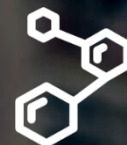**3M** Science.
Applied to Life.™

State of Science Index 2022
Global Report

3M State
of Science
Index

Science Matters

3M State of Science Index Manifesto

Science matters to 3M because it is how we solve the world's greatest challenges to transform businesses, improve lives and make our world a better place. In tandem with our principles, science enables us to lead societal change - to make the world safer, healthier, greener and brighter.
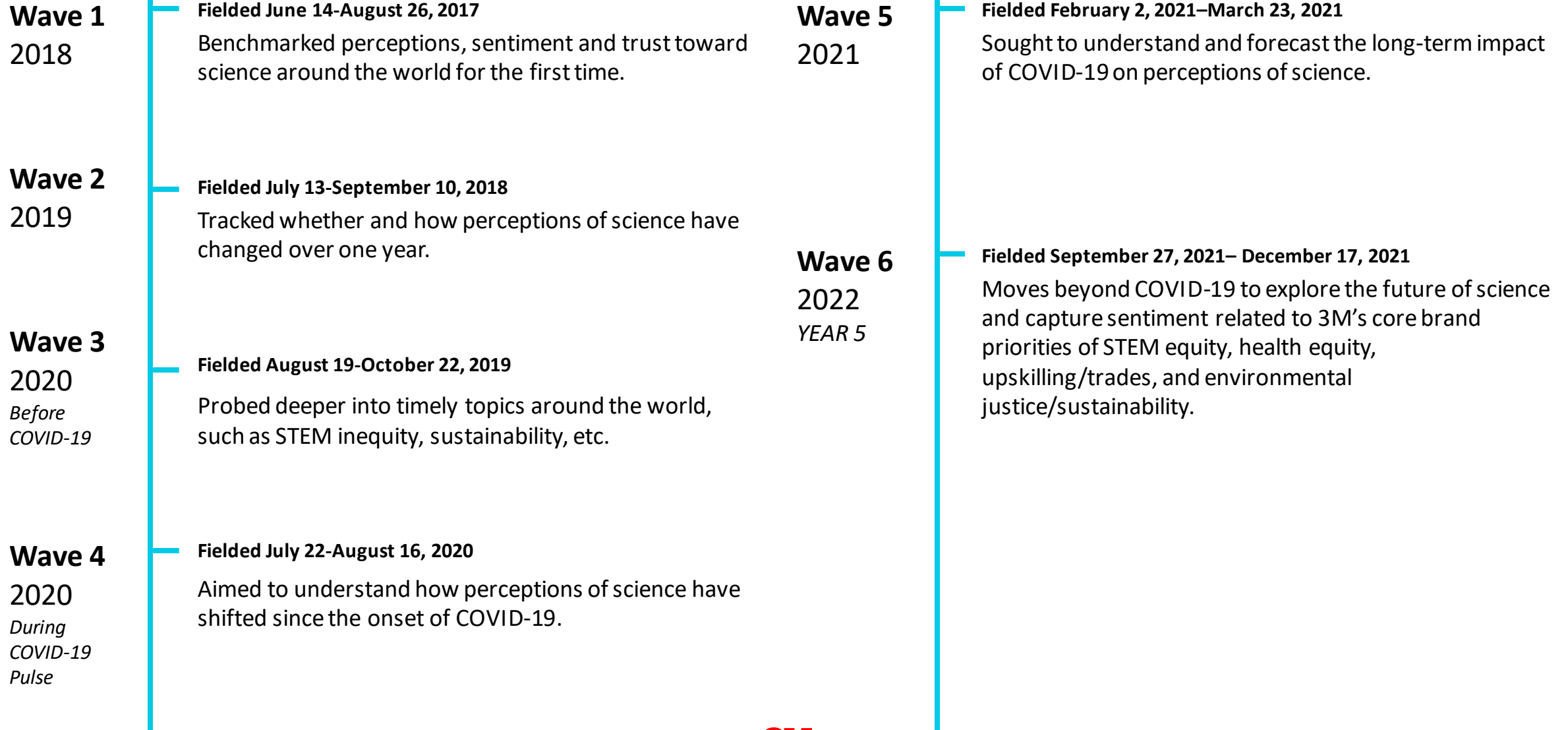
Science matters to society because exponential population growth will bring future challenges that only science can solve.

Science *should* matter to people because our daily lives and future quality of life depend on it. But *does* it?

Since 2018, we have tracked how the world values science through the proprietary 3M State of Science Index (SOSI) - a global, original research survey to explore the image of science. Insights from the study power 3M's science advocacy efforts around the world.

Evolution of the State of Science Index

Wave 1
2018

Fielded June 14-August 26, 2017
Benchmarked perceptions, sentiment and trust toward science around the world for the first time.

Wave 2
2019

Fielded July 13-September 10, 2018
Tracked whether and how perceptions of science have changed over one year.

Wave 3
2020
Before COVID-19

Fielded August 19-October 22, 2019
Probed deeper into timely topics around the world, such as STEM inequity, sustainability, etc.

Wave 4
2020
During COVID-19 Pulse

Fielded July 22-August 16, 2020
Aimed to understand how perceptions of science have shifted since the onset of COVID-19.

Wave 5
2021

Fielded February 2, 2021–March 23, 2021
Sought to understand and forecast the long-term impact of COVID-19 on perceptions of science.

Wave 6
2022
YEAR 5

Fielded September 27, 2021– December 17, 2021
Moves beyond COVID-19 to explore the future of science and capture sentiment related to 3M's core brand priorities of STEM equity, health equity, upskilling/trades, and environmental justice/sustainability.

Who and where we're surveying in 2022

Who?

1,000 General Population respondents per country

about 10% of respondents are considered Opinion Leaders

NEW in 2022 – Expanded US sample to analyze the results across the following key segments in a more granular way:

- ✓ Oversample of Gen Z (16-24) in the US
- ✓ Oversample of Black/African Americans and Hispanic Americans in the US

Where?

17 Countries:

✓ US	✓ Mexico	✓ France
✓ Canada	✓ Japan	✓ UAE
✓ UK	✓ Singapore	✓ Italy
✓ Germany	✓ South Korea	✓ Colombia
✓ Poland	✓ China	✓ Australia
✓ Brazil	✓ India	

* When comparisons across previous waves of data are made, the 10-country tracking average is used, rather than the 17-Country average. This average is made up of all countries we have consistently surveyed across all five waves (Brazil, Canada, China, Germany, Japan, Mexico, Poland, Singapore, UK, US)

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Additional survey methodology details

Survey methodology & timing	**20-minute survey, combination offline and online interviewing*** • Fielding/interviewing completed September 27, 2021–December 17, 2021 • Data processing, quality control checking, and weighting completed December 18, 2021-January 10, 2022
2022 Global	**17-country average** • All data that that is not tracking, and that we are not comparing with previous waves, is represented by the 17-country global average.
Global trends: 2018 – 2022 (6 waves)	**10-country tracking average** • When comparisons across previous waves of data are made, the 10-country tracking average is used, rather than the 17-country average. This average is made up of all countries we have consistently surveyed across all six waves.**
Margin of error	**At the 95% confidence level** • 17-country average: +/- 0.8 percentage points • 10-country average: +/- 1.0 percentage points • Each individual country: +/- 3.10 percentage points
Data in this report	**Unless otherwise noted, all data in this report is from the 2022 survey.**
Science was defined as:	**Science is the process of pursuing knowledge about the world and how things in the world work through logically gathering, observing, experimenting and applying truths on a particular subject.**

* Slight weighting was done on demographics for each country to achieve better national representation and ensure sample is consistent year over year.

**Changes made to countries surveyed over waves: From wave 1 to wave 2, two countries were removed (France and Spain) and replaced with Saudi Arabia and South Korea. From wave 3 to 4, South Africa and India were not included, and UAE was added. From wave 4 to 5, Spain was replaced with France and Colombia, Australia and Italy were added for the first time.

Setting the scene

We have entered a point in time in which living with a global pandemic represents the world's 'new' normal. As we acclimated to this new normal, did our new-found trust in science (driven by the pandemic) continue to thrive? Or did pandemic fatigue set in and return us to a state of indifference?

Appreciation for science did continue in 2022 - and its impact on our lives remains palpable, highly relevant and deeply personal. Mutations such as Delta and Omicron likely serve as a reminder of our dependence on science to go about our everyday lives. But the spotlight on science has shifted with the arrival of a new theme in 2022 – and one that may pose the biggest threat we have seen to the image of science: Misinformation.

This issue is all-the-more important because people increasingly recognize the intersection between science and social impact as they look to science to solve problems beyond the pandemic, such as health equity, STEM equity and sustainability.

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Our global themes for 2022:

Image of science

High trust in science holds steady, but misinformation threatens scientific credibility

STEM equity	Upskilling and trade skills	Sustainability	Health equity	Future technology
There is significant work to be done to improve diversity and inclusion in STEM.	**Skilled trades have an image problem –people do not see career growth.**	**Climate change is personal–many fear displacement as a result of extreme weather.**	**Improving access to quality healthcare is a top priority for science.**	**Innovation and transparency will drive science appreciation in the future.**
While people claim diversity in science is important, their views on representation in science for gender, POC and LGBTQ+ do not align.	Employers have a responsibility to offer upskilling opportunities, especially in digital skills, to promote career advancement.	Expectations are high – science, corporations and communities all need to be a part of building a sustainable future.	Addressing the social drivers of health will help to close inequitable gaps within care.	Artificial intelligence, while considered exciting, also sparks concerns in many people. Demonstrating ethical and transparent use of new technologies will be crucial to maintain trust.

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Image of science

Scientists are still trusted, and people want to hear more from them

Trust in science and scientists
Completely/somewhat agree

— I trust Science   — I trust Scientists
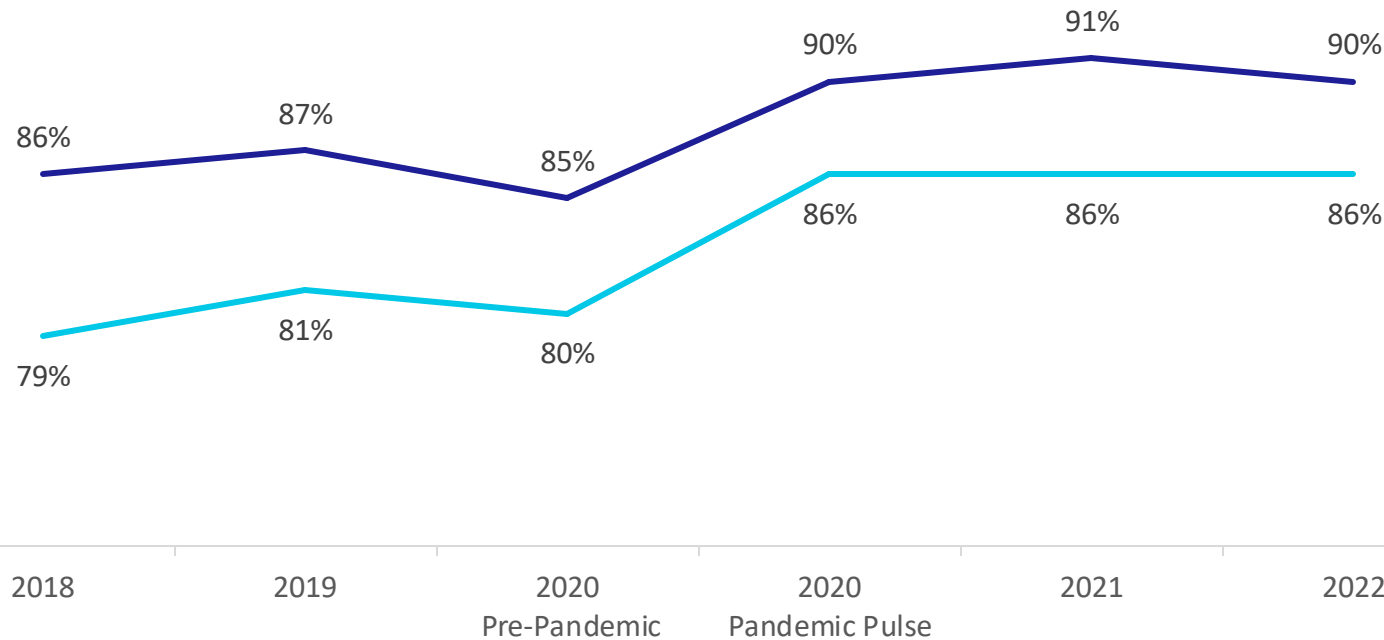
Interest is high:
83%
"I want to hear more from scientists about their work"

2018 2019 2020 Pre-Pandemic 2020 Pandemic Pulse 2021 2022

I trust Science: 86%, 87%, 85%, 90%, 91%, 90%
I trust Scientists: 79%, 81%, 80%, 86%, 86%, 86%

Scientists are the most credible source for scientific information, followed closely by medical professionals

% who <u>believe</u> scientific information coming from each source:
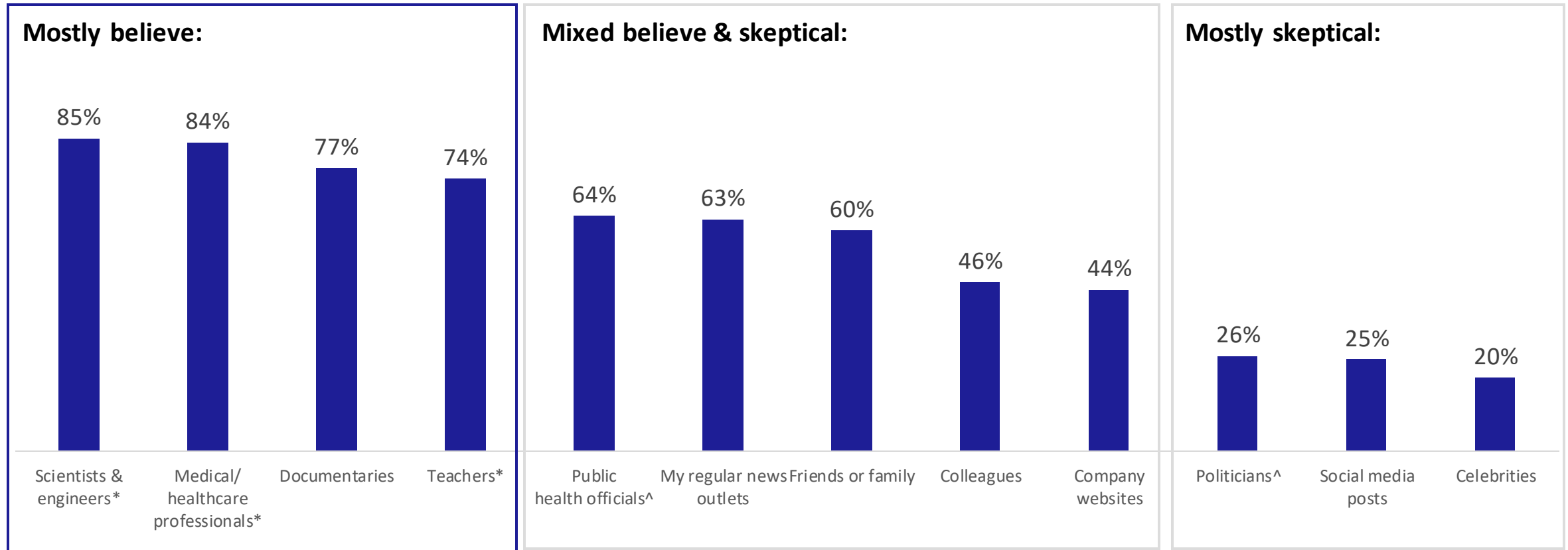
Mostly believe:

- Scientists & engineers* — 85%
- Medical/ healthcare professionals* — 84%
- Documentaries — 77%
- Teachers* — 74%

Mixed believe & skeptical:

- Public health officials^ — 64%
- My regular news outlets — 63%
- Friends or family — 60%
- Colleagues — 46%
- Company websites — 44%

Mostly skeptical:

- Politicians^ — 26%
- Social media posts — 25%
- Celebrities — 20%

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Complete trust in news stories is low across topics – but trust in stories about science leads the pack

% who <u>completely trust</u> news stories about the following topics:

Science	Sports	Health	Entertainment	Finance/Economics	Public Affairs/Policy
31%	26%	26%	17%	16%	13%

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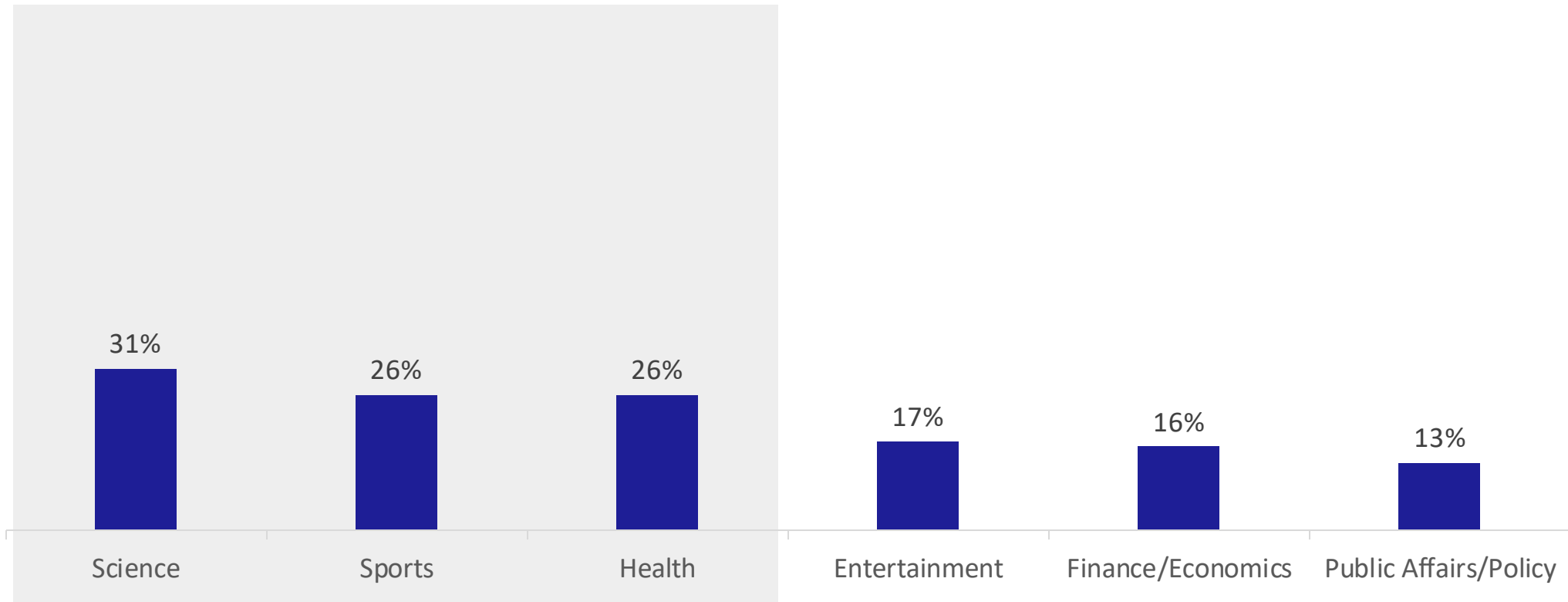
Science is more relevant to younger generations

Since 2018, the importance of science has risen 8 points. Younger generations (61% of Gen Z + Millennials) are more likely than older generations (53% of Gen X + Baby Boomers) to agree that science is very important to their everyday lives.

Science is very important to me in my everyday life
% agree

- 44% — 2018
- 42% — 2019
- 46% — 2020 Pre-Pandemic
- 55% — 2020 Pandemic Pulse
- 56% — 2021
- 52% — 2022
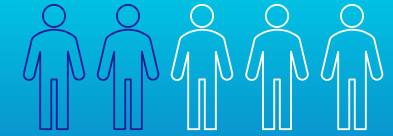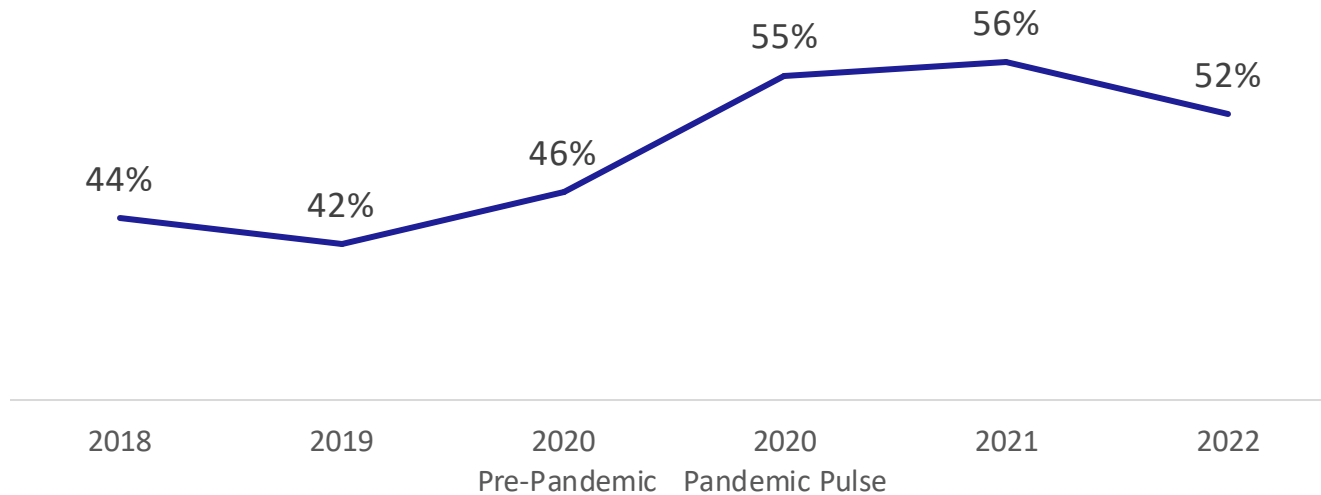
39%
of people think a lot about the impact of science in their everyday lives
vs. 31% 2020 Pre-Pandemic

⬆ **8 pts**

Q1. Thinking about the present-day, how important do you feel science is to you in your everyday life? - Very important Summary - Base= 2022 10-Country Tracking Average (10,127) Fielded Sept-Dec 2021; 2021 10-Country Tracking Average (10,045) Fielded Feb-Mar 2021; 2020 Pandemic Pulse 10-Country Tracking Average (10,081) Fielded Jul-Aug 2020; 2020 Pre-Pandemic 10-Country Tracking Average (10,071) Fielded Aug-Oct 2019; 2019 10-Country Tracking Average (10,015) Fielded Jul-Sep 2018; 2018 10-Country Tracking Average (10,026) Fielded Jun-Aug 2017
Q3. How much do you think about the impact of science in your everyday life? Base= 2022 10-Country Tracking Average (10,127) Fielded Sept-Dec 2021; 2020 Pre-Pandemic 10-Country Tracking Average (10,071) Fielded Aug-Oct 2019

We continue to fiercely stand-up for science today
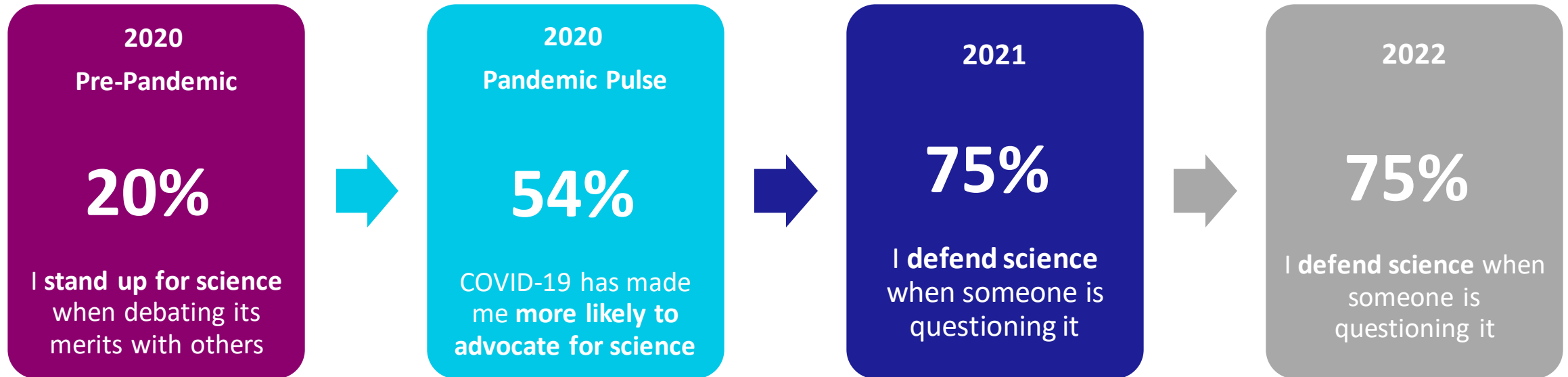
2020
Pre-Pandemic

20%

I **stand up for science** when debating its merits with others

2020
Pandemic Pulse

54%

COVID-19 has made me **more likely to advocate for science**

2021

75%

I **defend science** when someone is questioning it

2022

75%

I **defend science** when someone is questioning it

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Science skepticism rose slightly in 2022
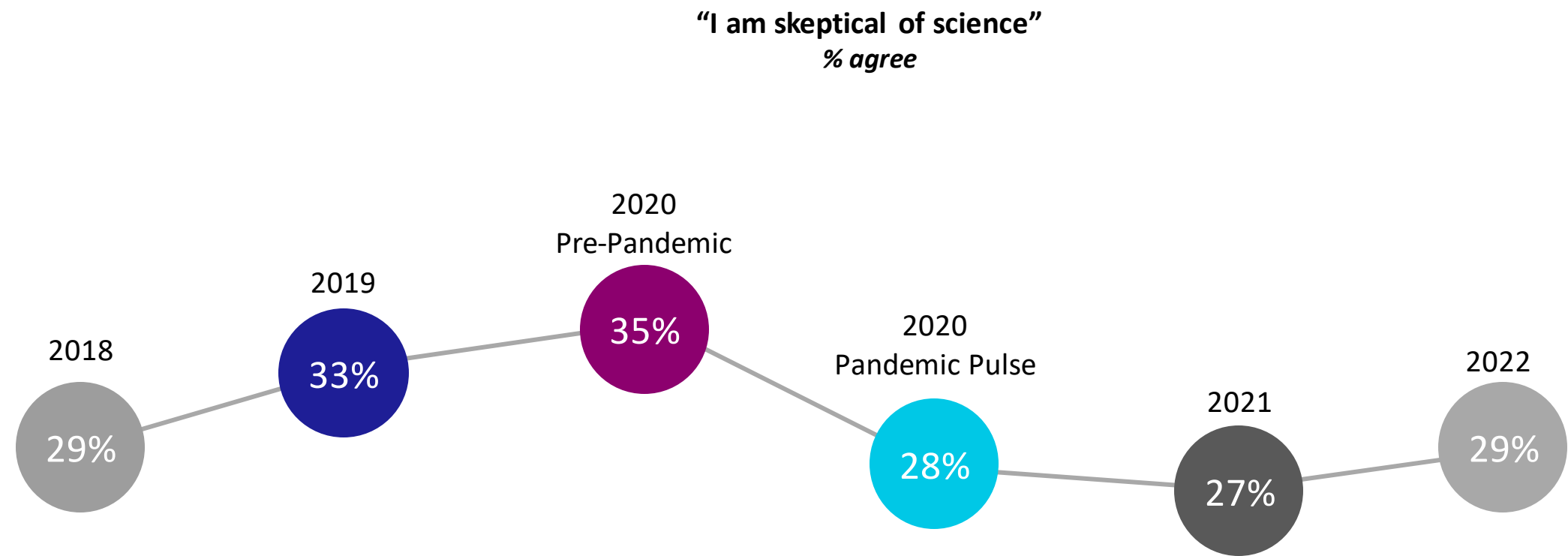
"I am skeptical of science"
% agree

2018 — 29%
2019 — 33%
2020 Pre-Pandemic — 35%
2020 Pandemic Pulse — 28%
2021 — 27%
2022 — 29%

14

Misinformation and disinformation are pervasive, regardless of platform or subject

85%

agree there is widespread misinformation* in **social media** today

and

72%

agree there is widespread misinformation* in **traditional news** today

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Platform matters: people do not trust science facts on social media as much as on traditional media
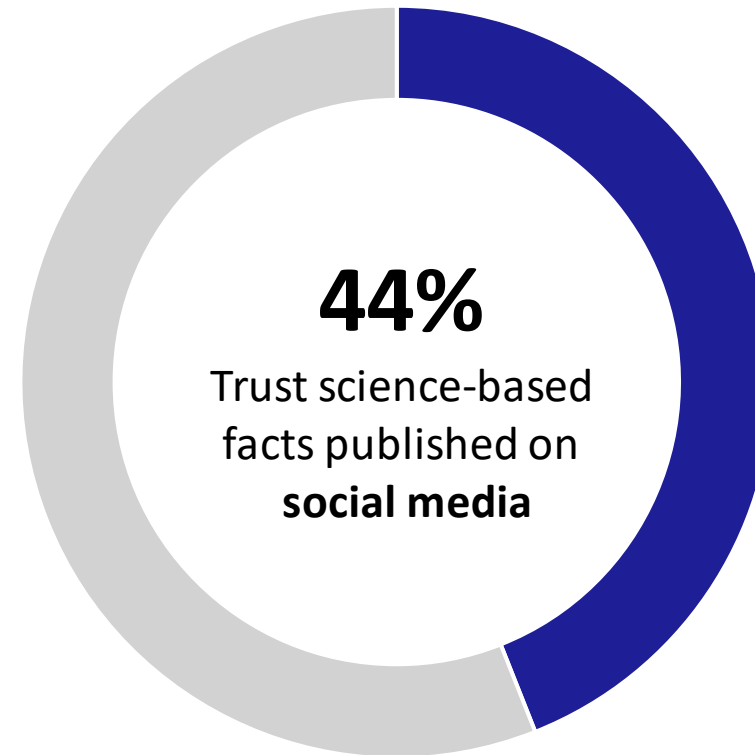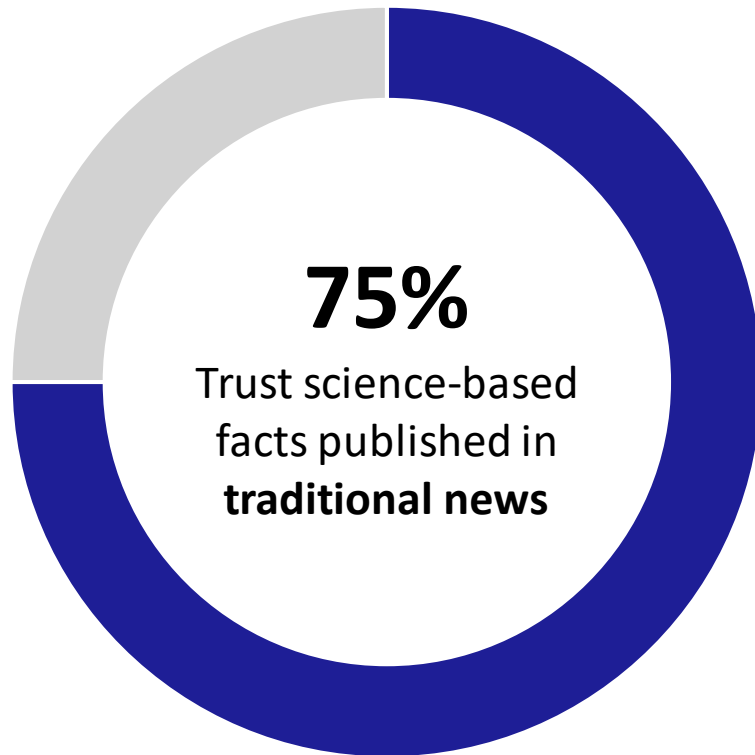
75%
Trust science-based facts published in **traditional news**

44%
Trust science-based facts published on **social media**

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Perception of science as being divisive for people with opposing views is a growing trend

Science **unifies** people with opposing views   Vs.   Science **divides** people with opposing views

2022 — 61% | 39%

- 6ppts   **+ 6ppts**

2021 — 67% | 33%
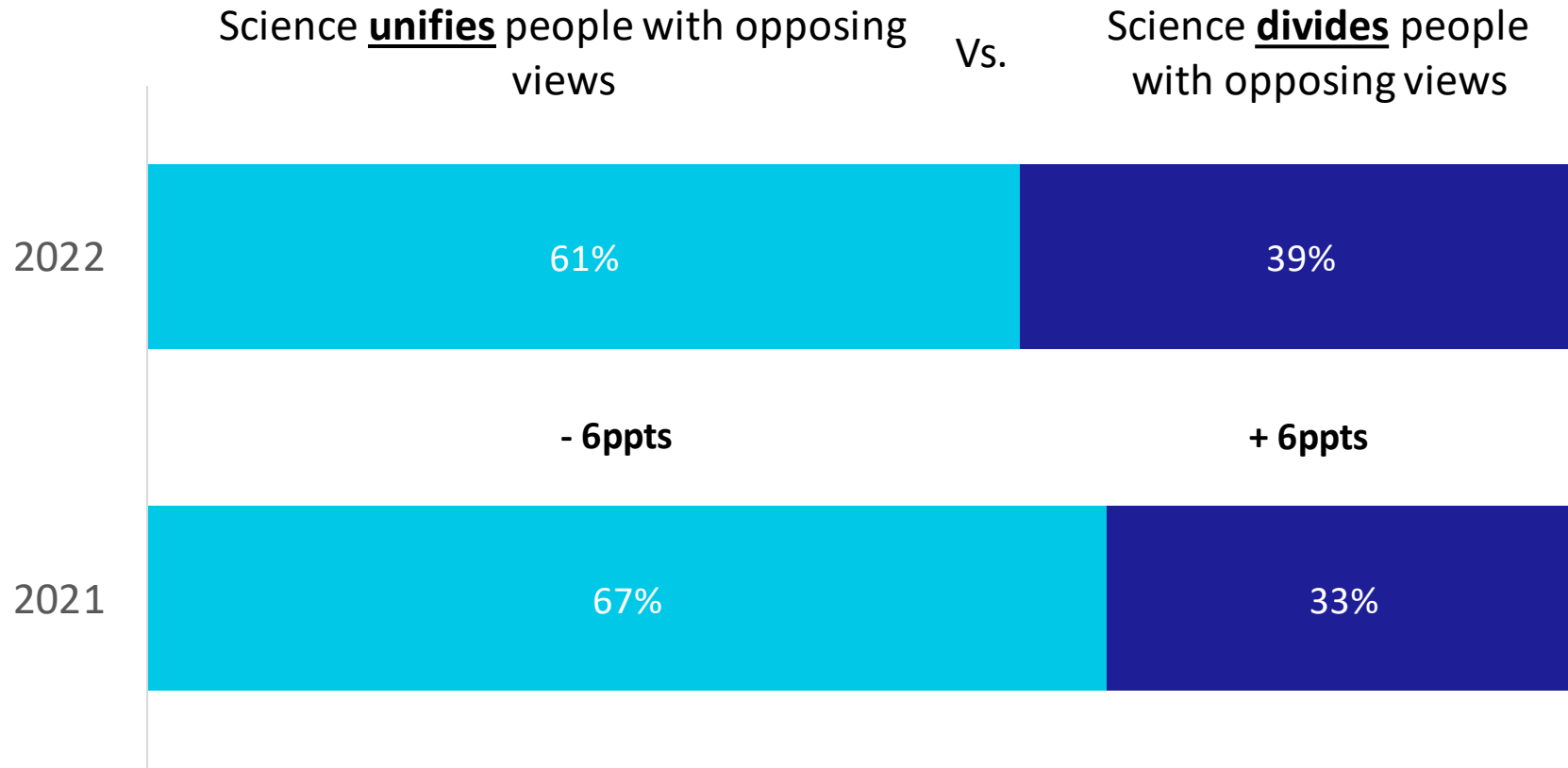
Yet, we can agree there are consequences if people do not value science or trust news about science

83%

Agree that there are **negative consequences** to society **if people do not value science**

Top 3 **consequences** if people do not trust stories about science published in the news:
(Among those who agree there are negative consequences)

61% More public health crises

57% More division within society

53% Increase in the severity of climate change effects

18

STEM
equity

3M + Ketchum
empathy + intelligence

Key challenges to pursuing a STEM education include access and affordability

Top barriers to students pursuing a STEM education
% selected

Barrier	%
Access (NET)*	76%
Inability to afford a strong STEM education	47%
Students having too many personal responsibilities to focus on a STEM education	37%
Bias/prejudice (NET)**^	33%
Nothing is standing in the way of students accessing a strong STEM education in school	16%

84%
Believe there are barriers to students pursuing a STEM education
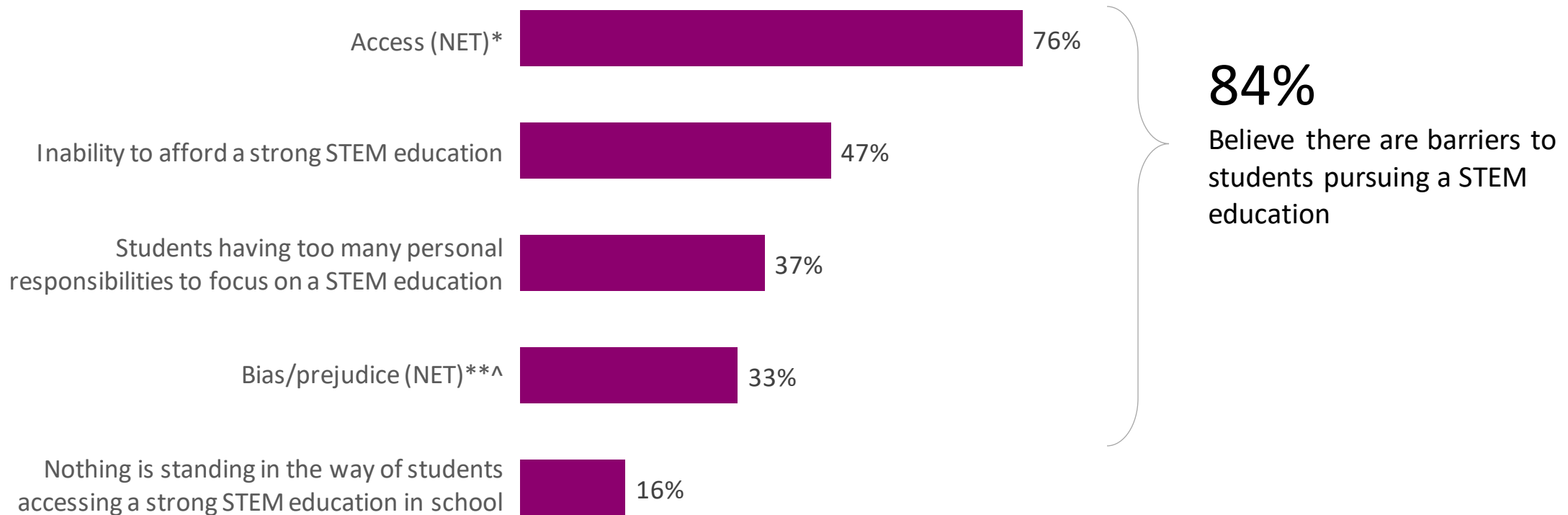
^ Not asked in UAE
* Access NET includes "Lack of STEM classes offered in school", "Not enough STEM educators/teachers" and "Lack of internet access"
** Bias/prejudice NET includes "Bias/prejudice against girls pursuing STEM" and "Bias/prejudice against ethnic/racial minorities pursuing STEM"
Q19. What do you believe are the top barriers, if any, standing in the way of students currently accessing a strong science, technology, engineering or math (STEM) education within your country? Select top three. Base= 2022 17-Country Average (17,198) Fielded Sept-Dec 2021

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Top roadblocks to a STEM career are self-doubt, bias and representation
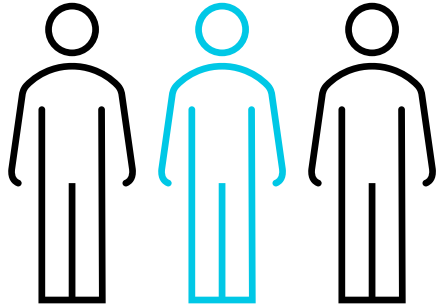
More than
1 in 3
not currently in a STEM field, have considered pursuing STEM (37%)

Following an inability to afford a STEM education (39%) and a lack of access to strong STEM classes (32%) the top barriers to pursuing a STEM career are:
(Among those who considered a STEM career, but are not currently in a STEM field)

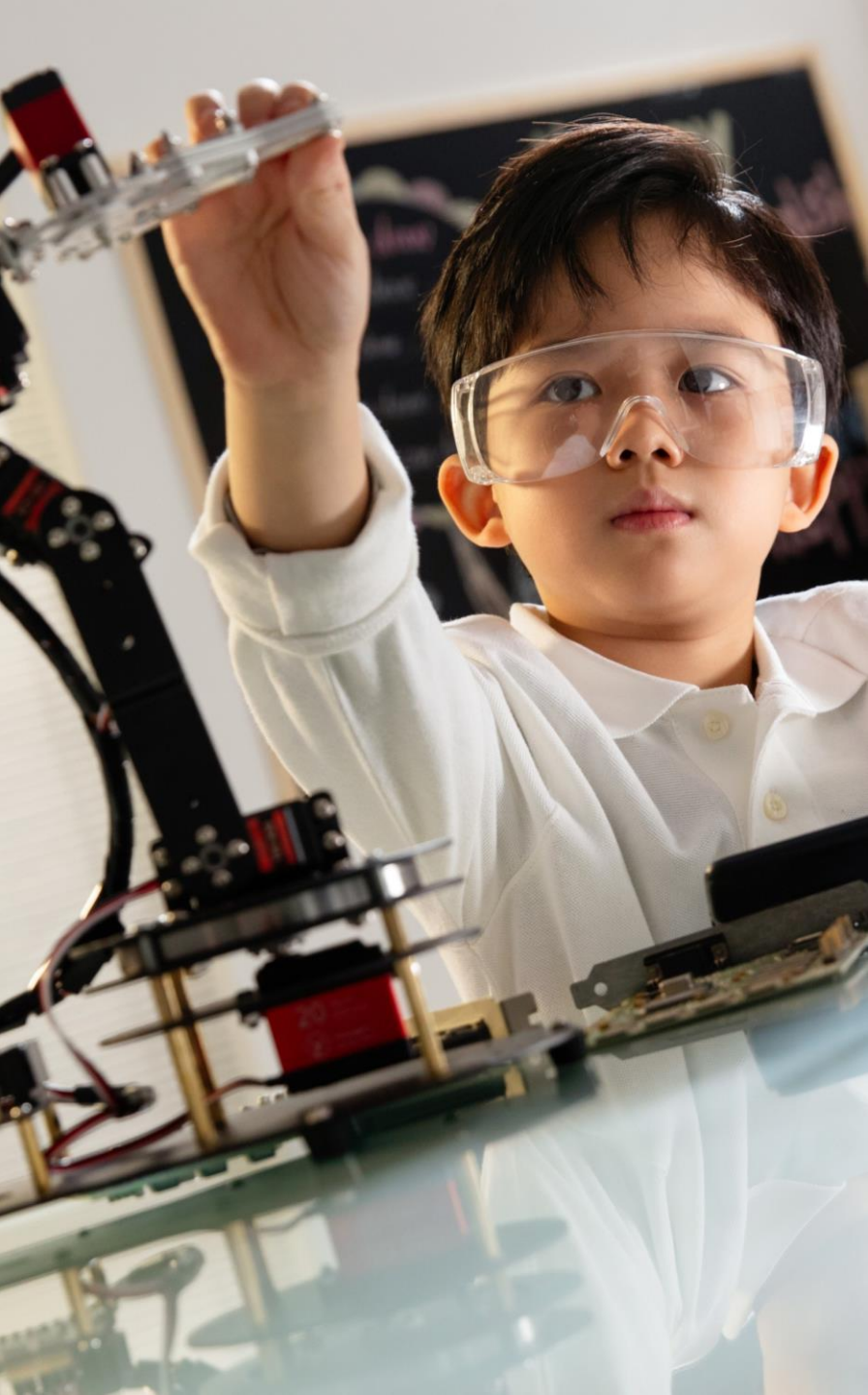I do/did not believe I am/was smart enough (25%)

Experienced bias or discrimination (NET) (22%)
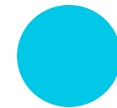
I don't know anyone who worked in STEM that looks like me (19%)

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Corporations should contribute to STEM education – and start early

Top action corporations should prioritize around STEM education:

#1 Create resources for children to get involved in science at an early age (33%)

#2 Host programs like internships, summer camps, and workshops to help students pursue STEM (24%)

#3 Help to ensure underrepresented students have equal access to STEM education (22%)

#4 Provide grants/scholarships to underrepresented students (19%)

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Diversity and inclusion in STEM – more needs to be done
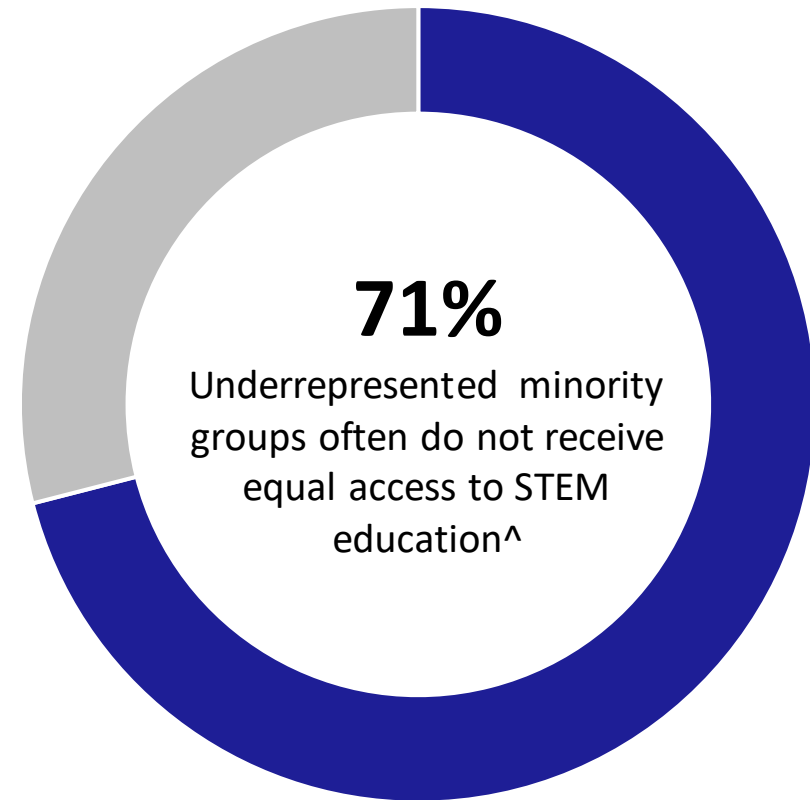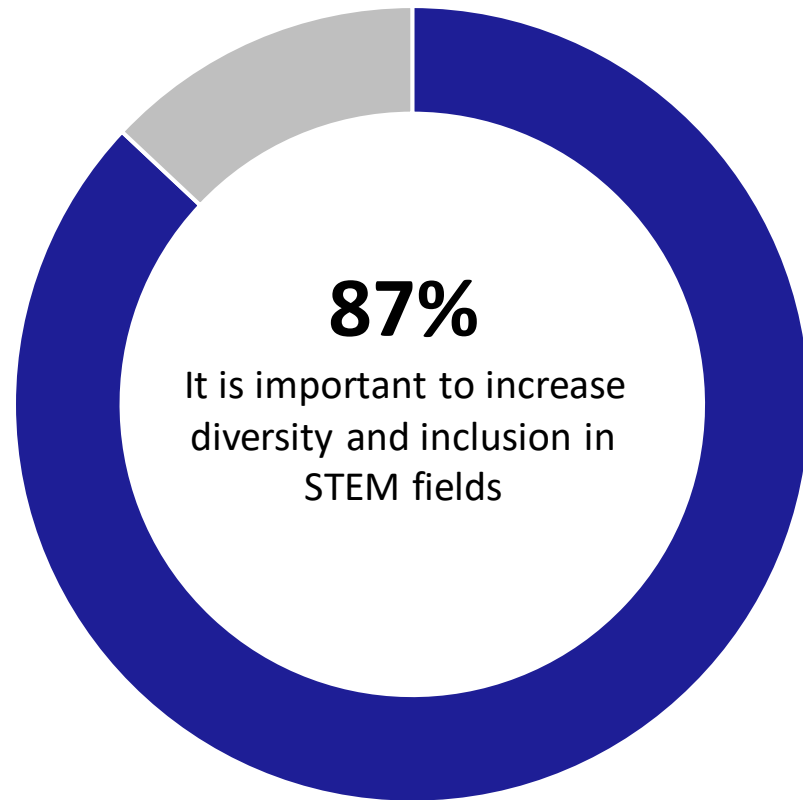
87%
It is important to increase diversity and inclusion in STEM fields

71%
Underrepresented minority groups often do not receive equal access to STEM education^

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There are significant gaps in the STEM workforce, and they are not improving

Gender

53%

Believe this gap exists in the STEM workforce

Of those that believe this gap exists,

44%

believe it is <u>staying the same or getting worse</u>

Racial/Ethnic

44%

Believe this gap exists in the STEM workforce^

Of those that believe this gap exists,

48%

believe it is <u>staying the same or getting worse^</u>

LGBTQ+

39%

Believe this gap exists in the STEM workforce^

Of those that believe this gap exists,

51%

believe it is <u>staying the same or getting worse^</u>

Women are a source of untapped potential, but lack encouragement and support to stay in STEM fields

84%
More needs to be done to encourage and keep women/girls engaged in STEM education

81%
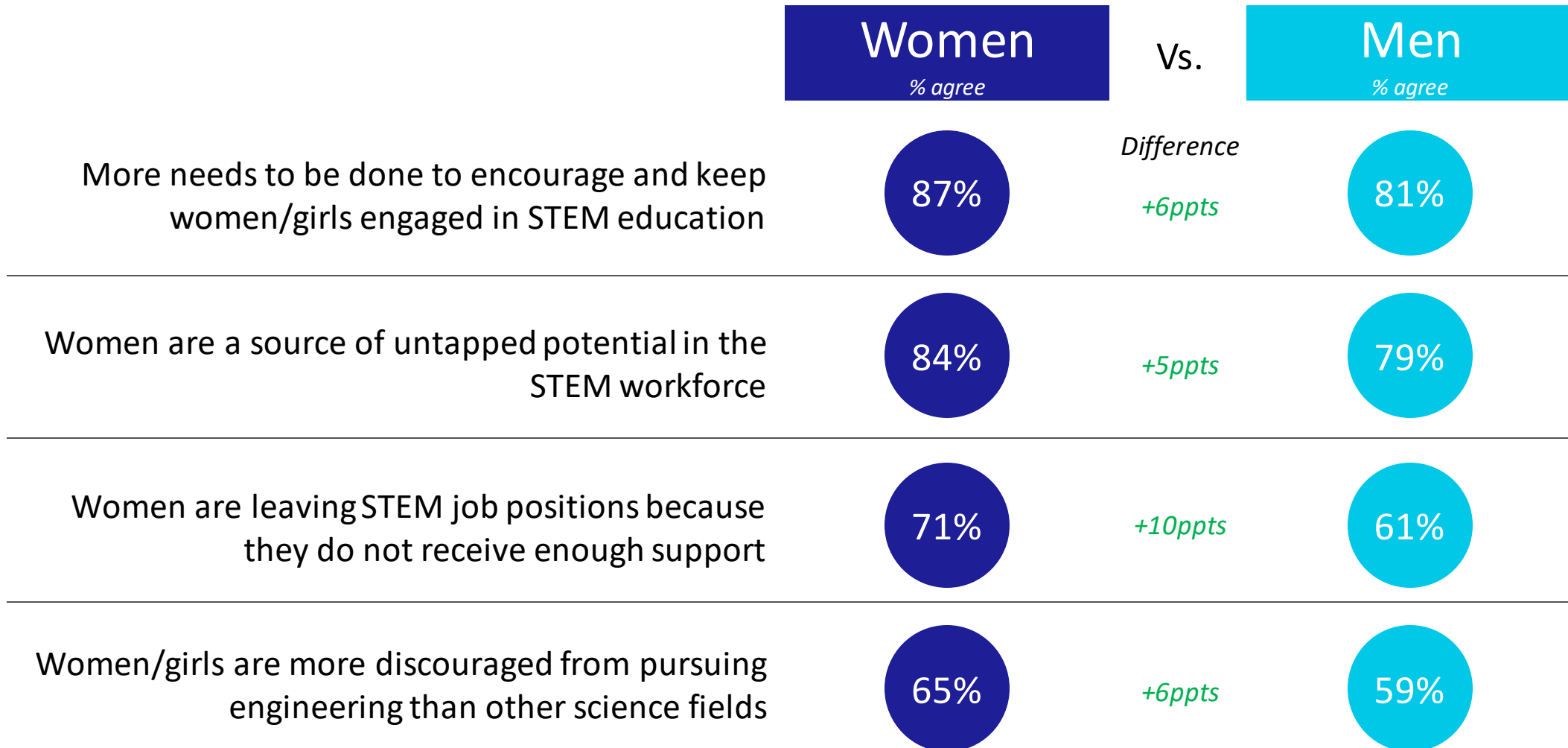Women are a source of untapped potential in the STEM workforce

66%
Women are leaving STEM job positions because they do not receive enough support

62%
Women/girls are more discouraged from pursuing engineering than other science fields

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# Men do not see gender inequities as clearly as women, which represents an opportunity for advocacy

|	**Women** *% agree*	Vs.	**Men** *% agree*
More needs to be done to encourage and keep women/girls engaged in STEM education	87%	*Difference* +6ppts	81%
Women are a source of untapped potential in the STEM workforce	84%	+5ppts	79%
Women are leaving STEM job positions because they do not receive enough support	71%	+10ppts	61%
Women/girls are more discouraged from pursuing engineering than other science fields	65%	+6ppts	59%

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Science companies should do more when it comes to diversity to have greater societal impact
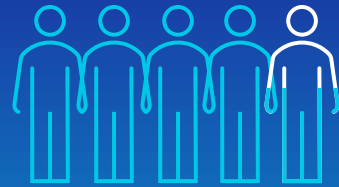
88%

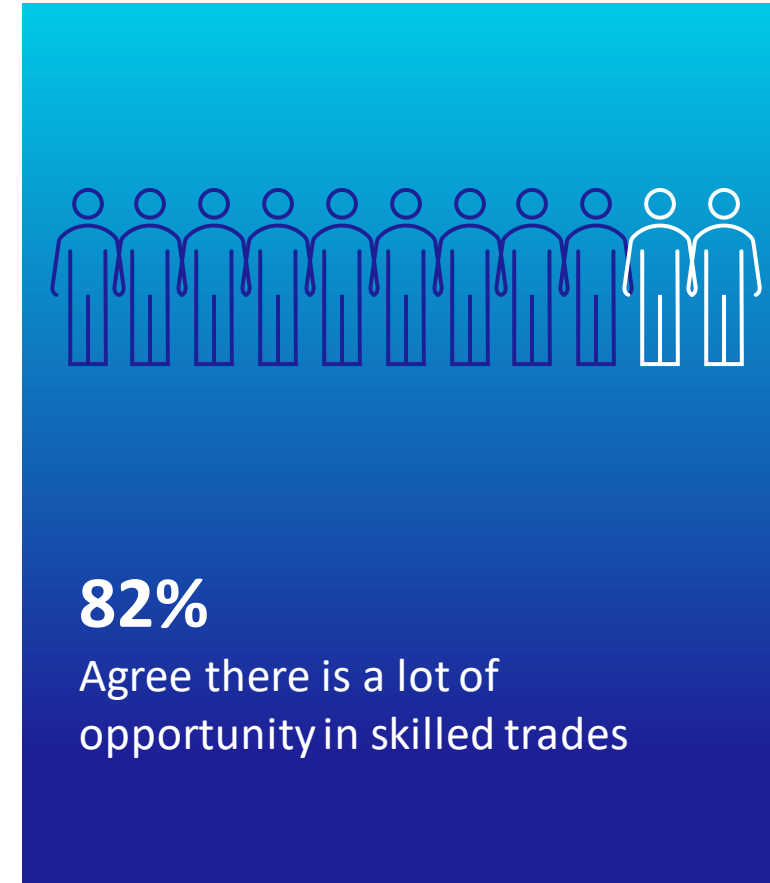The scientific community should do more to attract a diverse workforce
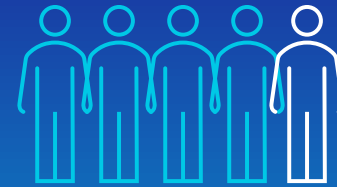
84%

Science companies would have greater positive impact on society if there was greater diversity and representation within their workforce

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Upskilling and trade skills

# Skilled trades are needed and offer job opportunities

91%
Agree the workforce needs more skilled trade workers

82%
Agree there is a lot of opportunity in skilled trades

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We trust trade schools, and most believe the earning potential for a trade education is on par with a 4-year degree

83%

Trust vocational/trade schools to give them the education needed to have a successful career
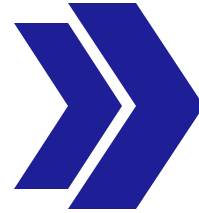
71%
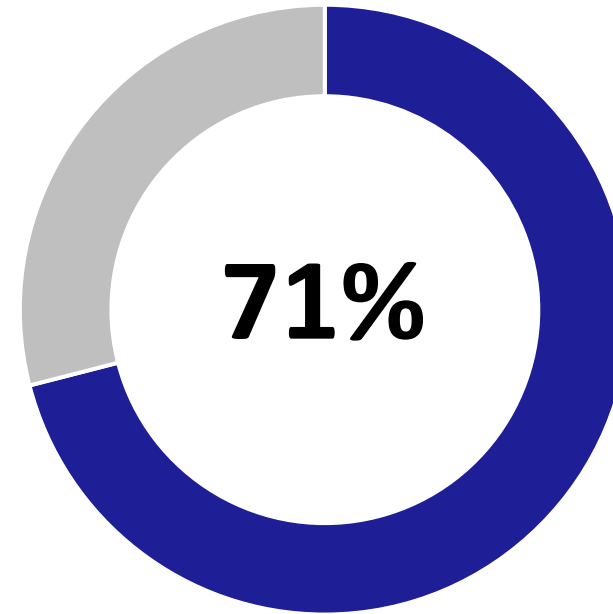
Believe they would **earn as much money in a skilled trade as they would in a career that requires a degree** from a traditional 4-year university/college

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Yet, many would not pursue a skilled trade – suggesting an image problem
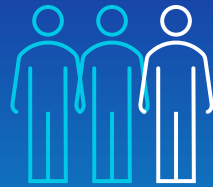
68%
Respect people who pursue skilled trades, but would not pursue one themselves

Countries with highest rates of agreement:
- India: 87%
- Poland: 83%
- Germany and UAE: 81% (tied)

Countries with lowest rates of agreement:
- Mexico and France: 59% (tied)
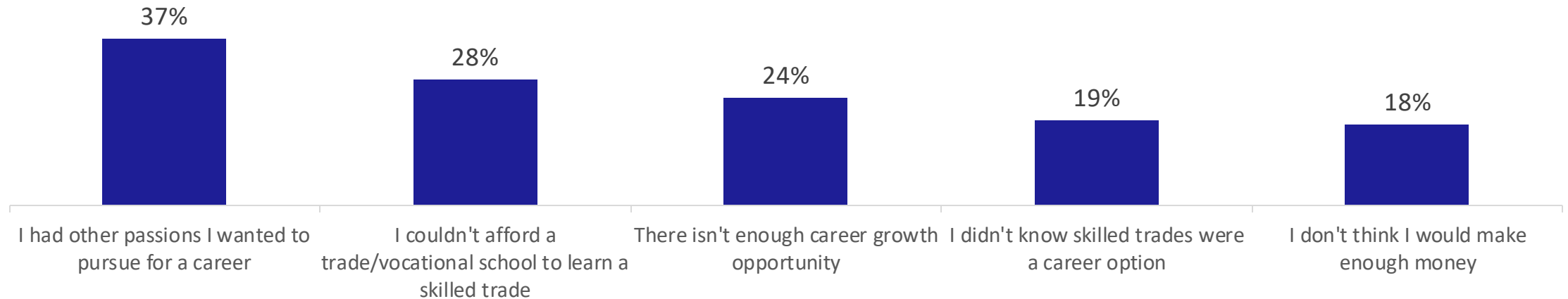- Colombia and South Korea: 55% (tied)
- Brazil and Italy: 48% (tied)

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Following "other passions" is the top barrier to pursuing a skilled trade

Top 5 reasons why people do not pursue a skilled trade
Among those who do not have a skilled trade career
% selected

37%	28%	24%	19%	18%
I had other passions I wanted to pursue for a career	I couldn't afford a trade/vocational school to learn a skilled trade	There isn't enough career growth opportunity	I didn't know skilled trades were a career option	I don't think I would make enough money

Q30. What is stopping you/stopped you from pursuing a career in a skilled trade? Base = Those who said they have thought about pursuing a skilled trade career but don't currently have one or those who said they have never thought about it (13,537) Fielded Sept-Dec 2021
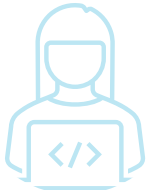
Employees expect paid skills training, especially as digital skills foster career growth

89% believe employers should offer financial support or reimbursement to employees for upskilling

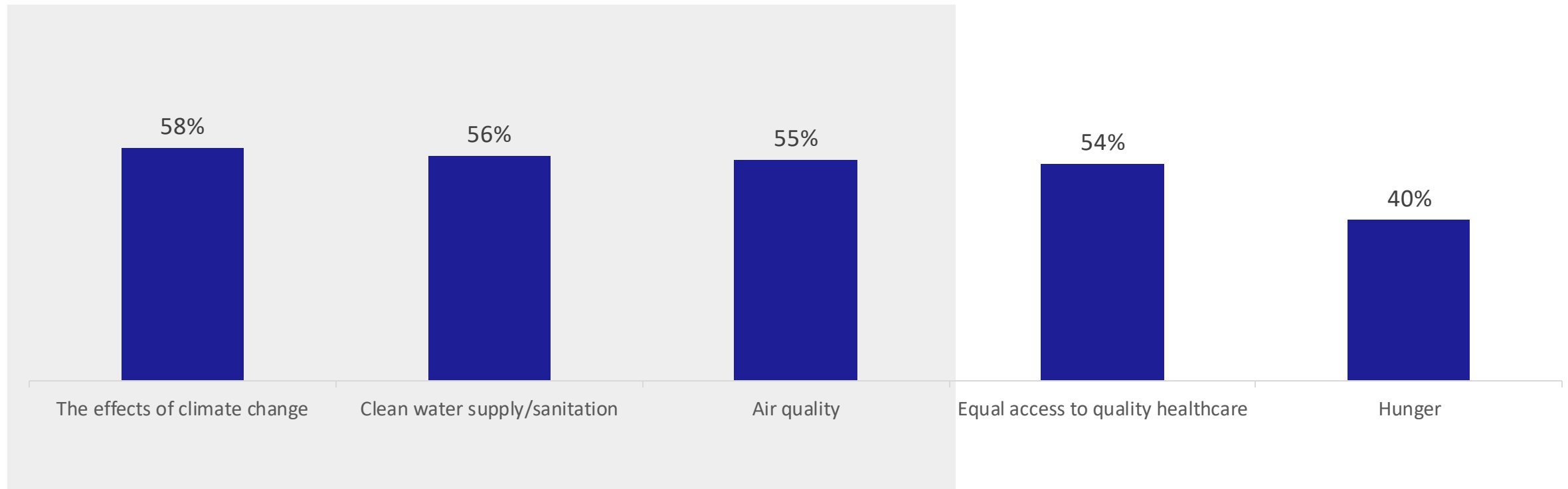**75%** believe their digital skills will help them grow in their career

64% worry about being able to keep up in a job market that is becoming increasingly dependent on digital skills

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Sustainability

People want science to solve environmental issues the most

Top 5 issues science should solve
% selected

The effects of climate change	Clean water supply/sanitation	Air quality	Equal access to quality healthcare	Hunger
58%	56%	55%	54%	40%

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Environmental concerns have intensified over the past year
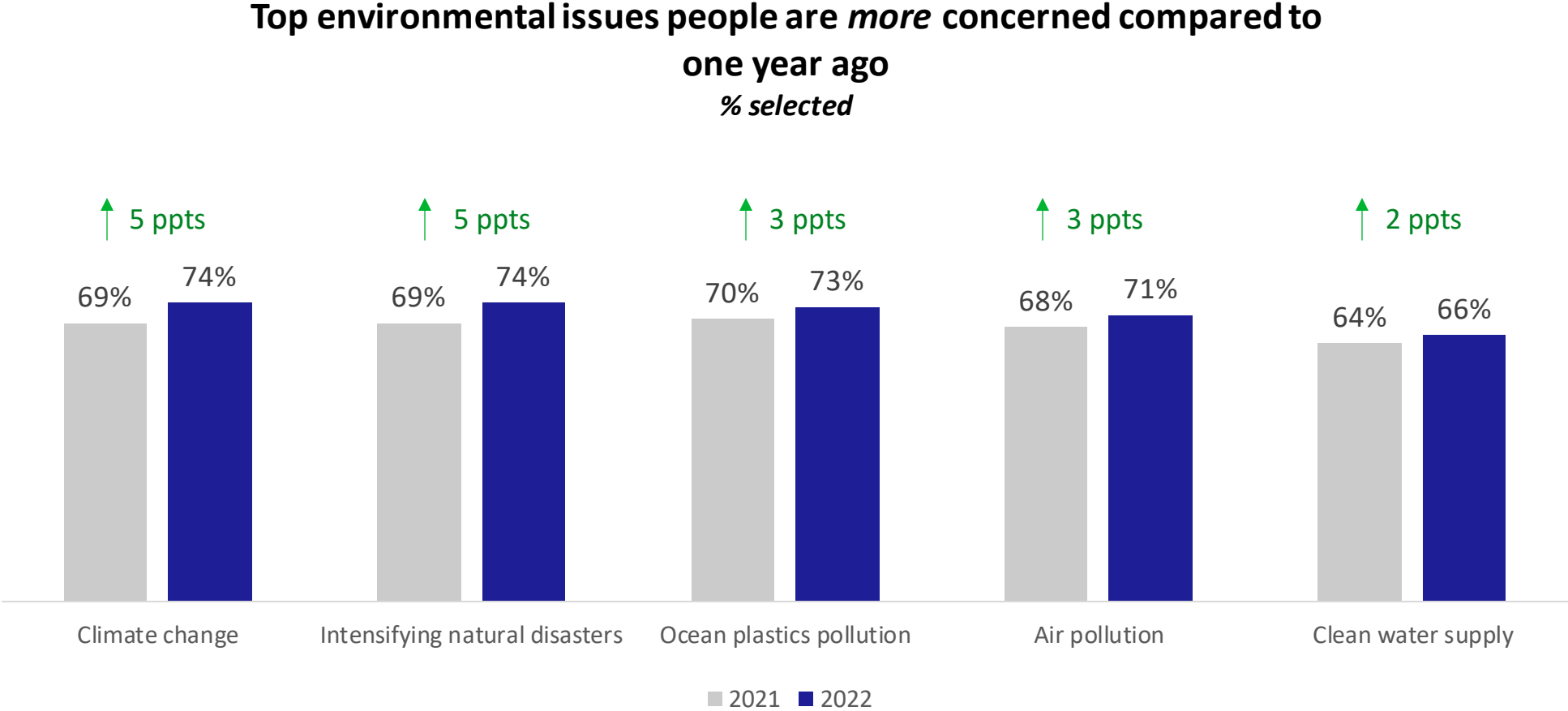
Top environmental issues people are *more* concerned compared to one year ago
% selected

	Climate change	Intensifying natural disasters	Ocean plastics pollution	Air pollution	Clean water supply
Change	↑ 5 ppts	↑ 5 ppts	↑ 3 ppts	↑ 3 ppts	↑ 2 ppts
2021	69%	69%	70%	68%	64%
2022	74%	74%	73%	71%	66%

■ 2021 ■ 2022

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Almost all believe climate change is real, but they do not think that all their peers are on the same page

Climate change is...

- ■ Real, and affects me personally
- ■ Real, but doesn't affect me personally
- ■ Not real

7%
23%
70%
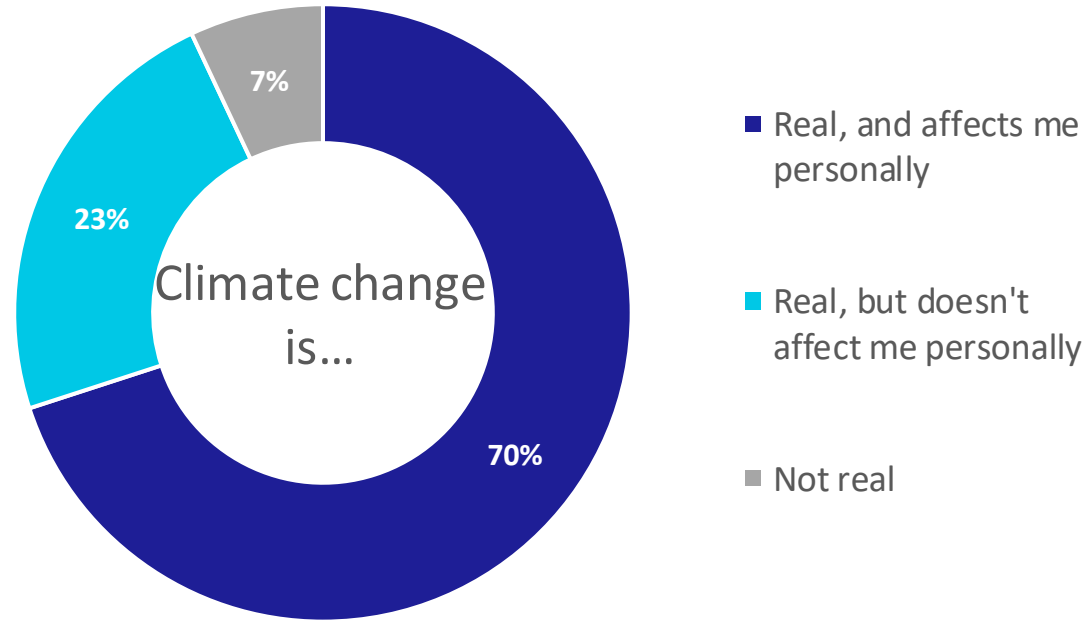
93% believe climate change is real, whether it affects them personally or not
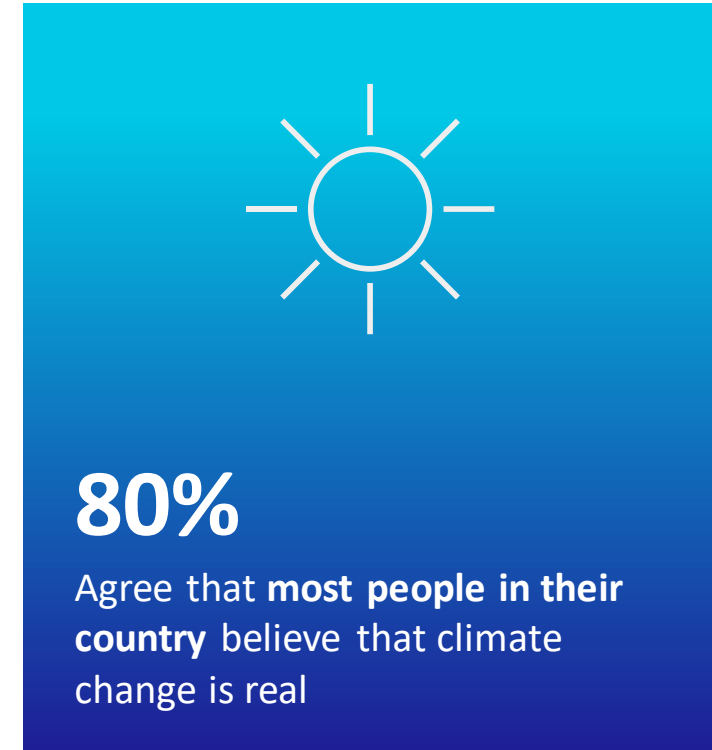
80%
Agree that **most people in their country** believe that climate change is real

Extreme weather and rising temperatures are the top impacts of climate change

Top **impacts** of climate change:
% selected

#1

70%
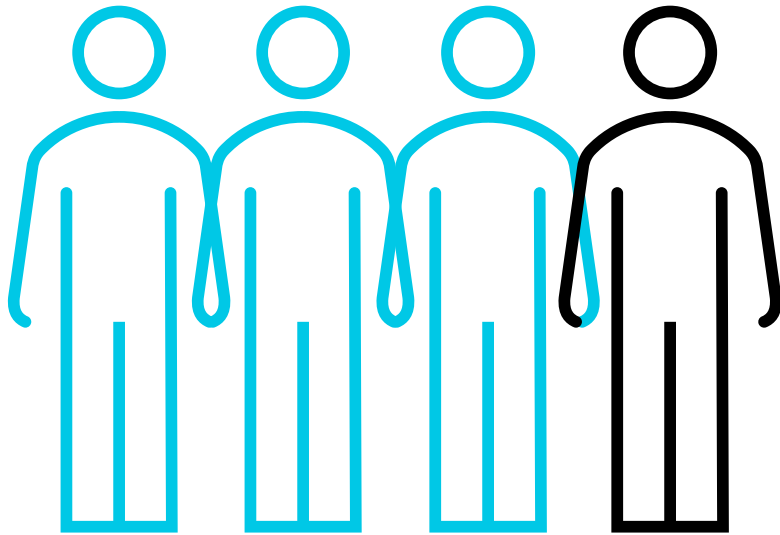
Believe **extreme weather** is
the #1 direct impact of climate change
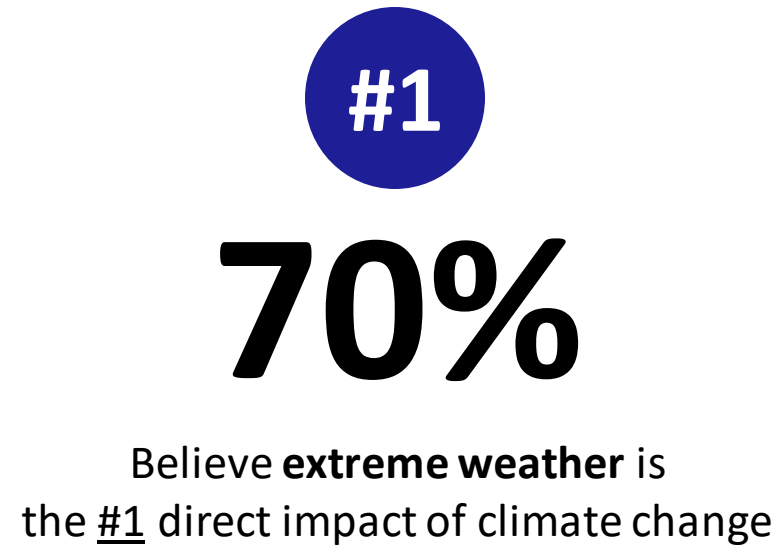
#2 Warmer temperatures (69%)

#3 Biodiversity (56%)

#4 Disease/illness (53%)

#5 Food security/access (49%)

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Over three-quarters worry about displacements due to extreme weather

79%

Are concerned that they or a loved one may one day be **displaced from where they live due to extreme weather related to climate change**

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Science can deliver a more sustainable world
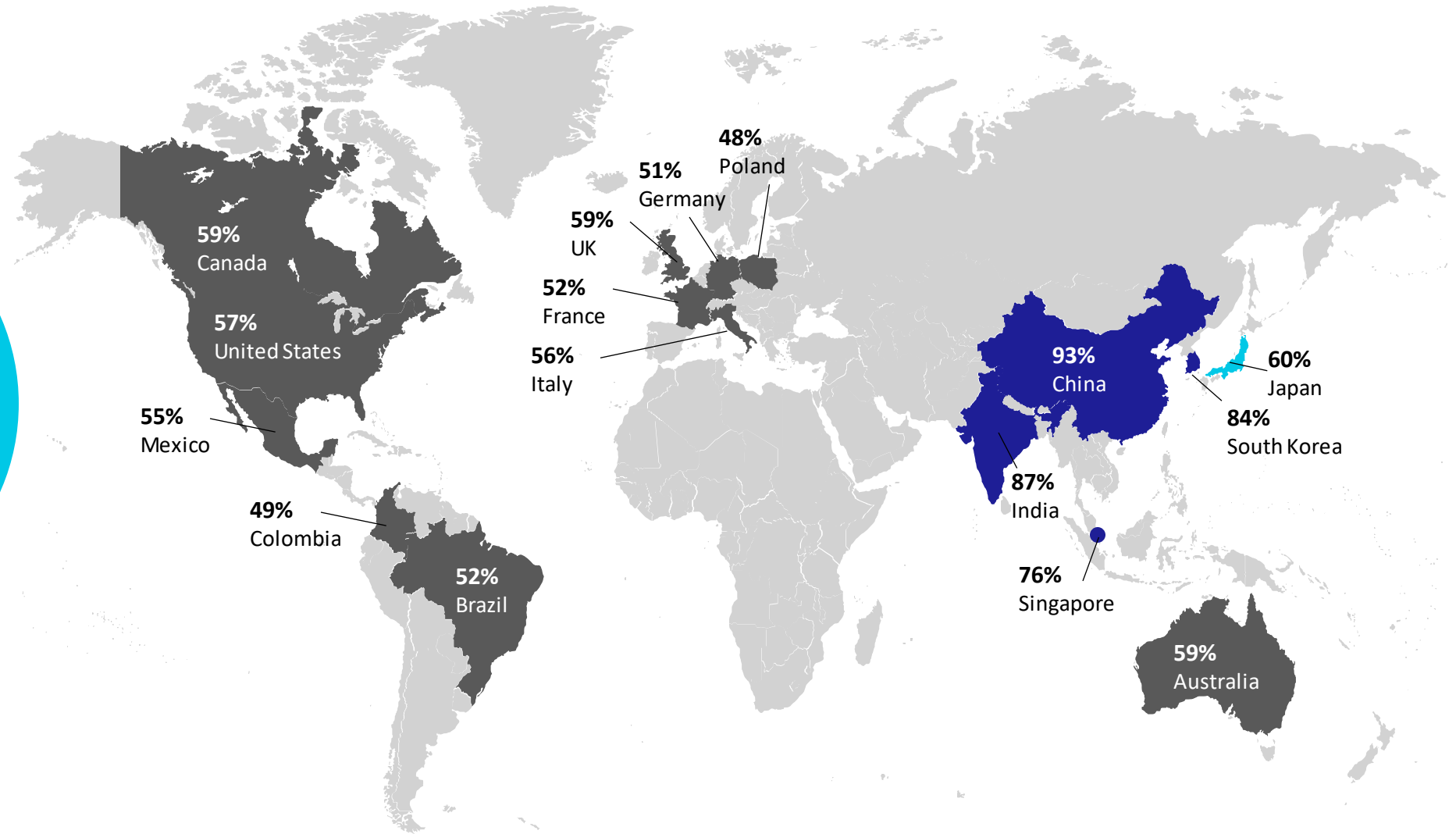
88%
Science can help minimize the effects of climate change

88%
People should follow the science to help make the world more sustainable

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Self-evaluation of sustainable practices varies greatly

- ■ More likely than the 17-country avg
- ■ On par with the 17-country avg
- ■ Less likely than the 17-country avg

62%
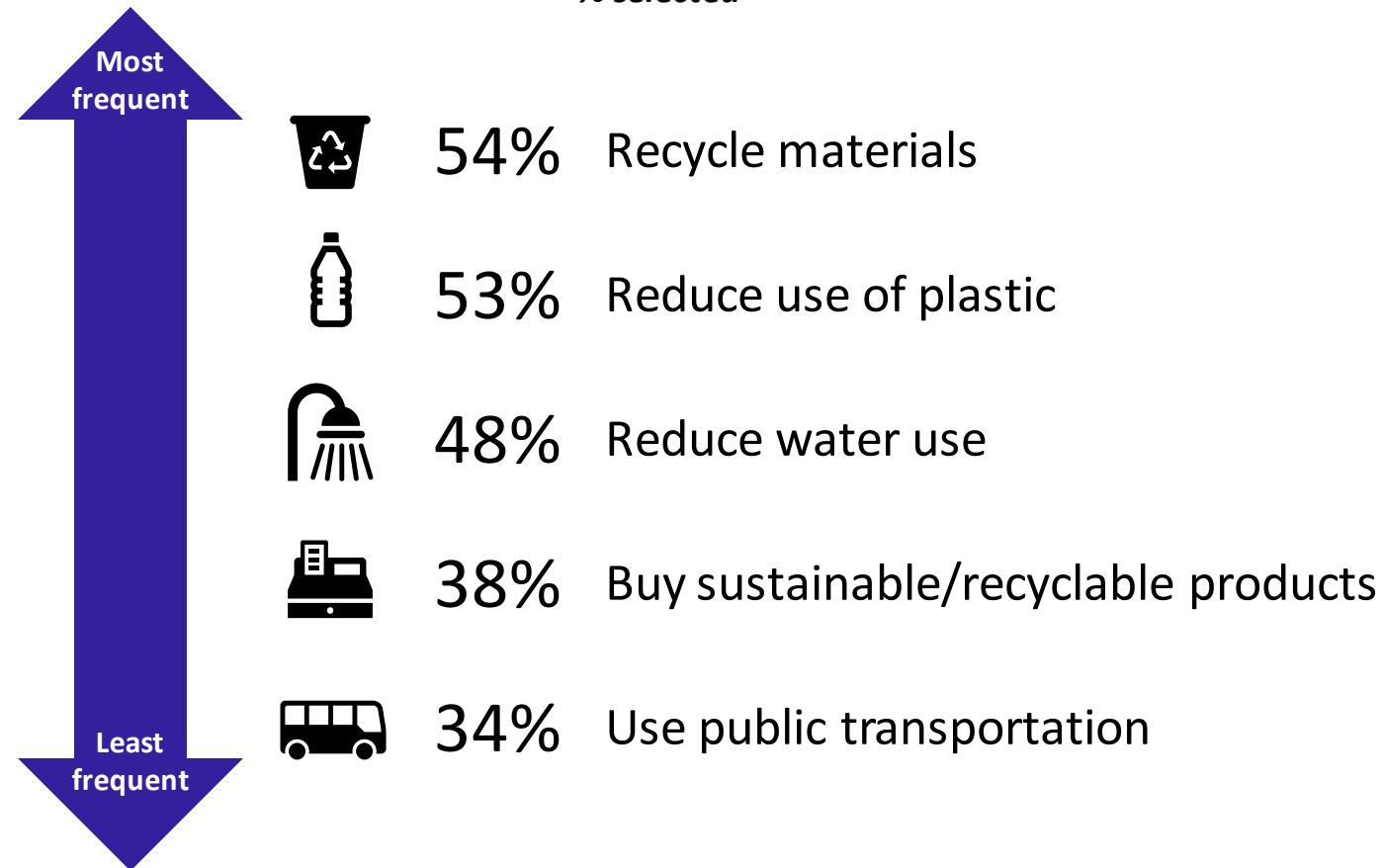Agree their country is currently doing a good job at becoming more sustainable^

59% Canada

57% United States

55% Mexico

49% Colombia

52% Brazil

48% Poland

51% Germany

59% UK

52% France

56% Italy

93% China

60% Japan

84% South Korea

87% India

76% Singapore

59% Australia

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41

Popular ways people mitigate climate change: recycling, reducing plastic and water use and buying sustainably

Top 5 actions taken in the <u>past six months</u> to help lessen the effects of climate change

% selected

Most frequent

54% Recycle materials

53% Reduce use of plastic

48% Reduce water use

38% Buy sustainable/recyclable products

34% Use public transportation

Least frequent

3M

Local communities, companies and society as a whole all play a role in creating a sustainable future

Top 5 actions for *communities* to be more sustainable:

50% use renewable energy sources to power public buildings

46% create more parks and gardens for greenspace

44% create community recycling centers

42% promote the use of public transportation or eco-friendly vehicles

42% implement low-carbon public transportation

Top 5 actions for *companies* to prioritize:

58% reduce the amount of plastic used in products

54% use recycled and renewable materials in products developed

53% use renewable energy sources to power their facilities

52% reduce waste created by facilities

47% repurpose waste in production

Top 5 advancements for *society* to prioritize:

65% Find new ways of making renewable energy to power homes, vehicles, etc.

61% Develop new technologies that reduce carbon dioxide/greenhouse gas emissions

57% Develop new ways to eliminate waste across production

53% Make fuel-efficient vehicles affordable and accessible to all

**53%** Develop new technologies to clean and monitor air pollutants

3M

Health
equity

Access to quality healthcare is considered the number one priority for most countries

#1 action for country to prioritize

- ■ Improving access to quality healthcare
- ■ Improving access to affordable housing
- ■ Improving access to STEM education among underserved and underrepresented groups
- ■ Increasing efforts to minimize climate change
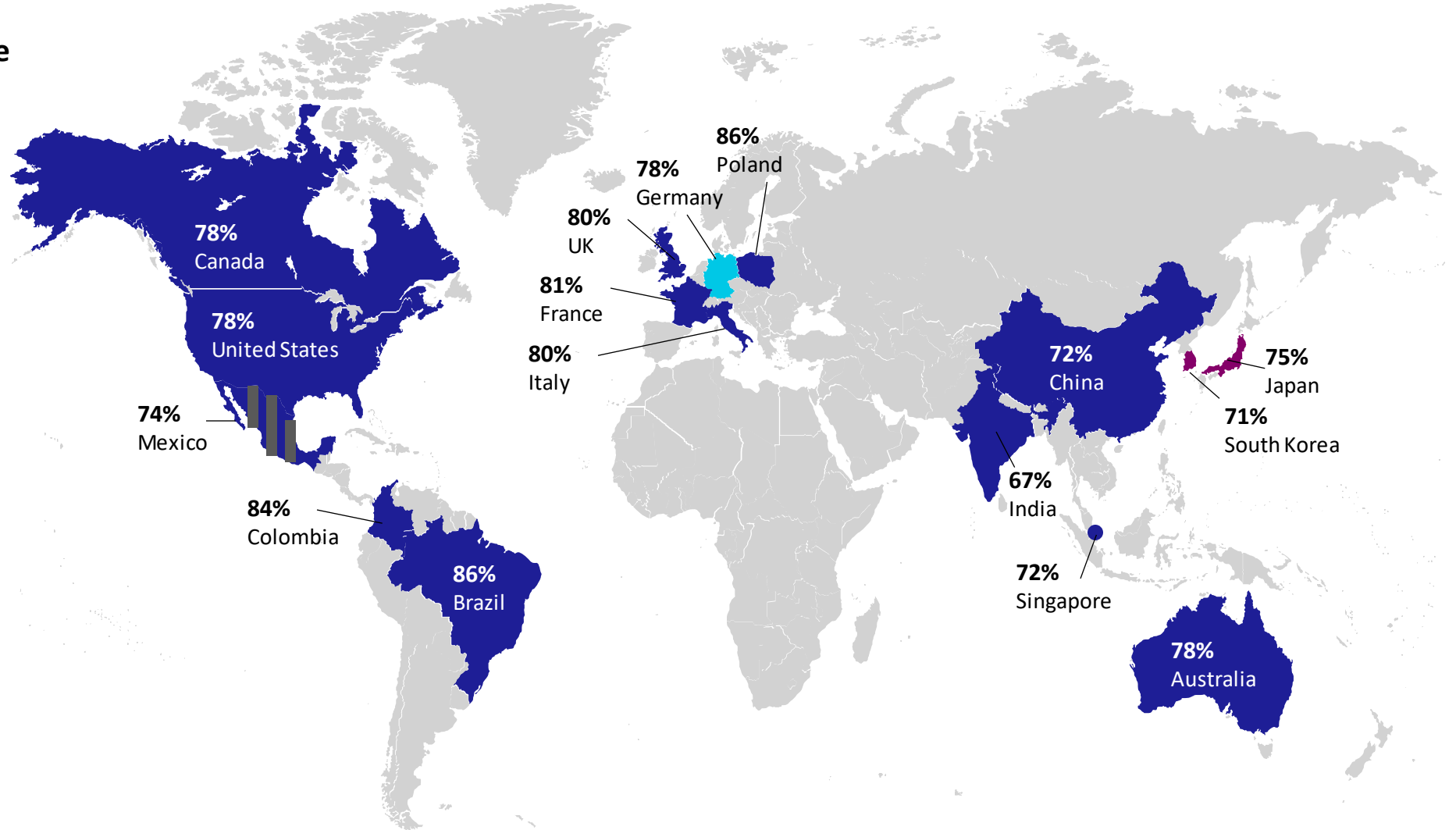
13 of 16 Countries^

rank improving access to quality healthcare as the top action for their country to prioritize

78%
Canada

78%
United States

74%
Mexico

84%
Colombia

86%
Brazil

80%
UK

78%
Germany

86%
Poland

81%
France

80%
Italy

72%
China

75%
Japan

71%
South Korea

67%
India

72%
Singapore

78%
Australia

3M

Access to quality healthcare is the key to advancing social justice and change

Advancements society should prioritize in the next five years as it relates to social justice and change
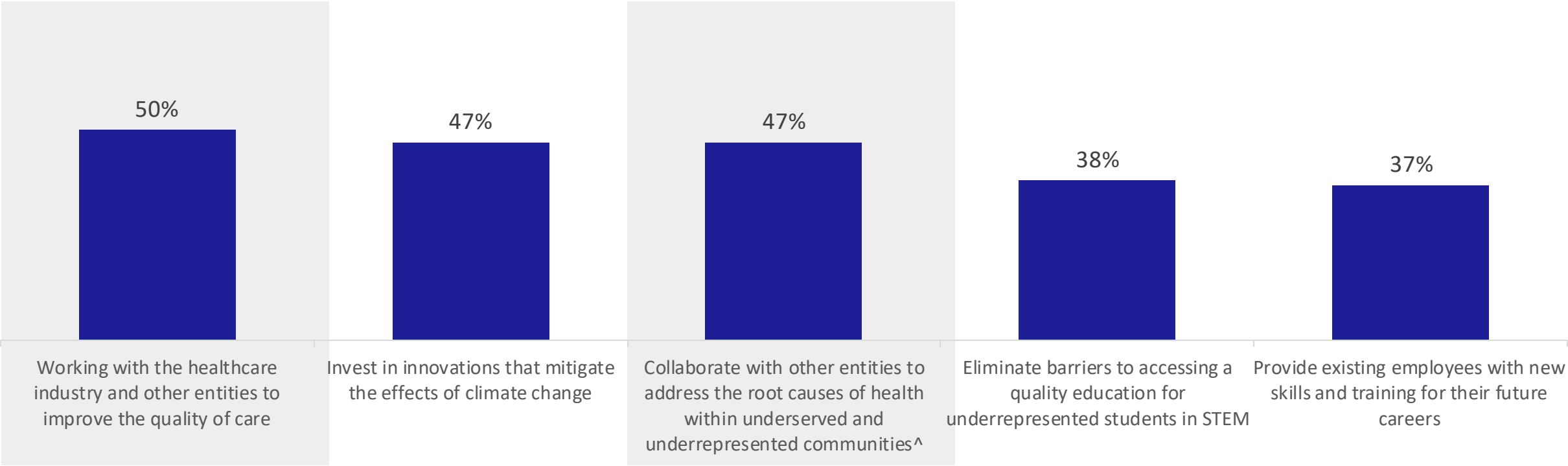*% selected*

Ensuring **access to quality healthcare** regardless of age, gender, race/ethnicity, socioeconomic status, location, etc.	78%
Providing **low-cost environmental solutions** to underserved communities^	70%
Addressing the non-traditional **root causes of health** within underserved and underrepresented communities^	69%
Enhancing my community's **infrastructure**, including our roads, bridges, waterworks, housing, broadband and the electric grid	65%
Providing **internet and mobile access** to those who can't afford it	58%

^Not asked in UAE

Q28. What advancements do you think society should prioritize in the next five years as it relates to social justice and change? Please select top four. Base= 2022 17-Country Average (17,198) Fielded Sept - Dec 2021

3M

Collaboration between corporations and healthcare is a critical priority

Top 5 actions for corporations to prioritize in the future:
% selected

50%	47%	47%	38%	37%
Working with the healthcare industry and other entities to improve the quality of care	Invest in innovations that mitigate the effects of climate change	Collaborate with other entities to address the root causes of health within underserved and underrepresented communities^	Eliminate barriers to accessing a quality education for underrepresented students in STEM	Provide existing employees with new skills and training for their future careers

3M

Cures for diseases, cancer treatments and addressing mental health are top healthcare areas for science to address
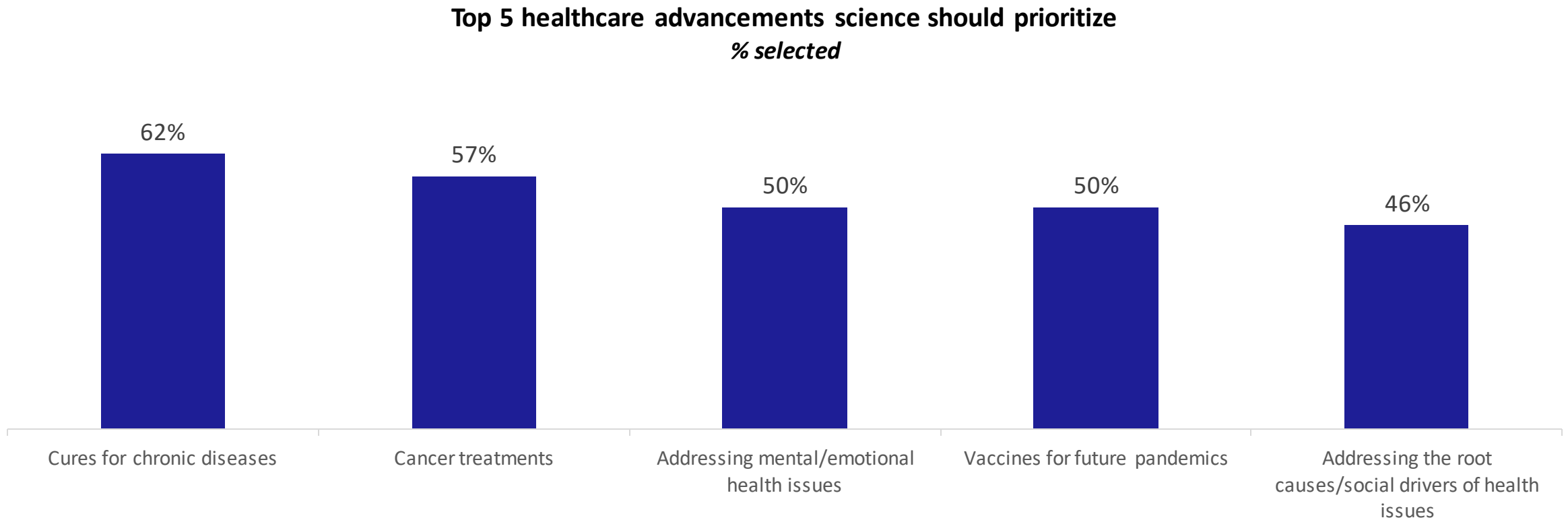
Top 5 healthcare advancements science should prioritize
% selected

Cures for chronic diseases	Cancer treatments	Addressing mental/emotional health issues	Vaccines for future pandemics	Addressing the root causes/social drivers of health issues
62%	57%	50%	50%	46%

3M

Future technology

3M + Ketchum
empathy + intelligence

The future is expected to bring a heavier reliance on science and artificial intelligence
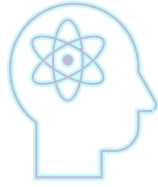
87% agree that in the future, we will be **more dependent on scientific knowledge** than ever before
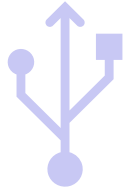
65% believe that **AI is an exciting technology** that impacts their life every day

47% are worried advancements in artificial intelligence (AI) within the next five years **will cause them to lose their jobs**

3M

However, people are split when it comes to trusting how companies and other entities use AI
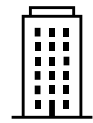
🏢 "I trust how **private companies** are using AI"
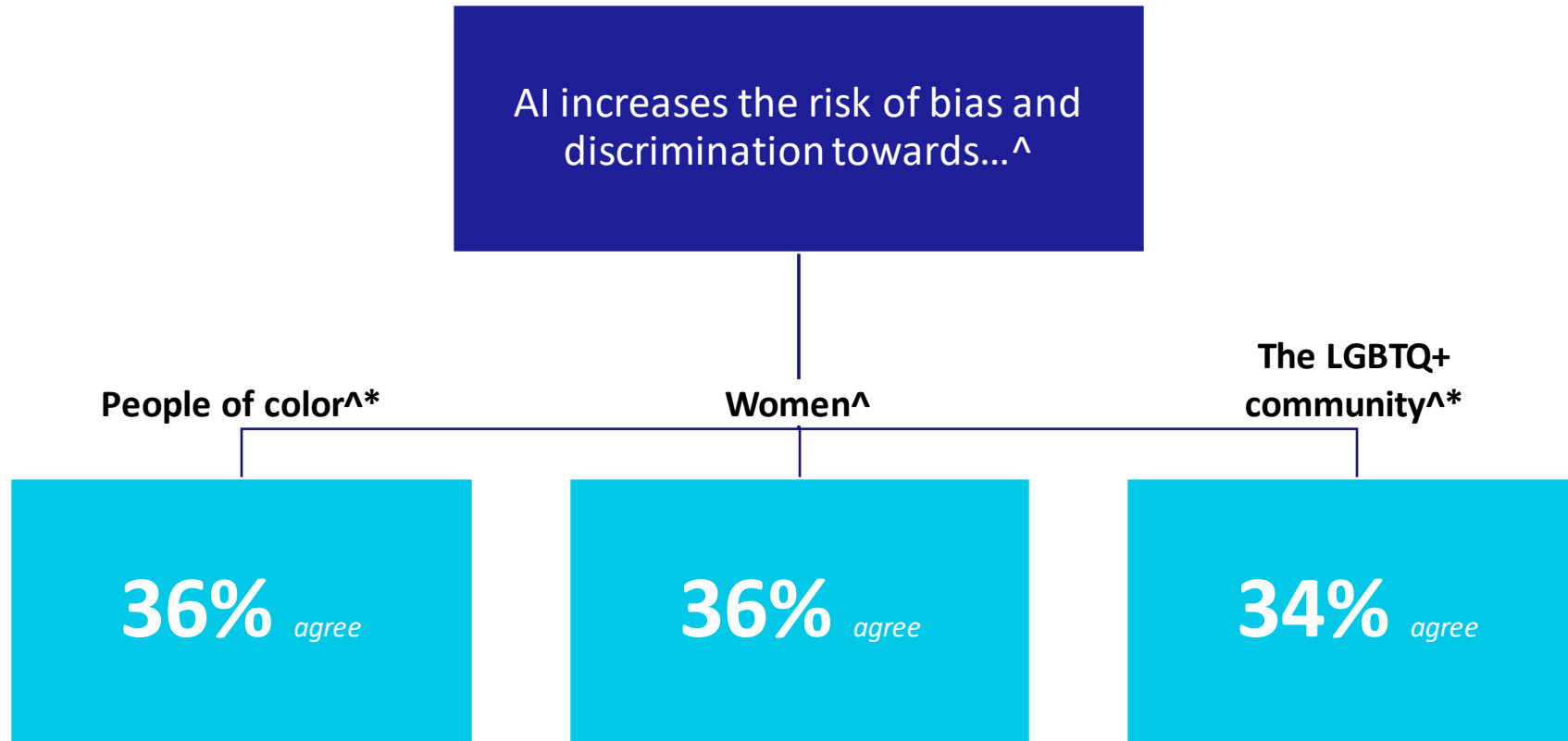
⚖️ "I trust how **the government** is using AI"^

54%	**46%**
46%	**54%**

■ Agree

■ Disagree

(*% selected*)

3M

There is concern that AI could increase bias towards underrepresented groups

AI increases the risk of bias and discrimination towards...^

People of color^*

Women^

The LGBTQ+ community^*

36% *agree*

36% *agree*

34% *agree*

3M

Still people are excited about futuristic innovations

71%

Say they are likely to accept a ride in an autonomous, or self-driving, car where there is no human driver
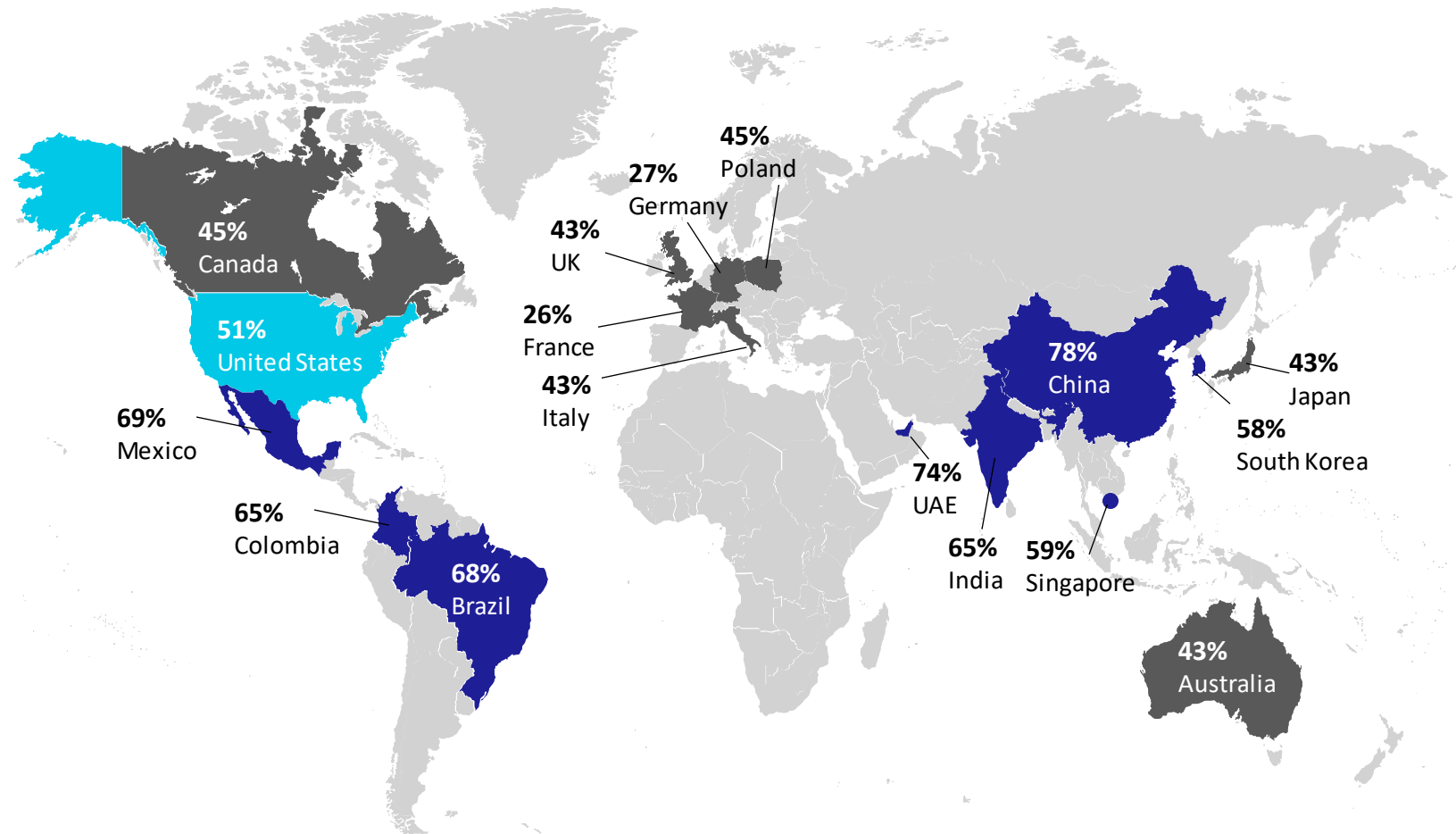
52%

Say they are likely to travel to space when it becomes accessible

3M

In the next five years, more than half the world expects to appreciate science more

■ More likely than the 17-country avg
■ On par with the 17-country avg
■ Less likely than the 17-country avg

53% Believe they will appreciate science **more** five years from now

45% Canada

51% United States

69% Mexico

65% Colombia

68% Brazil

45% Poland

27% Germany

43% UK

26% France

43% Italy

74% UAE

65% India

59% Singapore

78% China

43% Japan

58% South Korea

43% Australia

3M

54