



TechPulse Report

A Perspective of Americans' Attitudes
Toward Artificial Intelligence

NOVEMBER 2021



METHODOLOGY

This poll was conducted on behalf of Stevens Institute of Technology by Morning Consult between September 8-10, 2021 among a sample of 2200 Adults. The interviews were conducted online, and the data were weighted to approximate a target sample of Adults based on gender, educational attainment, age, race, and region. Results from the full survey have a margin of error of +/- 2%.

KEY FINDINGS

1. Although adults have concerns about the potential negative consequences of greater AI adoption, nearly half (48%) believe the perceived positives of greater AI adoption in everyday life outweigh the perceived negatives.
 - Adults believe AI should play a greater role in a number of tested industries in the future, including technology (66%), manufacturing (61%), logistics (58%), and retail (52%).
 - Despite a general openness to AI playing a larger role in different industries, adults believe that among the specific tasks tested, most are still best accomplished by humans alone or with some degree of assistance from AI.
2. Concern about AI's potential negative consequences is high, with adults most concerned about a loss of personal privacy (74%), AI being used irresponsibly (72%), reduced employment opportunities (71%) and reduced human connectedness (71%), among the tested options.
 - Half of adults (52%) believe it is likely that AI will become smarter than humans, and nearly two thirds (63%) believe AI will control too much of everyday life.
3. Majorities of adults believe AI has played a role in loss of trust in elections (57%) and institutions (56%), as well as the spread of misinformation (58%), political polarization (53%), and threats to democracy (52%).
 - Democrats are more likely than Republicans to believe that AI has played a role in the spread of misinformation (64% vs. 56%) and in loss of trust in institutions (62% vs. 54%).
4. Adults view facial recognition as a responsible use of AI technology, and are comfortable with using it for tasks such as finding missing persons (70%) and pets (68%), for law enforcement use such as identifying and monitoring criminals (65%), and for identifying fraudulent behavior when making purchases (64%).
 - Deepfakes, which are highly convincing digitally altered sound and images that are made to appear real, prove to be more divisive. Adults are nearly evenly split on whether using AI to create deepfakes is a responsible (38%) or irresponsible (36%) use of the technology.

AGENDA

AI PROS AND CONS, PREFERENCES

POSITIVE AND NEGATIVE CONSEQUENCES

RESPONSIBLE USES AND COMFORT

AI IN HEALTHCARE AND FINANCIAL SERVICES

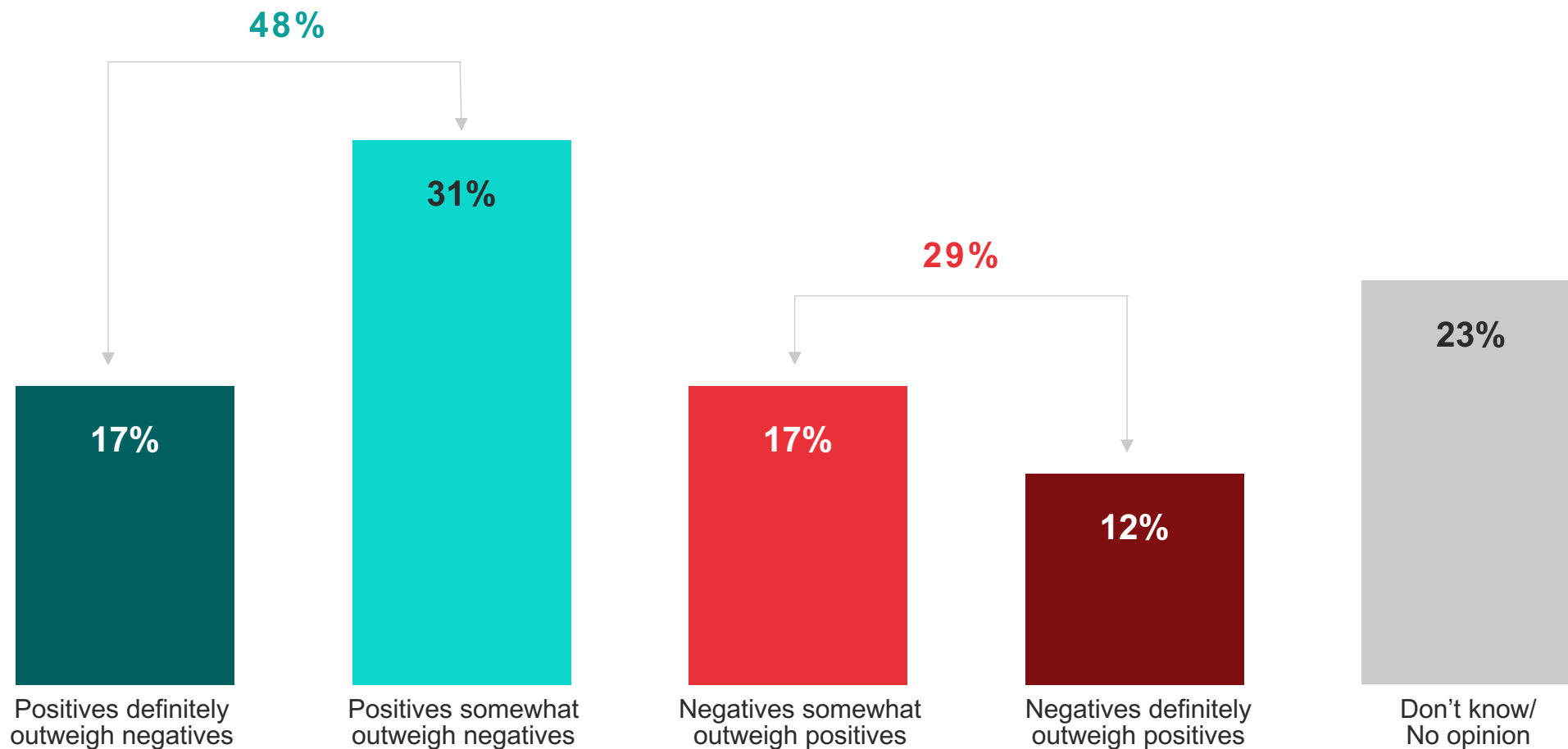
REGULATION, EDUCATION AND TRUST



AI PROS AND CONS, PREFERENCES

Nearly half of adults (48%) believe the perceived positives of greater AI adoption in everyday life outweigh the perceived negatives, while 29% believe the opposite.

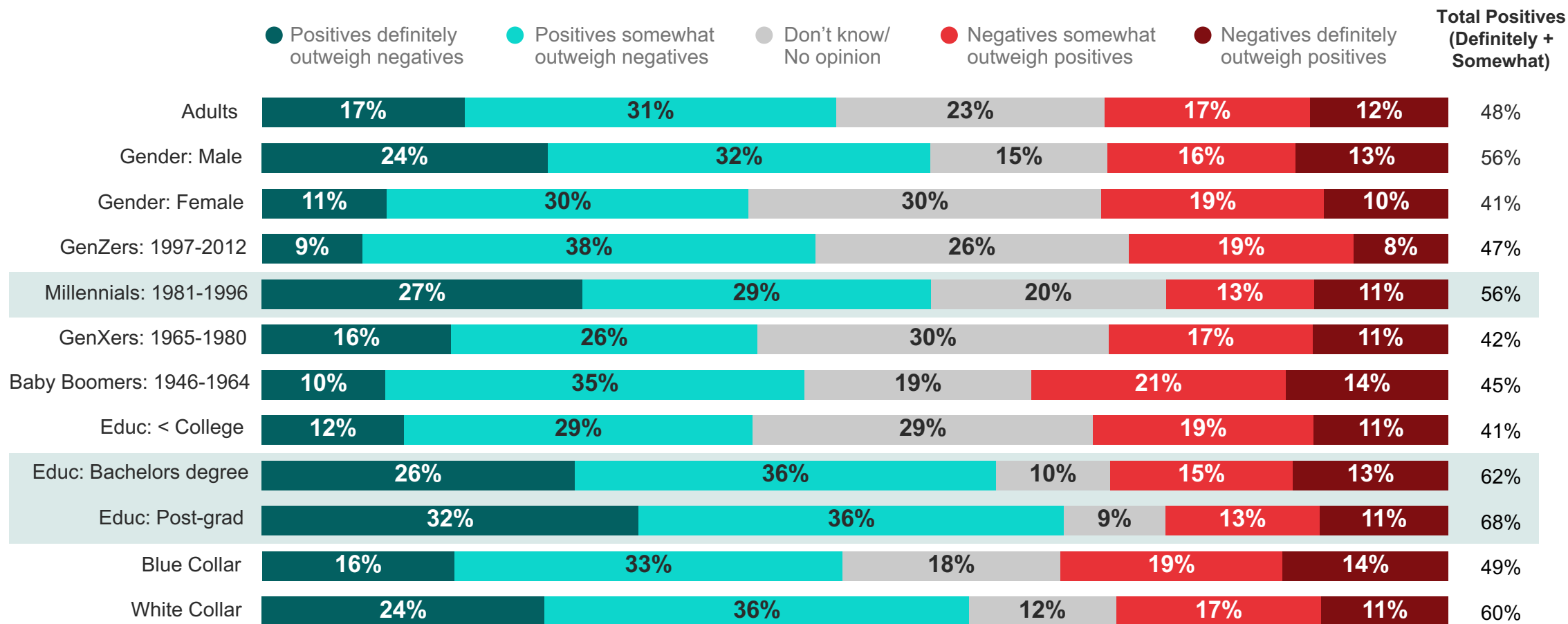
Generally speaking, do you think the perceived positives of greater AI adoption in everyday life outweigh the perceived negatives?



AI PROS AND CONS, PREFERENCES

Millennials (56%) and adults with a bachelor's degree (62%) and above (68%) are more likely to believe the perceived positives of greater AI adoption in everyday life outweigh the perceived negatives.

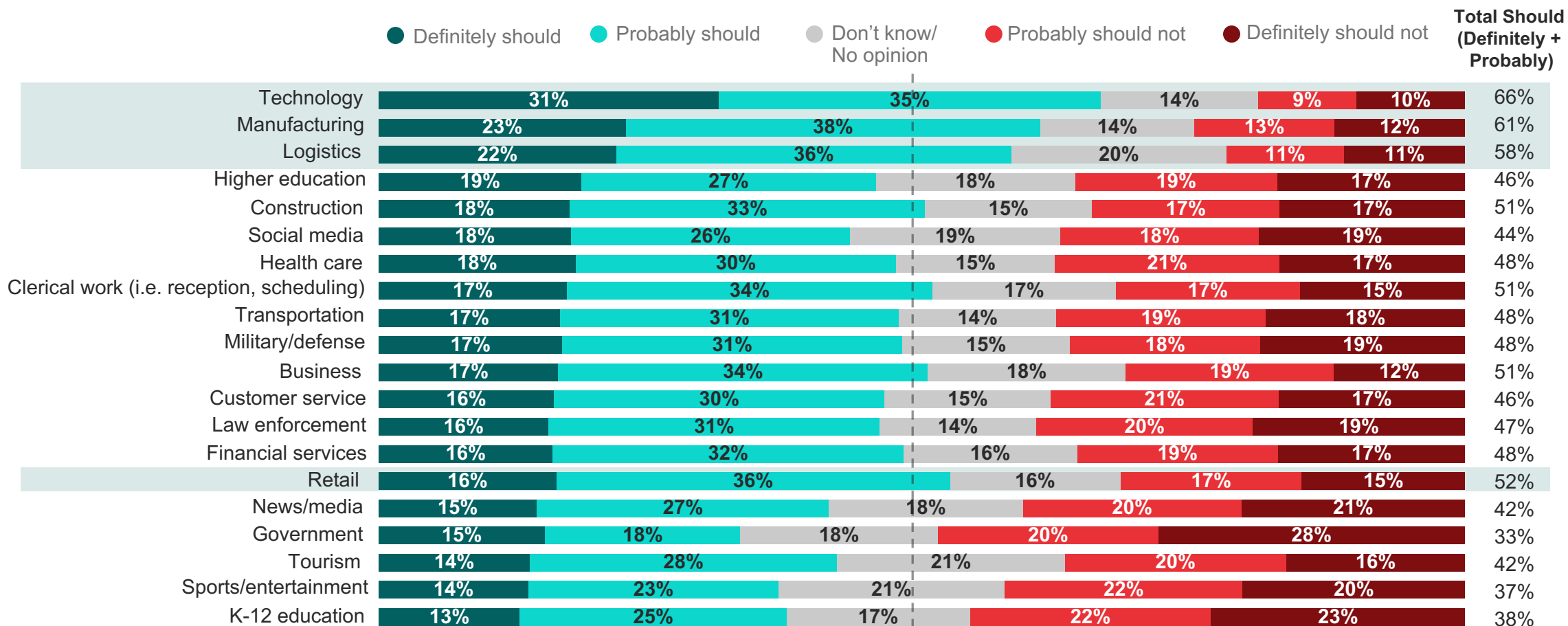
Generally speaking, do you think the perceived positives of greater AI adoption in everyday life outweigh the perceived negatives?



AI PROS AND CONS, PREFERENCES

Majorities of adults think AI should play a larger role in technology (66%), manufacturing (61%), logistics (58%), and retail (52%) in the future.

In the future, do you think artificial intelligence should or should not play a larger role in each of the following fields or industries?



n size for each option = between 1,060 to 1,129

50%

AI PROS AND CONS, PREFERENCES

White-collar adults are more likely than blue-collar adults to believe AI should play a larger role in most of the tested industries. A belief that AI should play a greater role in most tested industries also rises with education level.

In the future, do you think artificial intelligence should or should not play a larger role in each of the following fields or industries?

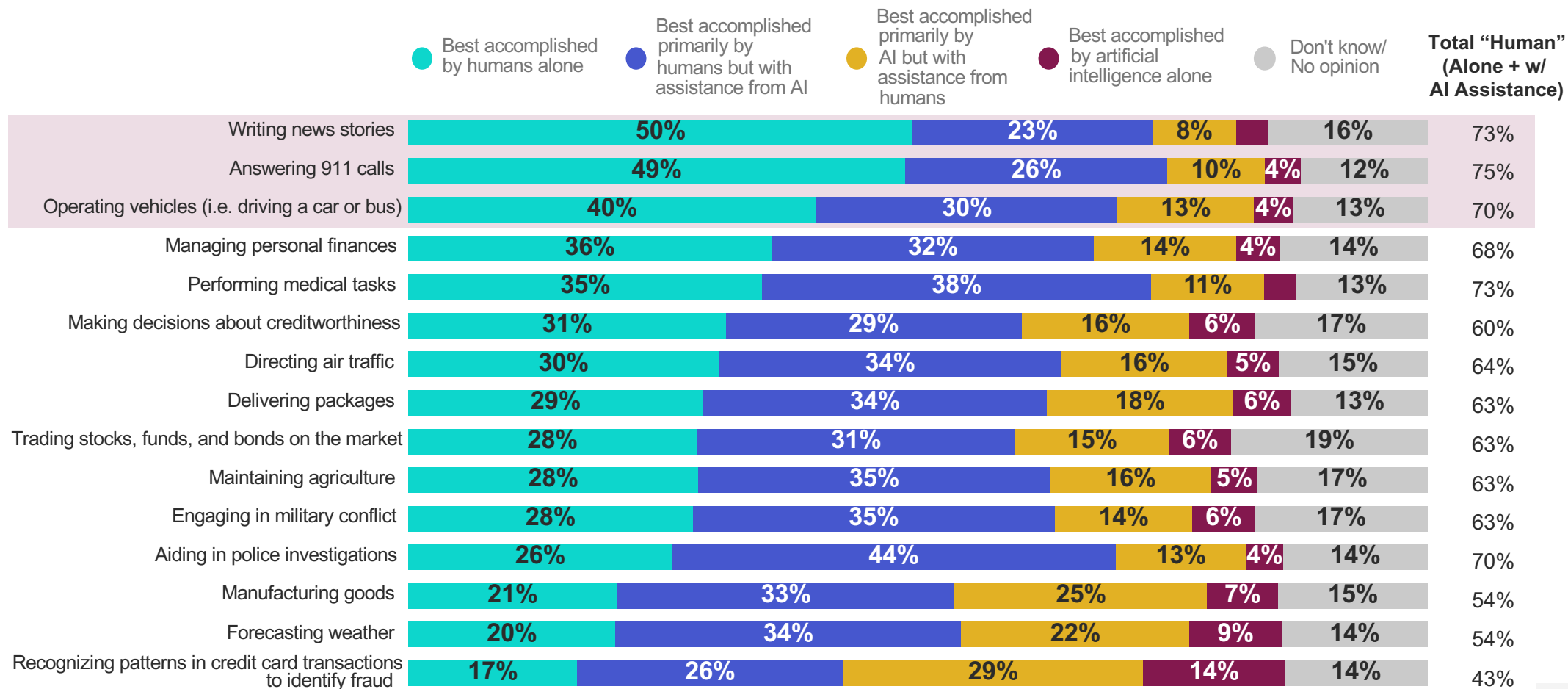
Total Should (Definitely + Probably Should)	Adults	Male	Female	<College	Bachelor's Deg.	Post-grad	Blue-Collar	White-Collar
Technology	66%	73%	61%	59%	81%	87%	70%	74%
Manufacturing	61%	71%	51%	53%	77%	83%	61%	72%
Logistics	58%	70%	49%	50%	74%	82%	58%	70%
Retail	52%	61%	44%	46%	66%	75%	50%	65%
Business	51%	60%	42%	43%	67%	69%	51%	62%
Clerical work (i.e. reception, scheduling)	51%	55%	46%	44%	62%	78%	49%	62%
Construction	51%	61%	40%	43%	64%	74%	46%	65%
Health care	48%	58%	39%	37%	68%	71%	46%	56%
Military/defense	48%	56%	41%	41%	60%	68%	48%	58%
Financial services	48%	58%	39%	38%	66%	76%	43%	62%
Transportation	48%	57%	39%	39%	62%	76%	46%	59%
Law enforcement	47%	52%	41%	39%	58%	67%	48%	54%
Higher education	46%	55%	37%	41%	51%	65%	44%	55%
Customer service	46%	53%	41%	39%	58%	69%	44%	55%
Social media	44%	50%	37%	37%	55%	64%	41%	54%
News/media	42%	46%	37%	36%	52%	58%	38%	50%
Tourism	42%	48%	36%	36%	54%	59%	43%	52%
K-12 education	38%	44%	31%	31%	49%	55%	34%	51%
Sports/entertainment	37%	43%	31%	31%	48%	52%	38%	42%
Government	33%	41%	26%	26%	46%	58%	29%	45%

n size for each option = between 1,060 to 1,129

AI PROS AND CONS, PREFERENCES

Among the tested tasks, adults are most likely to believe that writing news stories (50%), answering 911 calls (49%), and operating vehicles (40%) are best accomplished by humans alone.

For each of the following tasks, do you think they would be best accomplished by artificial intelligence or by humans?

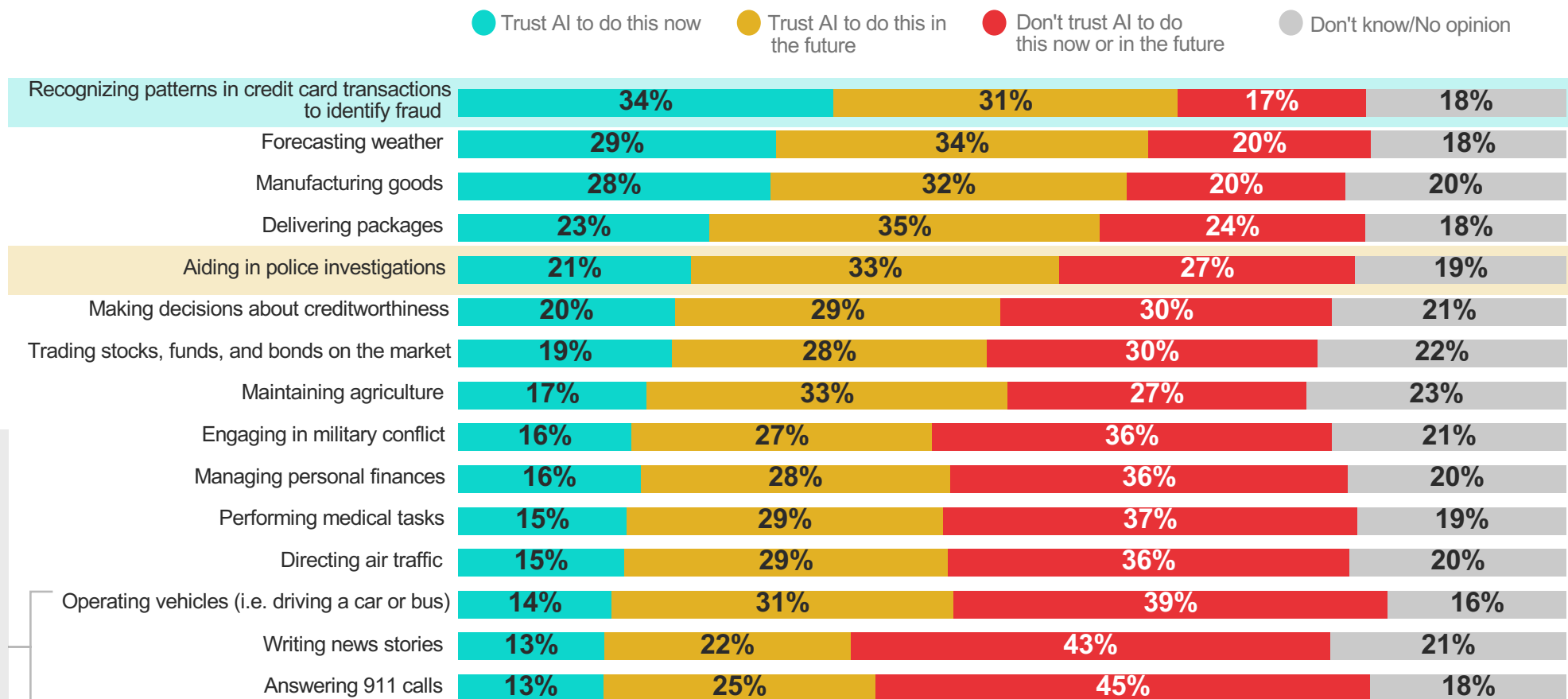


Over half of adults with a **post-grad degree (55%)** and those **earning \$100k+ (51%)** believe recognizing patterns in credit card transactions to identify fraud would be best accomplished by AI.

AI PROS AND CONS, PREFERENCES

Adults have higher levels trust in AI doing many of the following tasks in the future as opposed to now. A slight plurality of adults trust AI to recognize patterns in credit card transactions to identify fraud now (34%), vs. in the future (31%) or not at all (17%). A plurality also say they will trust AI to aid in police investigations in the future (33%).

Based on your understanding of artificial intelligence, do you trust artificial intelligence to do the following tasks now, in the future, or not at all?



Strong pluralities of adults say they won't trust AI to **operate vehicles (39%), write news stories (43%), or answer 911 calls (45%)** in the future.

AI PROS AND CONS, PREFERENCES

Compared to other generations, Millennials are generally more trusting of AI's ability to do the tested tasks, both now and in the future.

Based on your understanding of artificial intelligence, do you trust artificial intelligence to do the following tasks now, in the future, or not at all?

Trust Now vs. the Future	GenZers		Millennials		GenXers		Baby Boomers	
	Now	Future	Now	Future	Now	Future	Now	Future
Recognizing patterns in credit card transactions to identify fraud	23%	32%	38%	30%	29%	31%	36%	31%
Forecasting weather	27%	33%	34%	32%	24%	33%	28%	35%
Manufacturing goods	28%	27%	33%	32%	23%	31%	28%	35%
Delivering packages	23%	41%	28%	34%	19%	36%	20%	34%
Aiding in police investigations	13%	29%	26%	32%	18%	31%	21%	37%
Making decisions about creditworthiness	13%	27%	26%	33%	18%	26%	17%	29%
Trading stocks, funds, and bonds on the market	18%	29%	27%	31%	17%	27%	14%	26%
Maintaining agriculture	14%	32%	24%	32%	14%	30%	14%	34%
Managing personal finances	20%	23%	25%	32%	14%	27%	10%	27%
Engaging in military conflict	11%	22%	22%	30%	13%	27%	13%	25%
Directing air traffic	16%	32%	22%	34%	13%	25%	9%	26%
Performing medical tasks	9%	29%	22%	32%	14%	23%	12%	28%
Operating vehicles (i.e. driving a car or bus)	14%	37%	25%	31%	10%	29%	7%	30%
Answering 911 calls	15%	20%	21%	30%	9%	21%	8%	23%
Writing news stories	14%	20%	20%	30%	11%	19%	9%	17%

AGENDA

AI PROS AND CONS, PREFERENCES

POSITIVE AND NEGATIVE CONSEQUENCES

RESPONSIBLE USES AND COMFORT

AI IN HEALTHCARE AND FINANCIAL SERVICES

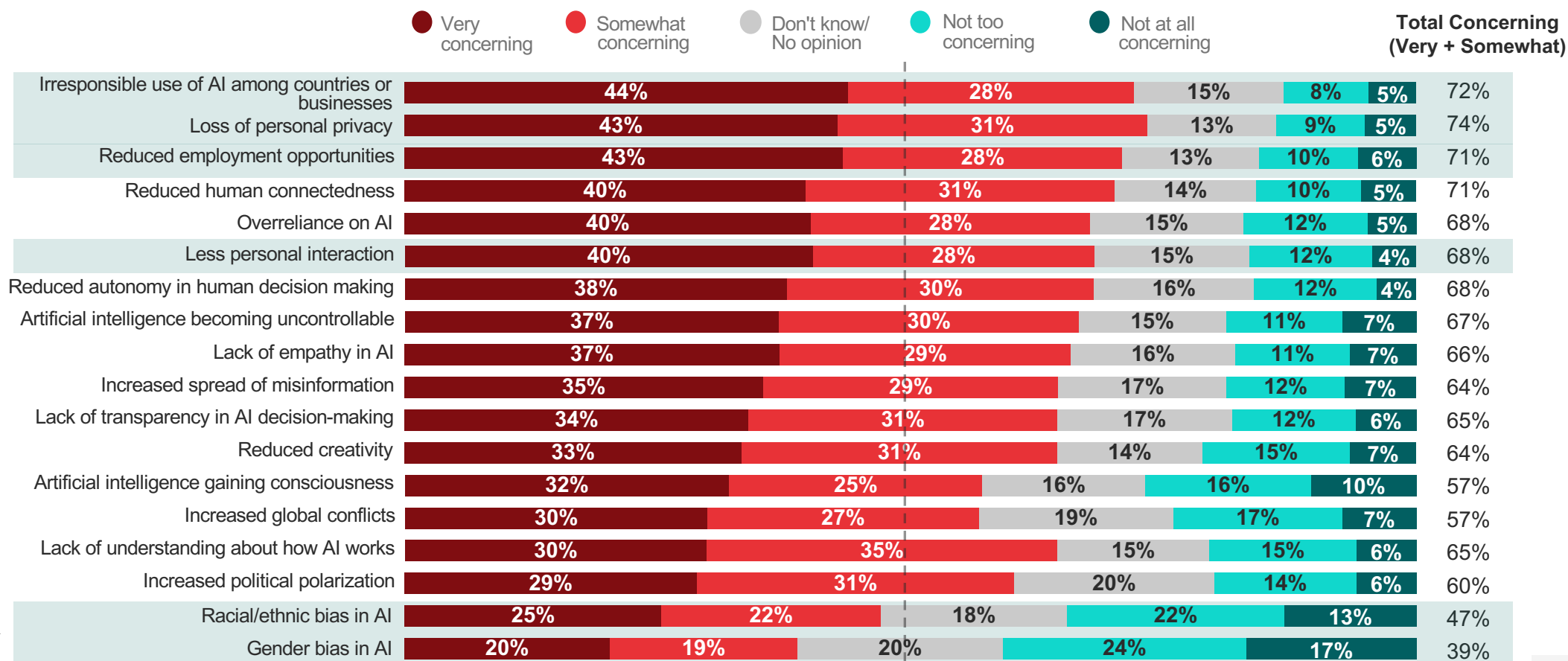
REGULATION, EDUCATION AND TRUST



POSITIVE AND NEGATIVE CONSEQUENCES

Three-in-four adults (74%) are concerned about a loss of personal privacy as a result of greater AI adoption. Adults are also concerned about countries or businesses using AI irresponsibly (72%), as well as potentially reduced employment opportunities (71%) and less personal interaction (68%).

How concerning, if at all, are each of the following potential negative consequences of greater AI adoption in everyday life?



Black (52%) and Hispanic (54%) adults are more likely than white (45%) adults to be concerned about racial/ethnic bias in AI. Additionally, women (36%) are less likely than men (43%) to be concerned about gender bias in AI.

n size for each option = between 1,054 to 1,143

50%

POSITIVE AND NEGATIVE CONSEQUENCES

Compared to other generations, GenZers are less concerned about loss of personal privacy (62%). More than two-thirds of Millennials (72%) and Baby Boomers (69%) are concerned about AI becoming uncontrollable.

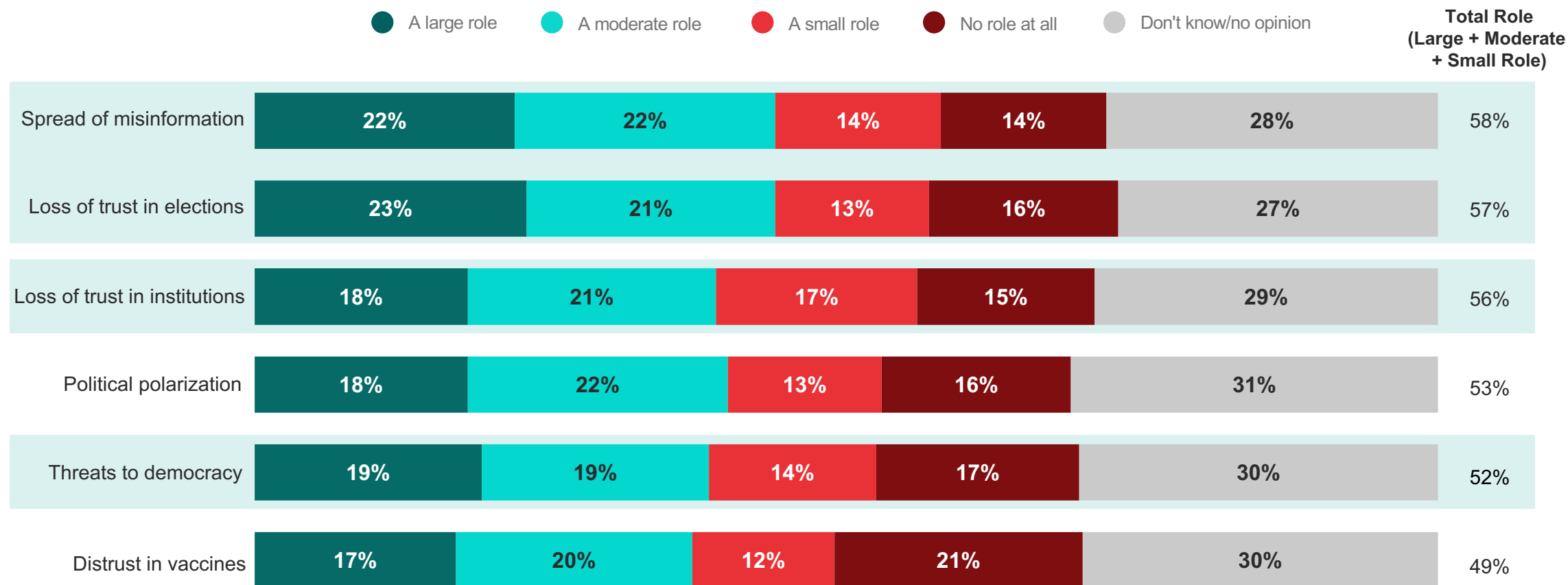
How concerning, if at all, are each of the following potential negative consequences of greater AI adoption in everyday life?

Very + Somewhat Concerning	Adults	Male	Female	GenZers	Millennials	GenXers	Baby Boomers	Blue Collar	White Collar
Loss of personal privacy	74%	75%	72%	62%	72%	70%	80%	79%	76%
Irresponsible use of AI among countries or businesses	72%	75%	70%	58%	71%	67%	79%	74%	81%
Reduced employment opportunities	71%	71%	70%	55%	71%	73%	74%	77%	75%
Reduced human connectedness	71%	70%	70%	54%	68%	70%	78%	72%	75%
Less personal interaction	68%	67%	69%	50%	64%	66%	78%	72%	76%
Overreliance on AI	68%	70%	65%	53%	68%	62%	75%	77%	74%
Reduced autonomy in human decision making	68%	72%	65%	60%	66%	66%	76%	75%	72%
Artificial intelligence becoming uncontrollable	67%	68%	65%	55%	72%	63%	69%	73%	69%
Lack of empathy in AI	66%	68%	63%	54%	65%	63%	73%	71%	69%
Lack of transparency in AI decision-making	65%	67%	62%	57%	65%	58%	70%	68%	72%
Lack of understanding about how AI works	65%	67%	61%	48%	65%	63%	70%	68%	71%
Reduced creativity	64%	69%	61%	59%	65%	59%	70%	71%	69%
Increased spread of misinformation	64%	69%	61%	61%	67%	56%	71%	69%	71%
Increased political polarization	60%	67%	54%	53%	61%	55%	64%	64%	67%
Artificial intelligence gaining consciousness	57%	60%	55%	53%	62%	53%	57%	63%	58%
Increased global conflicts	57%	60%	54%	48%	61%	57%	55%	62%	59%
Racial/ethnic bias in AI	47%	52%	43%	56%	53%	46%	40%	48%	53%
Gender bias in AI	39%	43%	36%	39%	46%	33%	34%	41%	43%

POSITIVE AND NEGATIVE CONSEQUENCES

Majorities of adults believe AI has played a large, moderate or small role in loss of trust in elections (57%) and the spread of misinformation (58%), as well as threats to democracy (52%) and loss of trust in institutions (56%).

How much of a role, if at all, has AI played in each of the following in the U.S.?



POSITIVE AND NEGATIVE CONSEQUENCES

Democrats (60%) and Republicans (57%) are nearly equally likely to believe that AI has played a role in loss of trust in U.S. elections. Democrats are more likely than Republicans to believe that AI has played a role in the spread of misinformation (64% vs. 56%) and in loss of trust in institutions (62% vs. 54%).

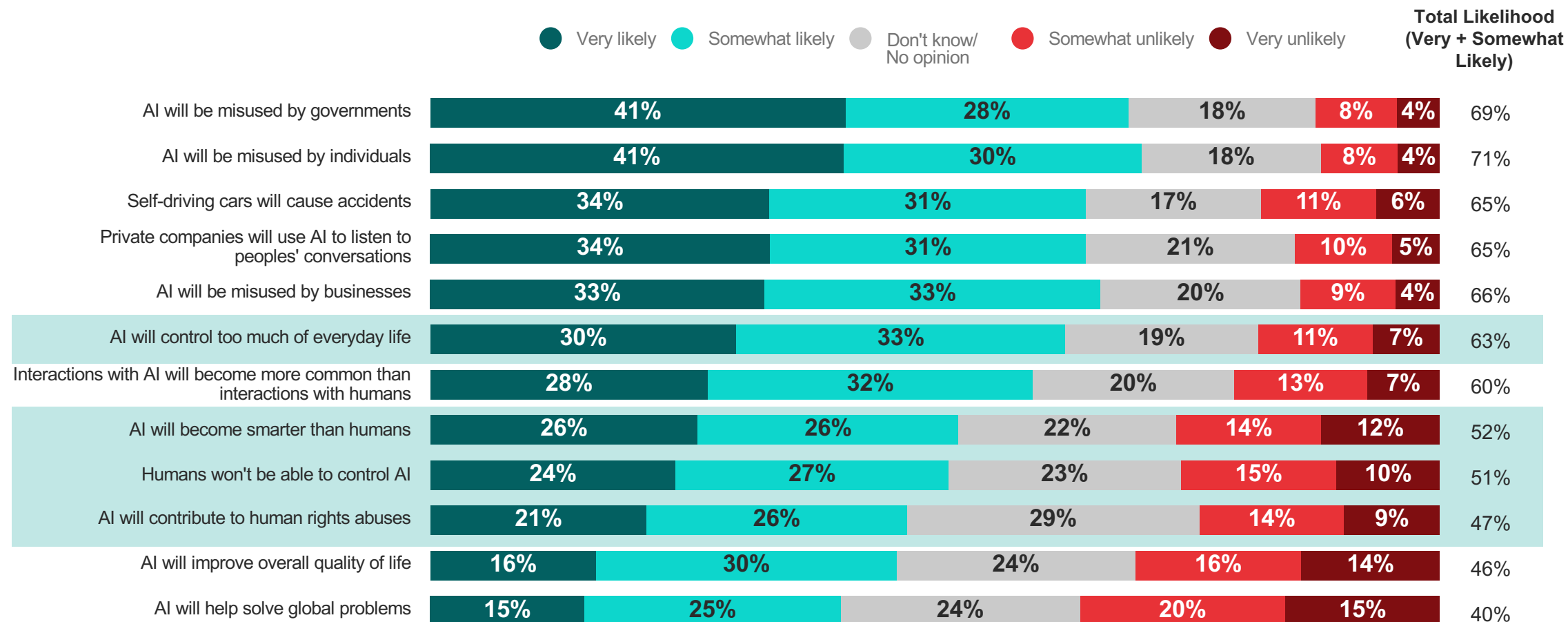
How much of a role, if at all, has AI played in each of the following in the U.S.?

Total Role (Large + Moderate + Small Role)	Adults	PID: Dem	PID: Ind	PID: Rep	GenZers	Millennials	GenXers	Baby Boomers
Spread of misinformation	58%	64%	51%	56%	62%	65%	54%	51%
Loss of trust in elections	57%	60%	51%	57%	62%	64%	51%	51%
Loss of trust in institutions	56%	62%	51%	54%	62%	65%	49%	52%
Political polarization	53%	58%	45%	50%	53%	61%	48%	48%
Threats to democracy	52%	58%	46%	53%	50%	64%	50%	47%
Distrust in vaccines	49%	56%	42%	47%	55%	58%	45%	43%

POSITIVE AND NEGATIVE CONSEQUENCES

Nearly two thirds of adults (63%) think it’s likely that AI will control too much of everyday life. Majorities also believe that AI will become smarter than humans (52%) and that humans won’t be able to control AI (51%).

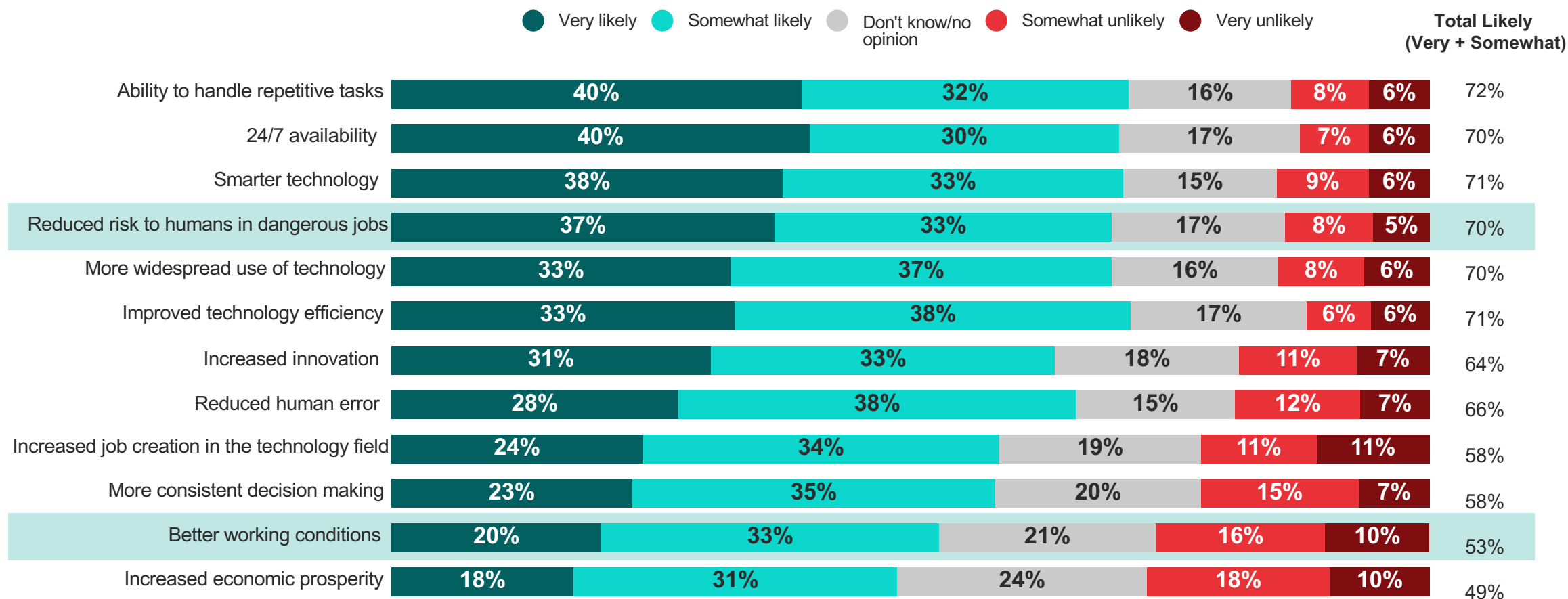
In your opinion, how likely or unlikely is it that each of the following will happen with AI?



POSITIVE AND NEGATIVE CONSEQUENCES

Over two-thirds of adults say it's likely that greater AI adoption will lead to reduced risks to humans in dangerous jobs (70%), while around half say it's likely that it will lead to better working conditions (53%).

How likely or unlikely is it that each of the following will be potential positive outcomes of greater AI adoption in everyday life?



n size for each option = between 1,055 to 1,159

POSITIVE AND NEGATIVE CONSEQUENCES

Across generations, only a majority of Millennials believe it's likely that greater AI adoption will lead to increased economic prosperity (56%). Blue-collar adults are less likely than white-collar adults to believe it will lead to better working conditions (51% vs. 61%) or increased economic prosperity (50% vs. 58%).

How likely or unlikely is it that each of the following will be potential positive outcomes of greater AI adoption in everyday life?

Total Likely (Very + Somewhat Likely)	Adults	Male	Female	GenZers	Millennials	GenXers	Baby Boomers	Blue-Collar	White-Collar
Ability to handle repetitive tasks	72%	78%	65%	57%	72%	69%	75%	74%	82%
Smarter technology	71%	78%	63%	64%	70%	67%	75%	75%	76%
Improved technology efficiency	71%	80%	63%	67%	70%	72%	72%	74%	79%
More widespread use of technology	70%	78%	61%	50%	71%	65%	78%	75%	77%
Reduced risk to humans in dangerous jobs	70%	78%	61%	68%	70%	64%	75%	68%	83%
24/7 availability	70%	77%	64%	61%	73%	60%	79%	71%	83%
Reduced human error	66%	72%	59%	58%	68%	59%	71%	68%	74%
Increased innovation	64%	71%	56%	59%	65%	64%	65%	69%	70%
Increased job creation in the technology field	58%	68%	50%	50%	67%	52%	60%	63%	67%
More consistent decision making	58%	68%	49%	52%	62%	52%	62%	63%	68%
Better working conditions	53%	62%	45%	55%	58%	50%	48%	51%	61%
Increased economic prosperity	49%	57%	41%	43%	56%	45%	46%	50%	58%

AGENDA

AI PROS AND CONS, PREFERENCES

POSITIVE AND NEGATIVE CONSEQUENCES

RESPONSIBLE USES AND COMFORT

AI IN HEALTHCARE AND FINANCIAL SERVICES

REGULATION, EDUCATION AND TRUST

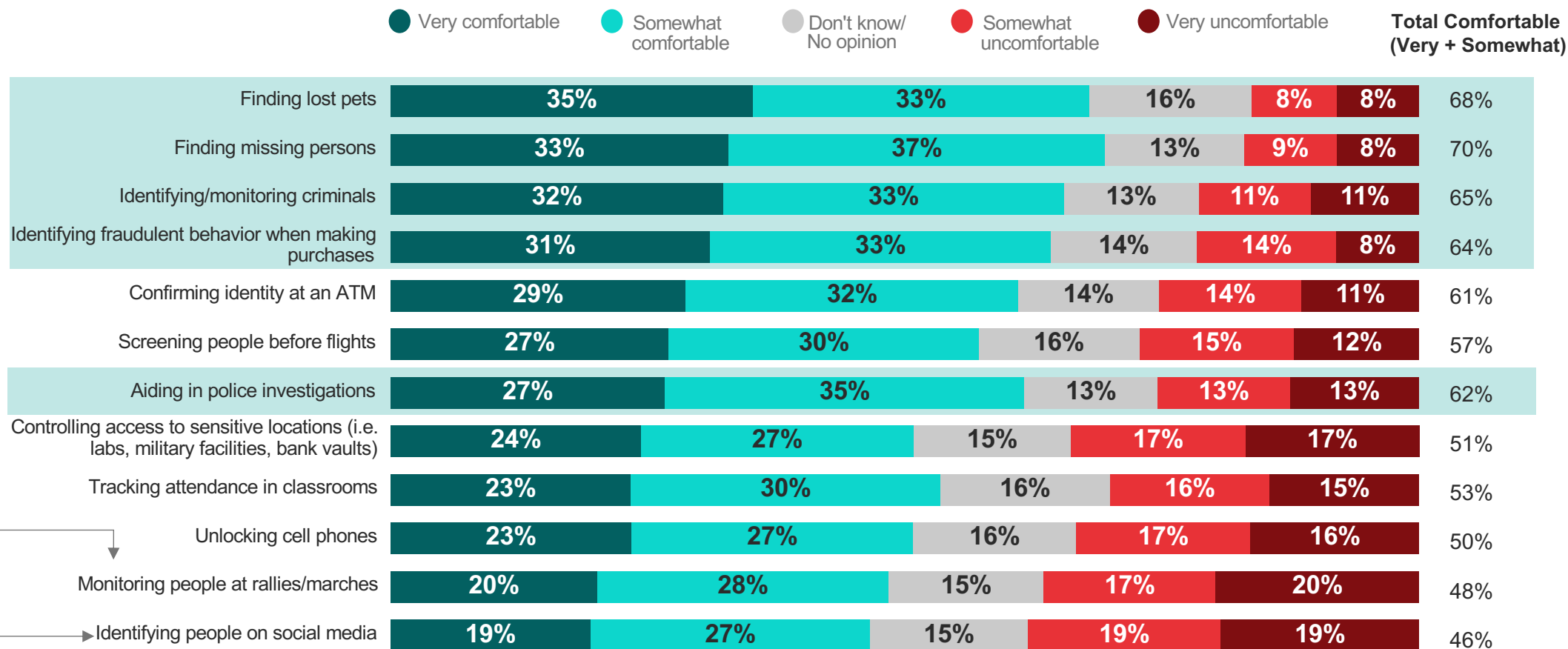


RESPONSIBLE USES AND COMFORT

Of the options tested, adults are most comfortable with using AI in facial recognition technology to find missing persons (70%) and pets (68%), along with identifying/monitoring criminals (65%), identifying fraudulent behavior when making purchases (64%), and aiding in police investigations (62%).

How comfortable or uncomfortable are you with the following uses of AI in facial recognition technology?

Democrats are **more likely than Republicans** to be comfortable with using facial recognition technology to **monitor people at rallies/marches (D: 56%, R: 42%)** and **identifying people on social media (D: 57%, R: 40%)**.

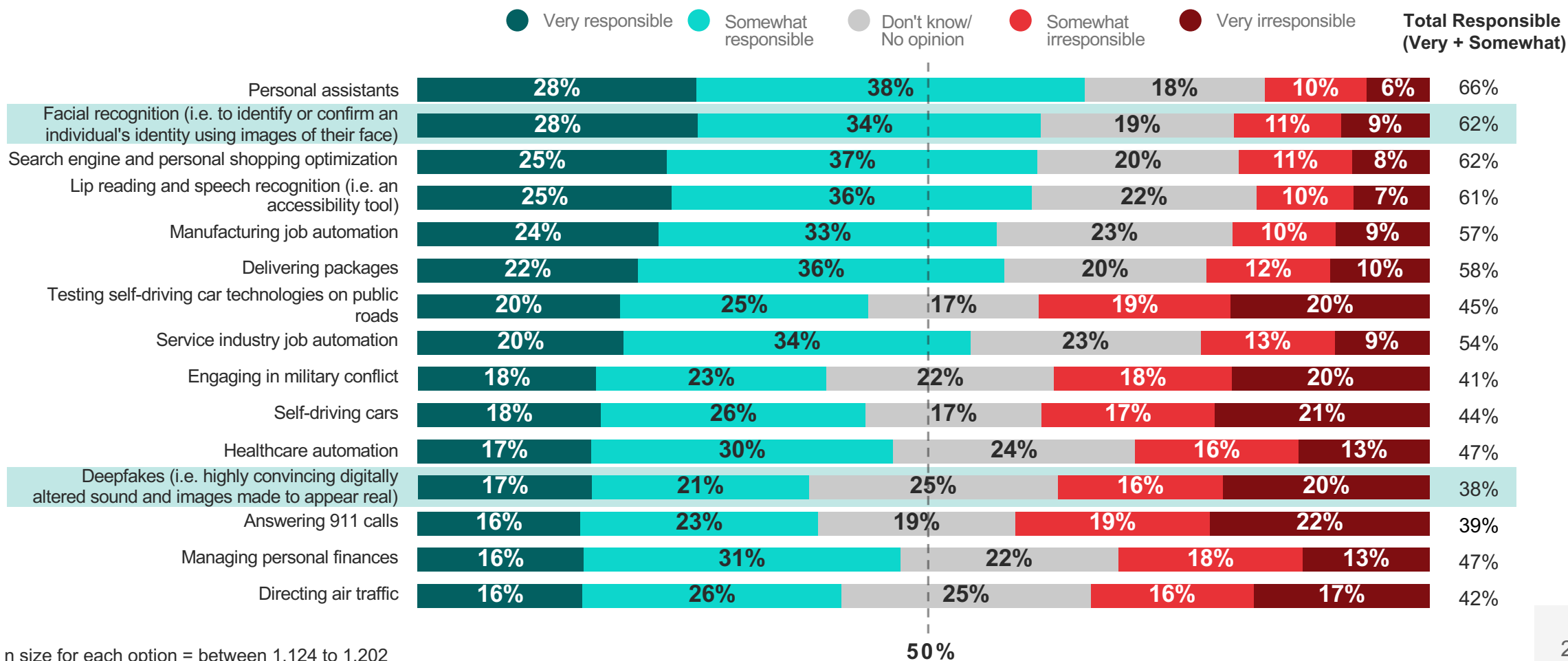


n size for each option = between 1,055 to 1,157

RESPONSIBLE USES AND COMFORT

Nearly two thirds of adults (62%) believe facial recognition technology is a responsible use of AI. Adults are more closely divided on whether using AI to create deepfakes is a responsible (38%) or irresponsible (36%) use of the technology.

How responsible or irresponsible are each of the following current or proposed uses of artificial intelligence?



RESPONSIBLE USES AND COMFORT

Millennials find all but one of the tested uses of AI responsible, with the exception engaging in military conflict (47%). Millennials are also more likely than other generations to find deepfakes a responsible use of AI (51%).

How responsible or irresponsible are each of the following current or proposed uses of artificial intelligence?

Total Responsible (Very + Somewhat Responsible)	Adults	Male	Female	GenZers	Millennials	GenXers	Baby Boomers	Blue-Collar	White-Collar
Personal assistants (i.e Apple's Siri, Amazon's Alexa, customer service voice and online chat systems)	66%	69%	63%	61%	71%	63%	66%	67%	75%
Facial recognition (i.e. to identify or confirm an individual's identity using images of their face)	62%	67%	57%	58%	63%	60%	64%	62%	74%
Search engine and personal shopping optimization	62%	69%	54%	49%	65%	64%	62%	65%	71%
Lip reading and speech recognition (i.e. an accessibility tool)	61%	68%	53%	55%	64%	57%	62%	62%	70%
Delivering packages	58%	65%	51%	56%	63%	49%	60%	57%	70%
Manufacturing job automation	57%	67%	48%	43%	59%	52%	64%	58%	71%
Service industry job automation	54%	63%	47%	41%	58%	51%	58%	51%	71%
Healthcare automation	47%	54%	41%	45%	54%	40%	48%	45%	57%
Managing personal finances	47%	57%	39%	46%	56%	47%	41%	47%	59%
Testing self-driving car technologies on public roads	45%	53%	37%	45%	51%	42%	39%	40%	59%
Self-driving cars	44%	57%	33%	50%	55%	40%	37%	40%	58%
Directing air traffic	42%	50%	35%	45%	50%	42%	33%	39%	56%
Engaging in military conflict	41%	46%	34%	29%	47%	40%	38%	41%	50%
Answering 911 calls	39%	47%	32%	30%	52%	37%	31%	37%	48%
Deepfakes (i.e. highly convincing digitally altered sound and images made to appear real)	38%	45%	33%	43%	51%	35%	29%	36%	45%

n size for each option = between 1,124 to 1,202

AGENDA

AI PROS AND CONS, PREFERENCES

POSITIVE AND NEGATIVE CONSEQUENCES

RESPONSIBLE USES AND COMFORT

AI IN HEALTHCARE AND FINANCIAL SERVICES

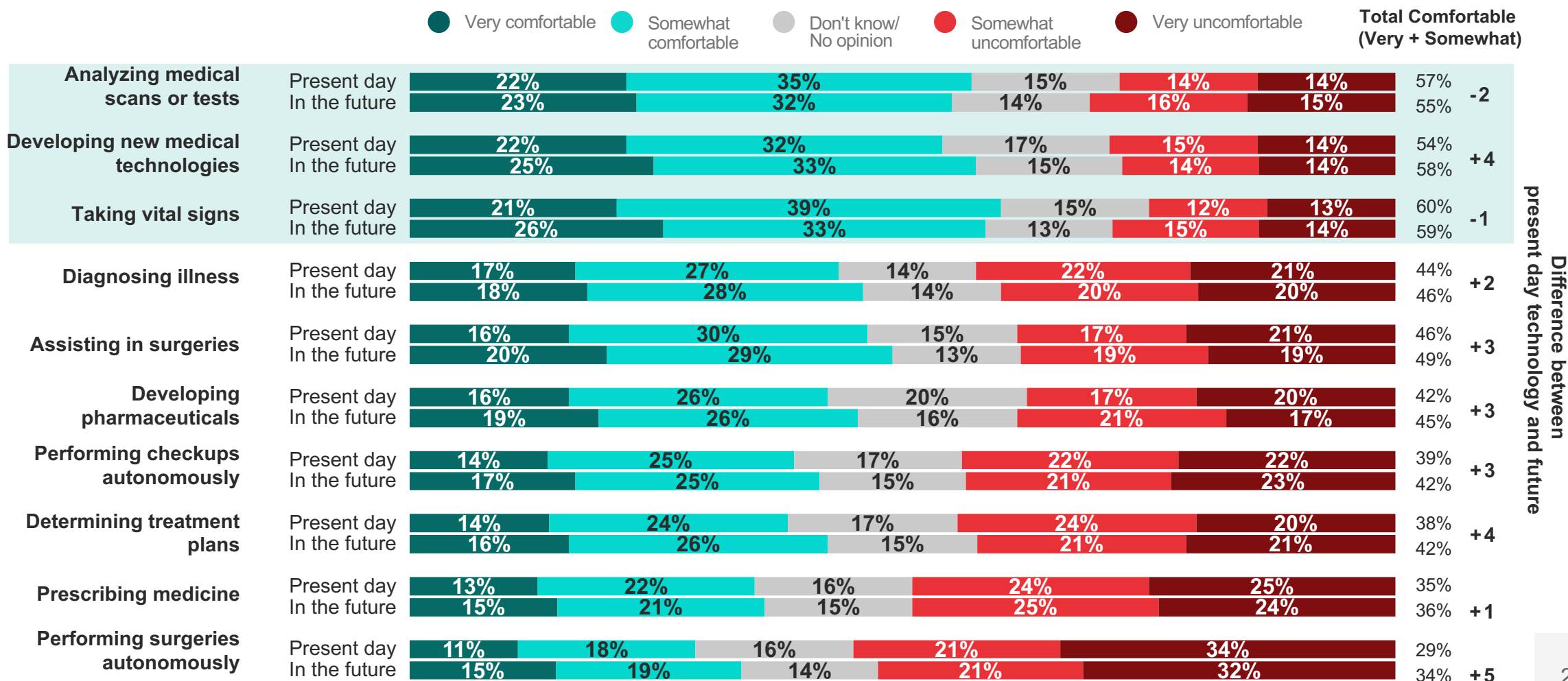
REGULATION, EDUCATION AND TRUST



AI IN HEALTHCARE AND FINANCIAL SERVICES

Majorities of adults are currently comfortable with AI analyzing medical scans/tests (57%), developing new medical technologies (54%), and taking vital signs (60%).

Thinking specifically about the following uses of AI in the health care and medical fields, how comfortable or uncomfortable are you with artificial intelligence doing each of the following **with present day technology/in the future**?

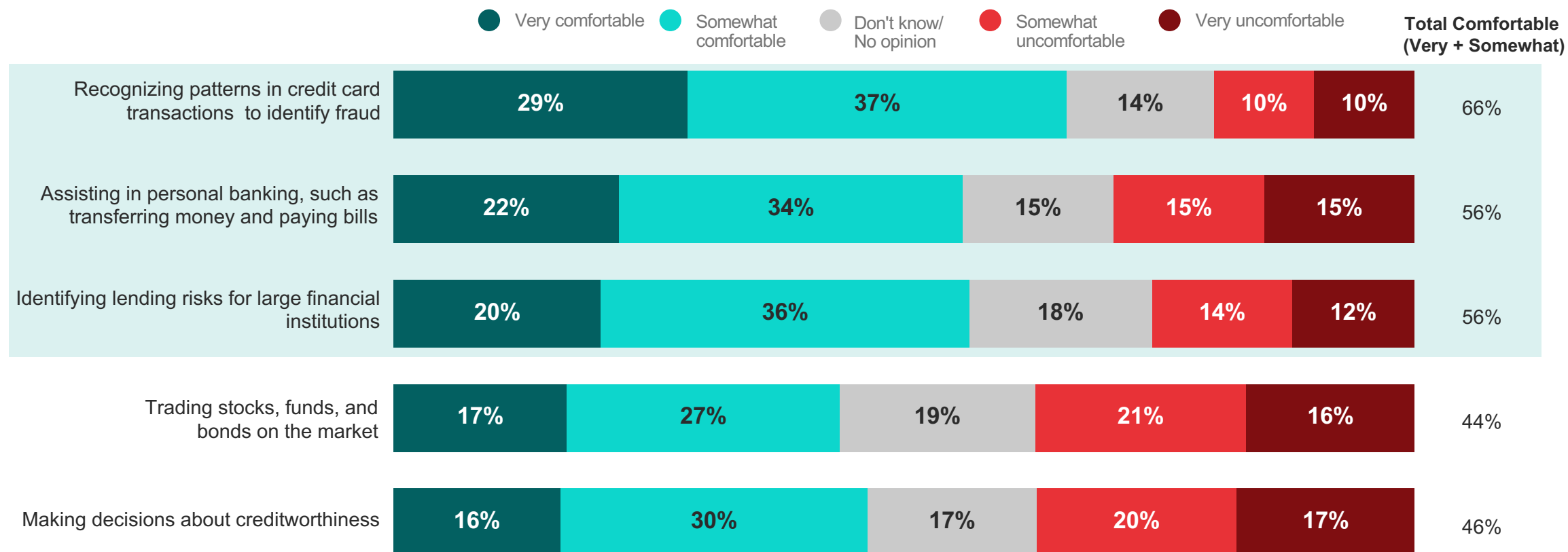


Difference between present day technology and future

AI IN HEALTHCARE AND FINANCIAL SERVICES

In the financial services field, majorities of adults are comfortable with AI recognizing credit card fraud (66%), assisting in personal banking (56%), and identifying lending risks for large institutions (56%).

Thinking specifically about the following uses of AI in the financial services field, how comfortable or uncomfortable are you with artificial intelligence doing each of the following?



AI IN HEALTHCARE AND FINANCIAL SERVICES

A majority of adults with less than a college degree are only comfortable with AI recognizing patterns in credit card transactions to identify fraud (60%), among the tested options. On the other hand, post-grads are largely comfortable with each of the tested options.

Thinking specifically about the following uses of AI in the financial services field, how comfortable or uncomfortable are you with artificial intelligence doing each of the following?

Total Comfortable (Very + Somewhat Comfortable)	Adults	<College	Bachelors Deg.	Post-grad	GenZers	Millennials	GenXers	Baby Boomers
Recognizing patterns in credit card transactions to identify fraud	66%	60%	77%	85%	53%	68%	63%	70%
Identifying lending risks for large financial institutions	56%	49%	68%	79%	52%	61%	53%	54%
Assisting in personal banking, such as transferring money and paying bills	56%	48%	70%	78%	53%	64%	51%	53%
Making decisions about creditworthiness	46%	40%	60%	66%	36%	57%	42%	41%
Trading stocks, funds, and bonds on the market	44%	36%	60%	64%	35%	55%	39%	39%

AGENDA

AI PROS AND CONS, PREFERENCES
POSITIVE AND NEGATIVE CONSEQUENCES
RESPONSIBLE USES AND COMFORT
AI IN HEALTHCARE AND FINANCIAL SERVICES
REGULATION, EDUCATION AND TRUST



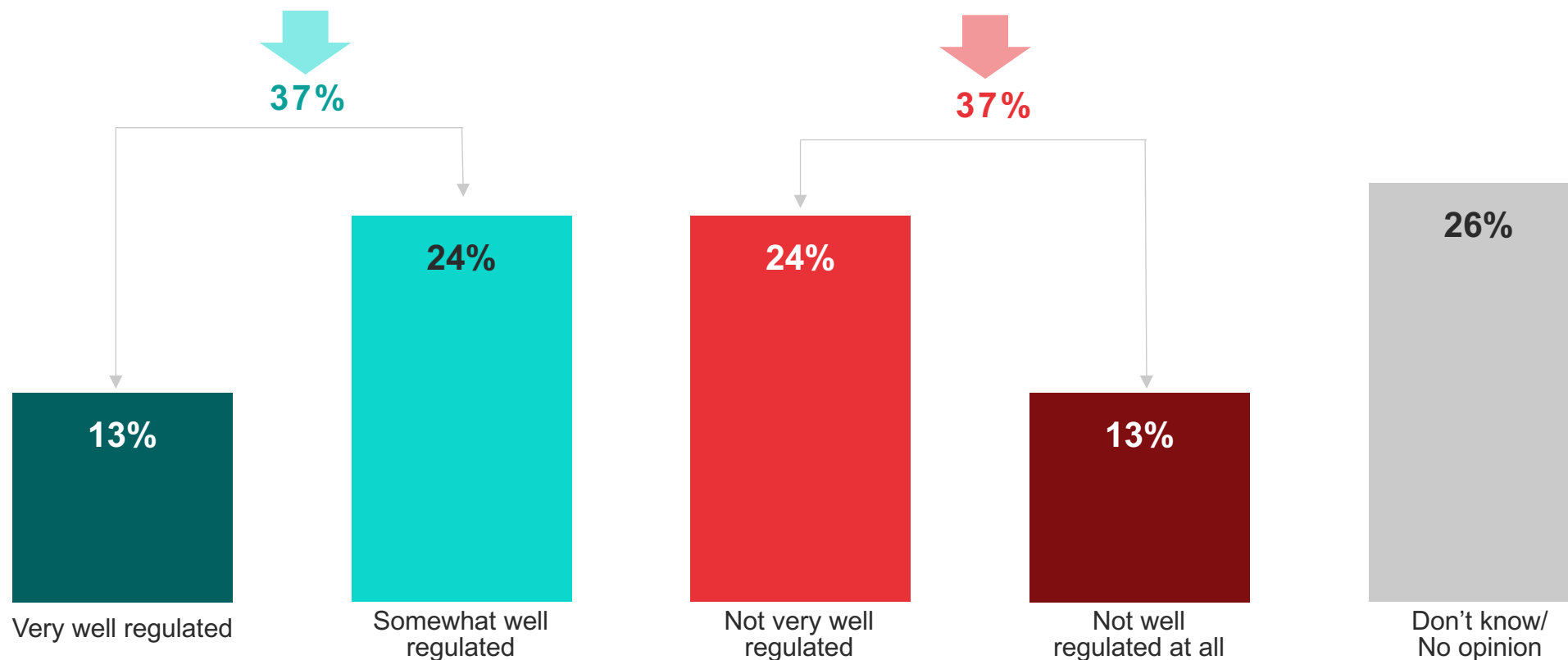
REGULATION, EDUCATION AND TRUST

Adults are evenly divided on how well-regulated AI is at the moment.

In your opinion, how well regulated is artificial intelligence at the moment?

While 49% of Democrats view AI as **well regulated**, 30% of Republicans say the same.

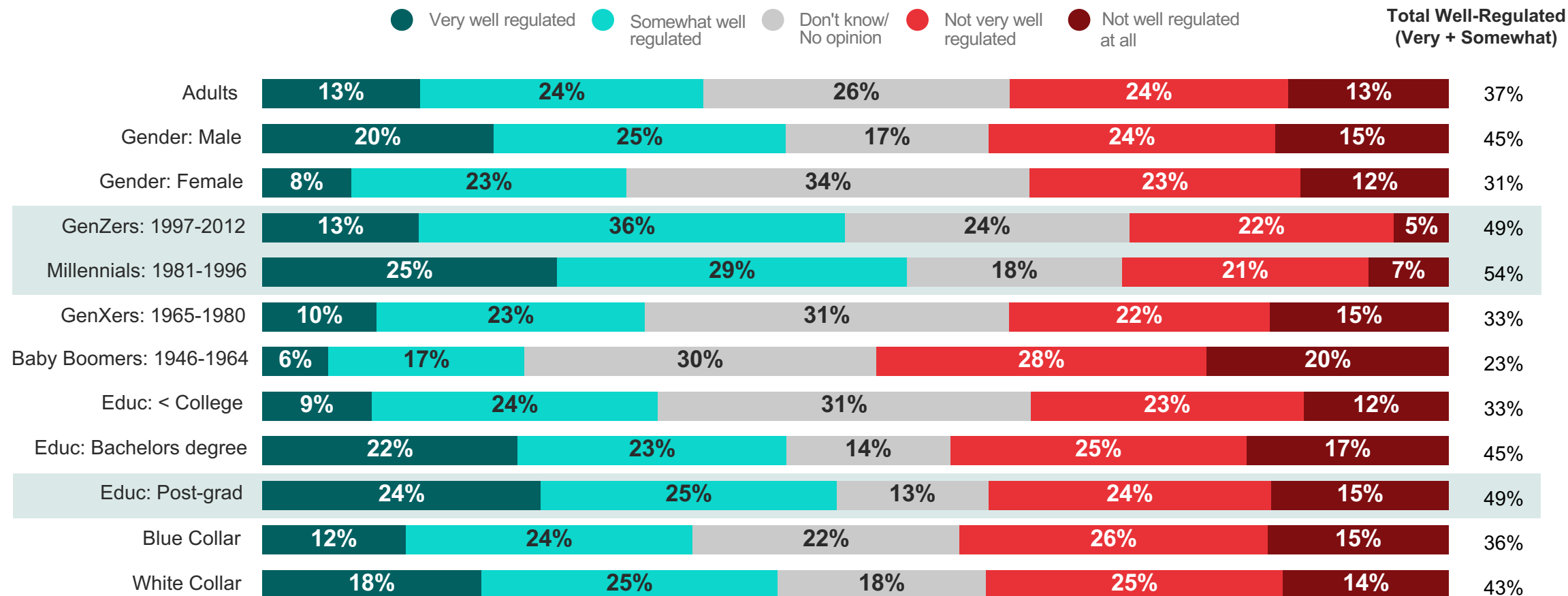
Additionally, Republicans are +10 percentage points more likely to say AI is **not well regulated** compared to Democrats (R: 41% vs. D: 31%).



REGULATION, EDUCATION AND TRUST

Around half of GenZers (49%), Millennials (54%), and adults with a post-graduate degree (49%) believe AI is well-regulated at the moment.

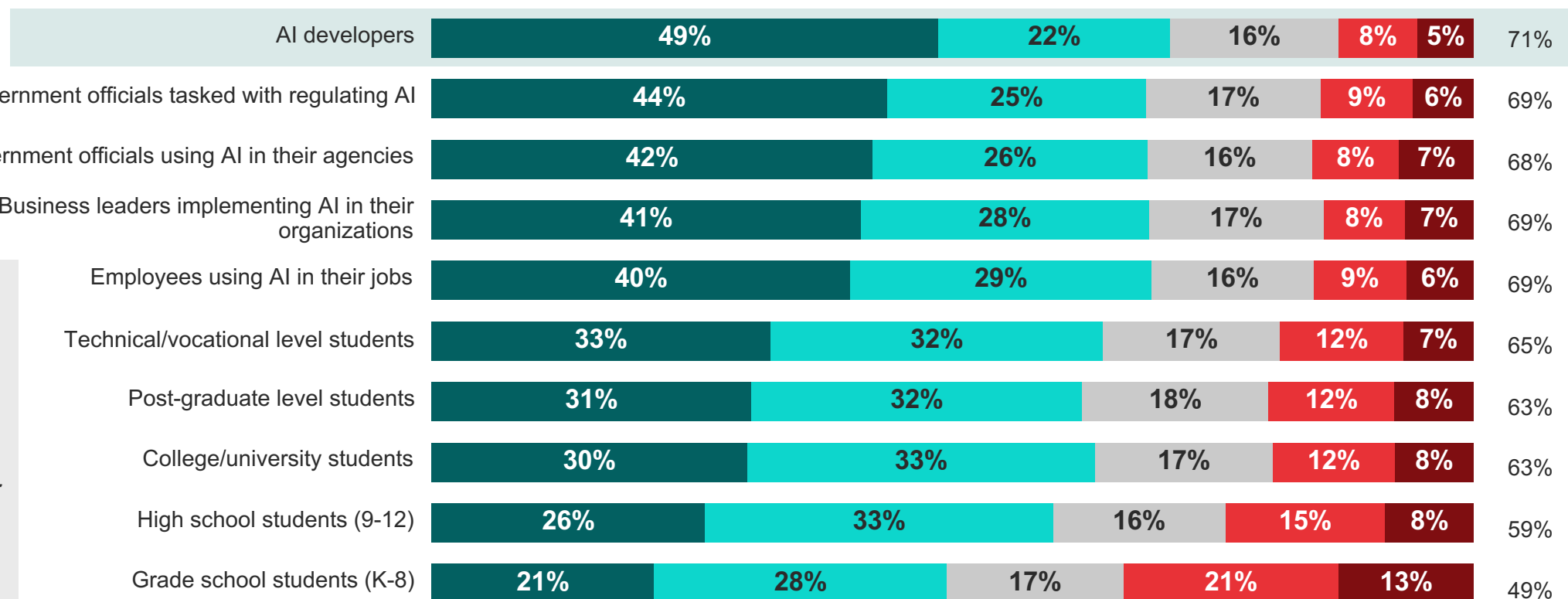
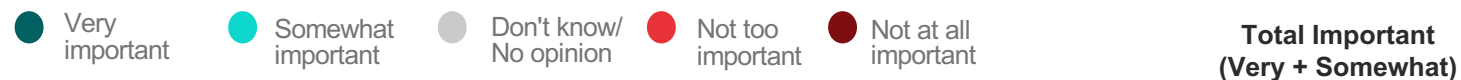
In your opinion, how well regulated is artificial intelligence at the moment?



REGULATION, EDUCATION AND TRUST

Nearly half of adults (49%) believe it's very important for AI developers to learn about the uses, limitations, and ethical considerations of AI.

In your opinion, how important is it that people at each of the following levels learn about aspects of AI, such as its uses, limitations, and ethical considerations?

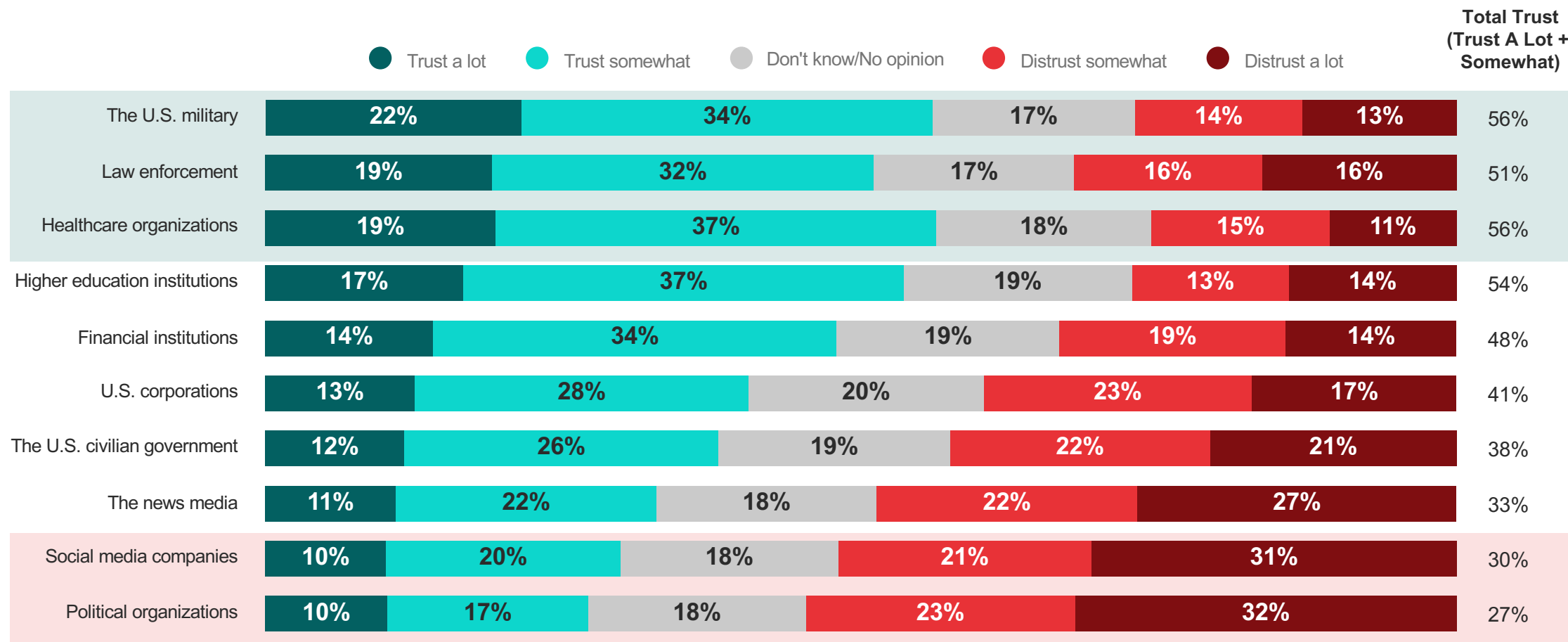


Over two thirds of liberal and conservative adults believe it's important that government officials tasked with regulating AI (L: 76%, C: 69%) as well as those using AI in their agencies (L: 76%, C: 71%) learn about its uses, limitations, and ethical considerations.

REGULATION, EDUCATION AND TRUST

Over half of adults say they don't trust social media companies (52%) and political organizations (55%) to use AI responsibly, while trust is highest in the U.S. military (56%), law enforcement (51%), and healthcare organizations (56%), among the tested options.

How much do you trust or distrust each of the following to use AI responsibly?



REGULATION, EDUCATION AND TRUST

Trust in the U.S. military (40%), law enforcement (36%), and financial institutions (35%) to use AI responsibly is lower among GenZers compared to other generations.

How much do you trust or distrust each of the following to use AI responsibly?

Total Trust (Trust A lot + Somewhat)	Adults	PID: Dem	PID: Ind	PID: Rep	GenZers	Millennials	GenXers	Baby Boomers
Healthcare organizations	56%	67%	47%	50%	51%	60%	47%	60%
The U.S. military	56%	61%	44%	60%	40%	56%	52%	63%
Higher education institutions	54%	68%	43%	43%	51%	58%	50%	53%
Law enforcement	51%	53%	42%	59%	36%	51%	45%	59%
Financial institutions	48%	59%	35%	45%	35%	55%	43%	48%
U.S. corporations	41%	51%	28%	38%	32%	49%	35%	39%
The U.S. civilian government	38%	52%	27%	28%	36%	44%	34%	36%
The news media	33%	50%	21%	19%	31%	41%	31%	26%
Social media companies	30%	41%	20%	24%	33%	47%	23%	18%
Political organizations	27%	40%	15%	19%	24%	42%	23%	17%



MORNING CONSULT[®]