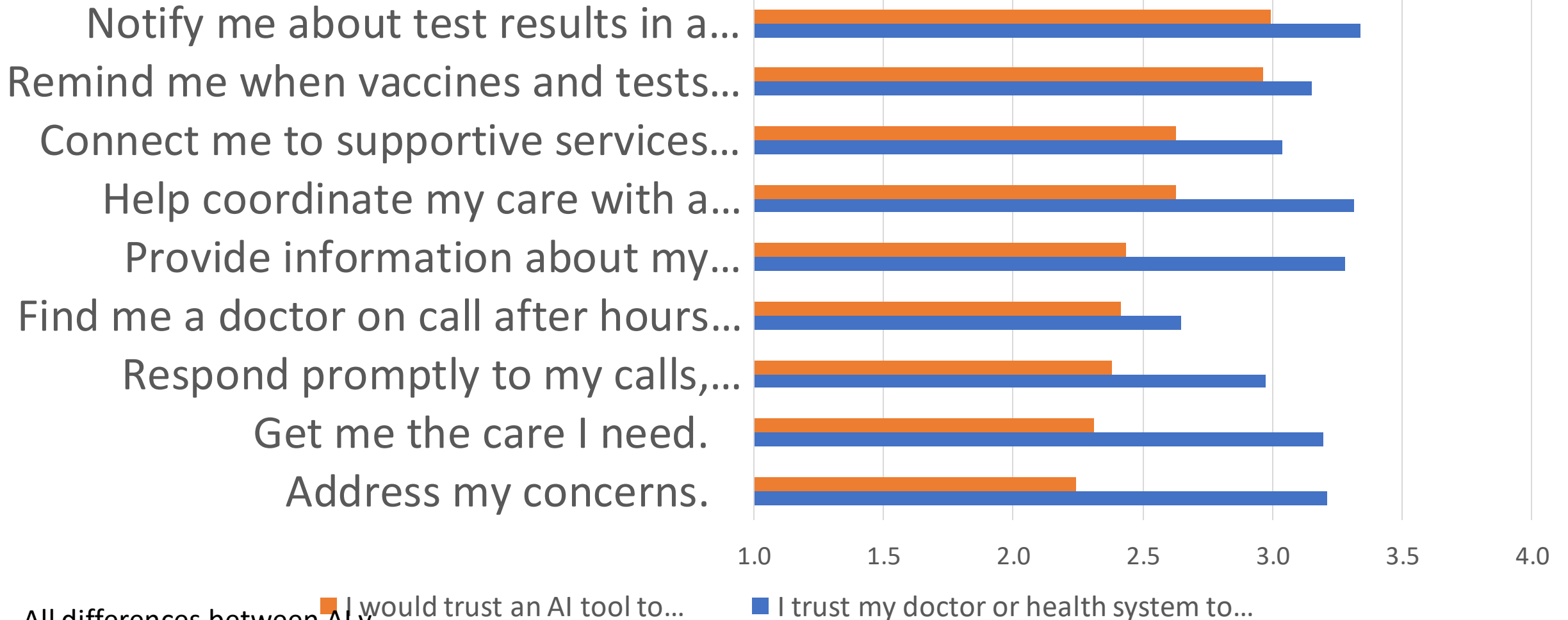
Mean = 2.6 (~Recommendations for video; shopping)

*2023 NORC survey of cancer patients

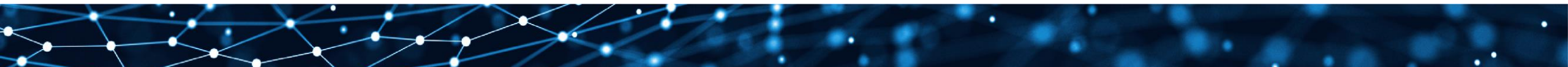# Trust in AI versus Health systems and people
**(n=1,123 Current/ former cancer patients, NORC, December 2023)**

Notify me about test results in a...
Remind me when vaccines and tests...
Connect me to supportive services...
Help coordinate my care with a...
Provide information about my...
Find me a doctor on call after hours...
Respond promptly to my calls,...
Get me the care I need.
Address my concerns.

1.0 1.5 2.0 2.5 3.0 3.5 4.0

■ I would trust an AI tool to...   ■ I trust my doctor or health system to...

All differences between AI v.

Examples of other factors influencing comfort in AI

| For you, how true are the following statements: 1 = Not at all true, 2= Somewhat true, 3 = Fairly true, 4 = Very true	Ethical principle/ attitude	Weighted univariable regression coefficient (p-value) Y = comfort with AI
My healthcare provider does the best they can to avoid harming patients.	Provider: Beneficence/ Avoiding harm	$0.2 \ (2.7\times10^{-7})$
My healthcare provider works hard to find treatments that are best for me.	Provider: Respect	$0.2 \ (2.0\times10^{-7})$
I feel I'm treated with respect when receiving medical care	Provider: Respect	$0.16 \ (3.0\times10^{-5})$
I would go along with my doctor's advice even if I disagree with it.	Resignation	$0.13 \ (2.7\times10^{-4})$
I would rather the doctor take the lead and just tell me what they think is best.	Resignation	$0.11 \ (0.0002)$
My healthcare system treats all patients equally	System: fairness	$0.12 \ (10\times10^{-4})$
My healthcare system is reliable.	System: trustworthiness (reliability)	$0.24 \ (2.4\times10^{-11})$
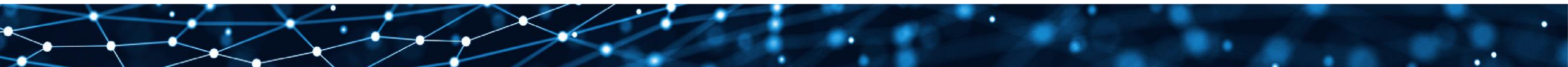
Key findings

- Engage and communicate early with the public on use of AI in care settings

  - Baseline data suggests early skepticism

- Trustworthiness of health systems and clinicians is likely to shape attitudes

  - Reliability; avoiding harm; respect; fairness

  - Trust as a license for innovation

- Role of top-down and bottom-up improvements and trust-building
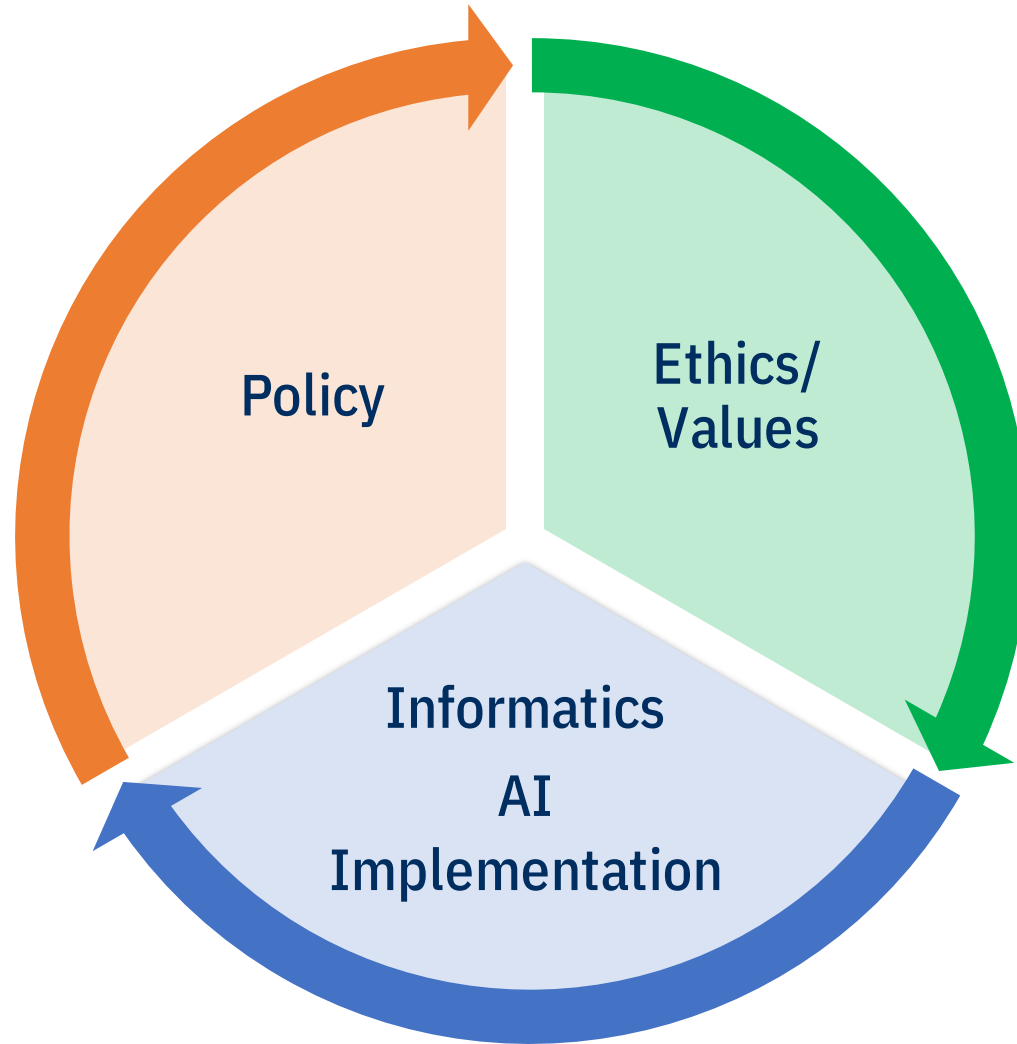
  - Too big to care (Platt, 2023)
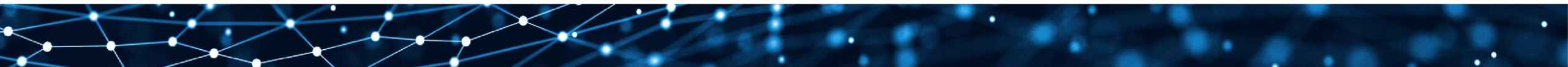
Challenges and opportunities

- Lack of existing survey measures

- More work needed to understand impact of use cases on attitudes

  - Risk

  - Familiarity

  - Effectiveness of technology

- Rapidly developing area (emergence of LLMs)
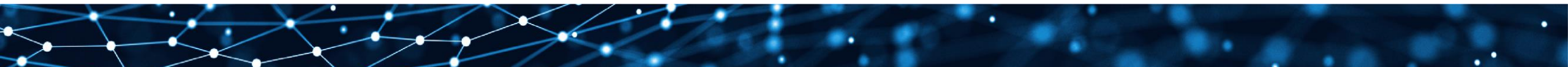
Future work

- Ethical AI is a longitudinal commitment to evaluation
  - Expected changes over time
  - Multi-stakeholder

- Evidence to inform decision-making and evaluation
  - Labelling
  - Measurement

TIERRA
TRUST, INNOVATION & ETHICS
RESEARCH FOR RESPONSIBLE AI