How Society Feels About Breakthrough Science

A study on the public sentiment toward AI in healthcare, cell and gene therapies, cultivated meat, and new genomic techniques in agriculture across 13 key countries.

January 2025

leaps by bayer + BCG

Scientific advances will only succeed if people are willing to embrace them. Leaps by Bayer (the company's impact investment arm) and BCG, together with Ipsos (a leading market research agency), recently conducted one of the largest surveys to date on global public sentiment towards four transformative technologies of our time: artificial intelligence (AI) in healthcare, cell and gene therapies, new genomic techniques in agriculture, and cultivated meat. This study collected insights from over 13,000 participants aiming to build a comprehensive view of public understanding, fears, hopes, and priorities surrounding these innovations.

The technologies were chosen based on their significant potential to impact their respective industries, their relevance, and their projected timeline for market entry. While these technologies will affect everyone in some way, people in different countries could have limited understanding of them – potentially limiting their adoption and impact.

Key findings include the following:

- **72% of respondents are optimistic** about the **direction in which the world is heading in terms of science and technology**, far more than other forces in society, such as the economy (39%) or politics and global affairs (31%)

- Respondents have **favorable views about healthcare innovations:** 64% feel positive about the impact of AI on the future of human health, and 74% are optimistic about the potential for cell and gene therapy to cure diseases[1]

- Sentiment about **agricultural innovations is slightly lower compared to healthcare:** 56% of respondents hold a positive opinion of new genomic techniques, cultivated meat drew the least support of the four innovations we analyzed, with 39% expressing a positive view[1]

- **Trust in national health authorities correlates with greater optimism about scientific breakthroughs** solving societal issues, such as significantly improving human health, improving access to healthy, nutritious food, and solving environmental challenges *(please refer to Figure 11)*

- Greater **knowledge correlates to greater acceptance of new ideas** with high levels of positive opinions/optimism correlating with high levels of knowledge across all breakthrough topics *(please refer to Figure 12)*

These insights provide a unique window into diverging global attitudes towards scientific breakthroughs. Through further exploration of this data and additional insights, the research aims to empower companies, regulators, policymakers and other stakeholders to build the trust and awareness needed to enable informed decision making and increase openness to such innovation.

The survey was conducted online and drew responses from across 13 countries spanning between high, upper-middle and lower-middle income countries *(please refer to chapter 3 for classification of individual countries)*. Quotas were imposed to ensure national representation across demographic factors such as region, age[2], gender, employment status and ethnicity (in the U.S.). For more details, see the methodology section in the appendix.

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1. For AI in healthcare the sample included all survey respondents, for cell and gene therapy, new genomic techniques for crops, and cultivated meat only those who stated they understood or somewhat understood the respective definition of the topic (after being shown a description) were included in the sample size
2. Age groups clustered in Gen Z: 18-27, Millennial: 28-43, Gen X: 44-57, Baby Boomer+: 58+

1

## Strong Belief that Science and Technology Can Solve Societal Challenges

In a world grappling with economic instability and political uncertainty, breakthrough technologies inspire positivity. Our data shows a strong belief worldwide that science and technology hold the key to unlocking solutions that can significantly improve our world.

Overall, 72% of respondents state they are optimistic about the direction in which science and technology are heading—significantly higher than the share of people optimistic about other areas of the world, such as the economy (39%) or politics and global affairs (31%).

This optimism is especially high in lower-middle and upper-middle-income nations such as Nigeria (94%) and China (86%). In contrast, respondents in high- income countries such as France and Japan are less optimistic (53% and 46%, respectively), and more than 30% of people in both countries are neither optimistic nor pessimistic on the direction of science and technology.

Looking one level deeper into specific challenges that societies face, people believe that science can provide solutions. Among respondents the majority is optimistic about the potential of scientific breakthroughs: to significantly improve human health (71%), to improve access to healthy, nutritious food (69%), and to solve environmental challenges we face today (58%).
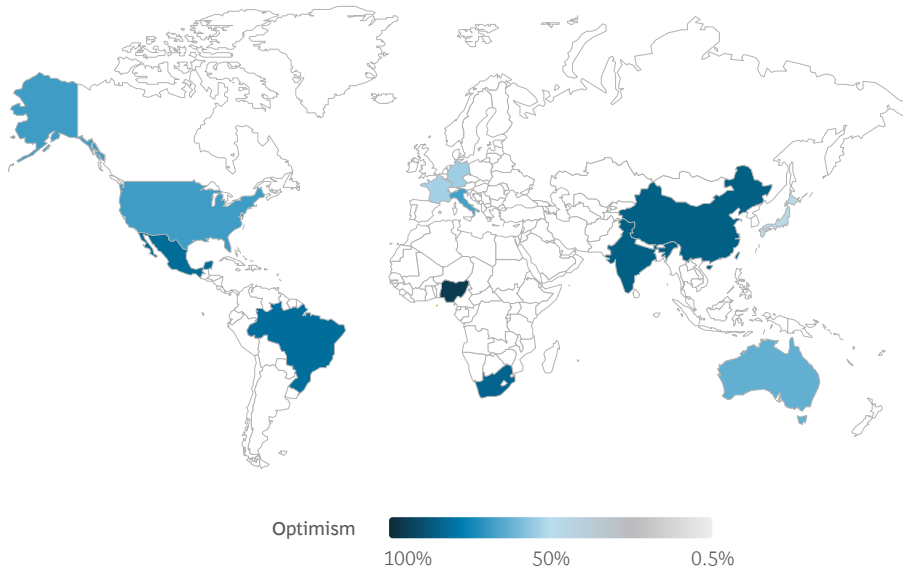

Optimism about the direction in which the world is heading in terms of …
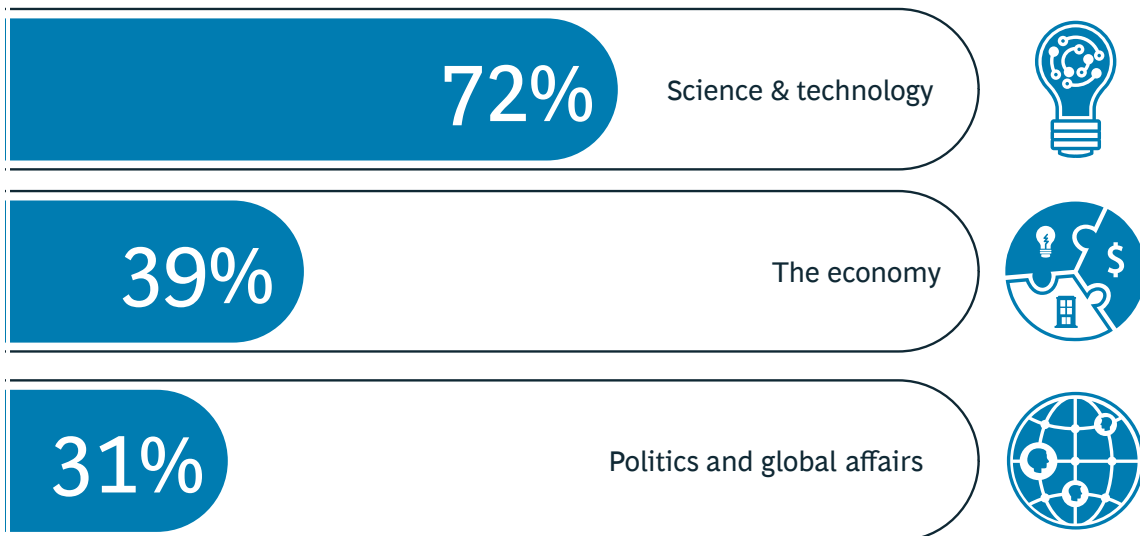
72%   Science & technology

39%   The economy

31%   Politics and global affairs

Q: At this moment, to what extent are you optimistic or pessimisvtic about the direction in which the world is heading in terms of … (n=13,111)

1

Optimism around the outlook of science & technology
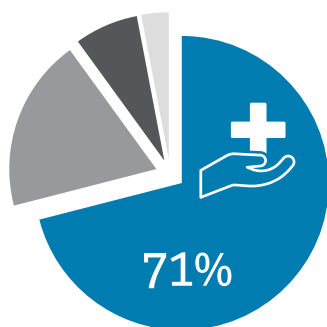

Optimism

100%   50%   0.5%

Q: At this moment, to what extent are you optimistic or pessimistic about the direction in which the world is heading in terms of science & technology (n=13,111)
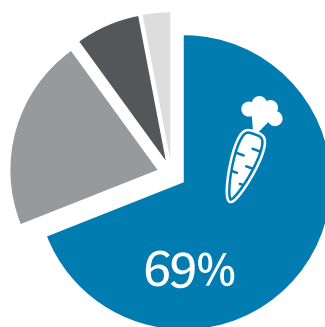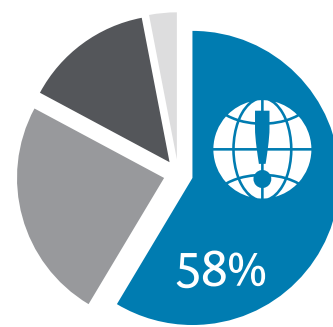Note: Optimistic includes very and fairly optimistic

2

Optimism/pessimism regarding the potential for scientific breakthroughs to …

71%

… significantly improve human health

69%

… improve access to healthy, nutritious food

58%

… solve environmental challenges

- Optimistic
- Neither optimistic nor pessimistic
- Pessimistic
- Don't know

Q: To what extent are you optimistic or pessimistic about the potential for scientific breakthroughs to achieve each of the following … (n=13,111)
Note: Optimistic including very and fairly optimistic, pessimistic including very and fairly pessimistic

3

1.1 A Closer Look at Four Breakthrough Innovations

To better understand people's perceptions, we asked those who feel they understand the definition[3] what they thought about four breakthrough innovations: AI in healthcare, cell and gene therapy, new genomic techniques for crops, and cultivated meat.

Overall, the optimism about science and technology was confirmed in our findings about all four breakthrough innovations, with some variations. Views on healthcare innovations like AI in healthcare and cell and gene therapies are largely positive. In contrast, agricultural advancements such as cultivated meat and new genomic techniques for crops are met with more cautious optimism and a higher degree of neutrality.[1]
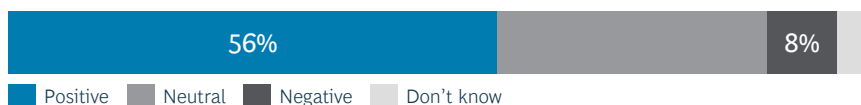
Opinion on breakthrough innovations

Cell & gene therapy
| 74% | | 3% |

Optimistic   Neither optimistic nor pessimistic   Pessimistic   Don't know

AI in healthcare
| 64% | | 10% |

Positive   Neither positive nor negative   Negative   Don't know

NGTs for crops
| 56% | | 8% |

Positive   Neutral   Negative   Don't know

Cultivated meat
| 39% | | 19% |

Positive   Neutral   Negative   Don't know

Q – CGT: Are you optimistic or pessimistic about the potential of CGT to cure diseases such as Parkinson's Disease and other degenerative diseases? (n= 12,320) Note: Optimistic including very and fairly optimistic, pessimistic including very and fairly pessimistic;

Q – AI: To what extent do you feel positive or negative about the impact of Artificial Intelligence (AI) on the future of human health? (n=13,111)
Note: Positive including very and fairly positive, negative including very and fairly negative

Q – NGTs: Overall, is your opinion of new genomic techniques (NGTs such as genome editing tools like CRISPR) positive, negative or neutral? (n=11,951)
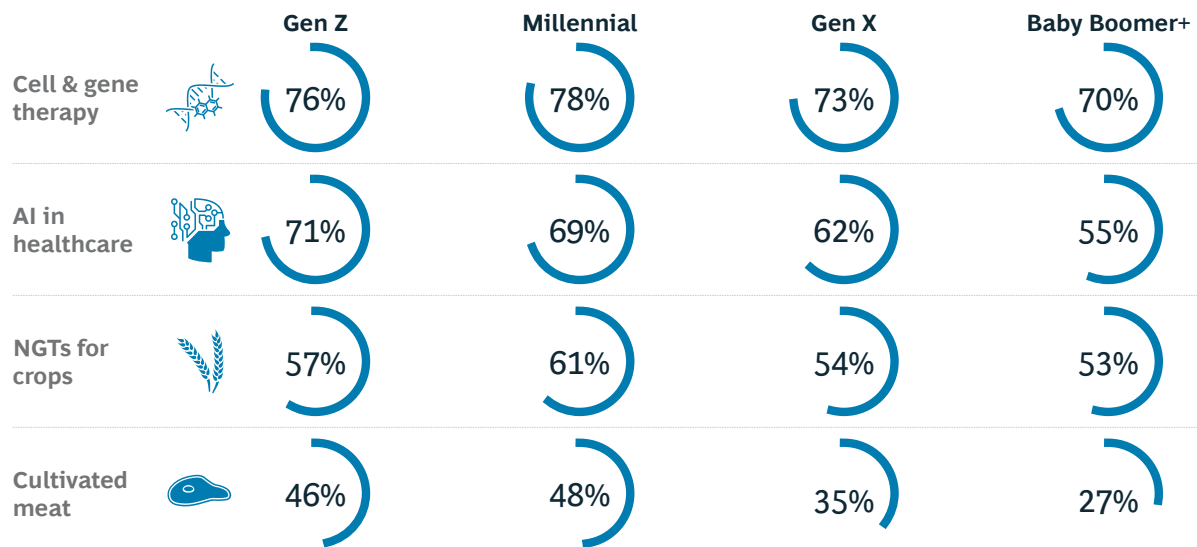
Q – CM: Overall, is your opinion of cultivated meat positive, negative, or neutral? (n=12,485)

4

Our survey studied both knowledge levels and attitudes, and across cell & gene therapy, new genomic techniques for crops and cultivated meat, we found that people who are more aware of the topics tend to be more optimistic/positive about them.[1] Respondents reported the lowest levels of knowledge with cultivated meat and new genomic techniques for crops, which could be a factor in their less-positive perceptions of these innovations. (*please refer to chapter 3*)

Across all four, younger people are typically more likely to support breakthrough innovations, with Gen Z and Millennials consistently more optimistic about these advancements compared to older groups.[2]

Generational positivity/optimism on breakthrough innovations[2]

	Gen Z	Millennial	Gen X	Baby Boomer+
Cell & gene therapy	76%	78%	73%	70%
AI in healthcare	71%	69%	62%	55%
NGTs for crops	57%	61%	54%	53%
Cultivated meat	46%	48%	35%	27%

Q – CGT: Are you optimistic or pessimistic about the potential of CGT to cure diseases such as Parkinson's Disease and other degenerative diseases? (n=12,320) Note: Only optimistic answers, optimistic including very and fairly optimistic,

Q – AI: To what extent do you feel positive or negative about the impact of Artificial Intelligence (AI) on the future of human health? (n=13,111) Note: Only positive answers, positive including very and fairly positive, negative including very and fairly negative

Q – NGTs: Overall, is your opinion of new genomic techniques (NGTs such as genome editing tools like CRISPR) positive, negative or neutral? (n= 11,951) Note: Only positive answers

Q – CM: Overall, is your opinion of cultivated meat positive, negative, or neutral? (n=12,485) Note: Only positive answers

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Artificial Intelligence in Healthcare

Artificial intelligence (AI) is widely seen as a transformative force in healthcare, with 64% of people feeling positive about its future impact on human health, 23% neutral, and 10% negative.[1] Regarding specific applications, 70% believe that AI can lead to new discoveries in medicine. The technology is already used for drug discovery, especially in the U.S., which hosts more than half of the world's AI companies for drug discovery businesses.[4]

70%

… believe AI can lead to new discoveries in medicine
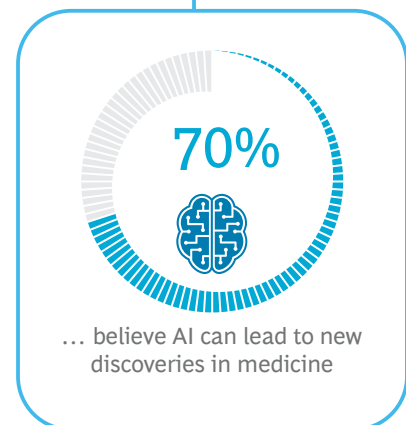
Improved Diagnoses

In addition, 68% of respondents believe that AI could improve diagnoses—potentially driven by AI's growing applications in areas such as radiology, pathology, cardiology, and dermatology[5] —and 59% agree that AI will increase access to scarce resources such as mental health support. In high-income countries, AI-enabled tools already offer personalized support, tracking behavioral patterns, and enabling early intervention—reinforcing the belief that AI can significantly improve both access and outcomes.[4]

3. Data reported of those who felt they understood or somewhat understood the breakthrough topic after being shown the definition
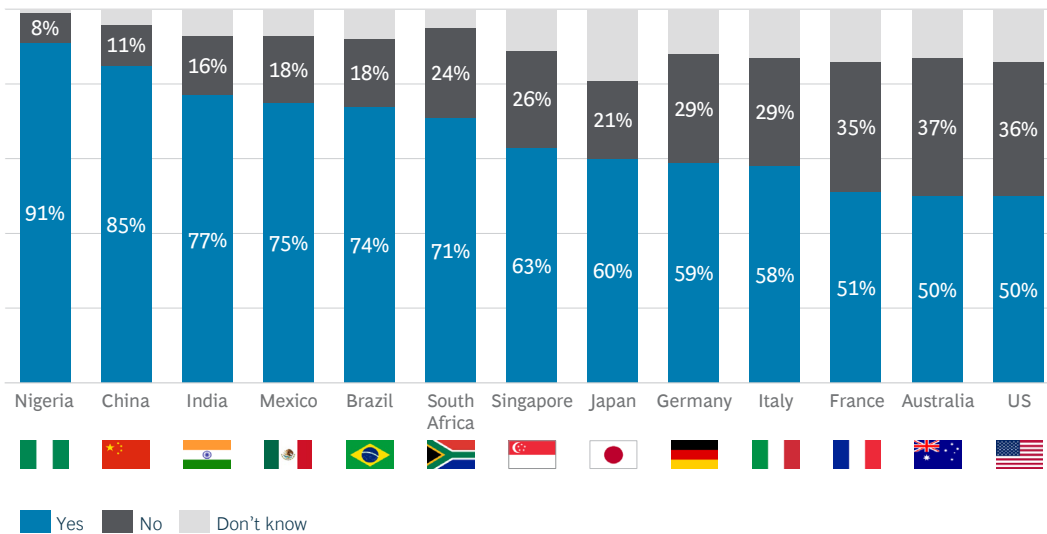4. AI in drug discovery and its clinical relevance
5. Artificial Intelligence and Machine Learning (AI/ML)-Enabled Medical Devices

Support for medical decisions

These trends reflect broader attitudes towards AI in healthcare. With 66% of all respondents definitely or probably happy for their doctor to use AI to support them to make decisions about their medical treatment, this acceptance varies significantly by region. Support in lower-middle and upper-middle income countries is much higher, up to 91% in Nigeria and 85% in China, where the highest projected growth is expected (42.5%). While the major revenue is generated from AI tools in US ($11.8bn) it is surprising that only 49% would trust AI to handle their medical data, Nevertheless, AI is advancing rapidly in the US, with over 950 AI/ML-enabled medical devices cleared by the FDA, primarily in radiology, driving innovations in early diagnostics and personalized medicine.[5]

Openness for their doctors to use AI to support them to make decisions about their medical treatment

	Nigeria	China	India	Mexico	Brazil	South Africa	Singapore	Japan	Germany	Italy	France	Australia	US
Don't know													
No	8%	11%	16%	18%	18%	24%	26%	21%	29%	29%	35%	37%	36%
Yes	91%	85%	77%	75%	74%	71%	63%	60%	59%	58%	51%	50%	50%

■ Yes ■ No ■ Don't know

Q: Would you be happy for your doctor to use AI to support them to make decisions about your medical treatment?(n= 13,111)
Note: Yes including yes-definitely and yes-probably, No including no-definitely not and no-probably not

6

Use of AI-powered health tools

The use of personal, AI-powered health tools shows a similar pattern. 69% of respondents would personally use an AI-powered health tool if approved by national health authorities, with a higher willingness among younger generations[2] (76% of Gen Z and 74% of Millennials compared to 59% Baby Boomer+) and those in lower-middle income regions (86% compared to 57% in high income countries).

Cell and Gene Therapy

Respondents are even more positive about cell and gene therapy (CGT), with 74% optimistic about its potential to cure diseases, 21% neutral, and a mere 3% pessimistic[1]. That strong positive sentiment across generations and regions makes CGT the highest-rated breakthrough of the four in our analysis.[1]

Despite that optimism, respondents have some concerns about CGT. For example, 48% of respondents agree that they are worried that CGT will have strong side effects.[3] That level of concern is higher among younger generations—58% of Gen Z respondents agree, compared

6. >60% of respondents in all countries hold a positive view, except Japan with 36%, 53% neither positive nor negative and 6% don't know

with 37% of Baby Boomer+.[2] Yet the majority of respondents (59%) agree that the benefits of CGT outweigh the risks.[3] This belief is even more encouraging among those who are knowledgeable about CGT, with 82% agreeing that its benefits far outweigh the risks. Support for CGT transcends the business implications of healthcare—59% say it would still be worth using the technology to develop a cure for a disease even if only a few people could afford it.

New Genomic Techniques

Sentiment regarding new genomic techniques (NGTs) in agriculture is generally positive, though less so than for the two healthcare-related innovations. In our sample, 56% hold a positive opinion, 31% are neutral, and only 8% hold negative views.[1]
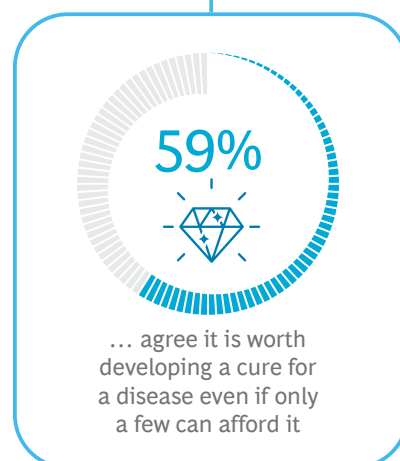
To some degree, perceptions about NGTs align with the degree of regulation in a respondent's country. For example, Australia, Brazil, China, Japan, and the U.S. have adopted more permissive frameworks for the use of NGTs in agriculture, and perceptions among respondents in those countries are more likely to be positive.[7]

In contrast, the EU has more restrictive regulations in place, with NGTs currently limited as a consequence of the 2001 GMO legislation being applicable and slowing down NGT adoption—47% of European respondents hold a positive view (34% neutral, 12% negative).[1] The EU is currently proposing a new legislation to streamline the process and differentiate NGTs from traditional GMOs.[8] These regulatory shifts could open the door for broader adoption in Europe, helping to align public optimism and openness with policy changes that encourage innovation.

Concerns around climate change

Climate change is a factor as well. When asked which benefits would make them feel more positively toward NGTs, 75% of respondents selected 'making crops more resilient to climate change, addressing world hunger'. Overall, 82% of respondents express concern about climate change. Among respondents who are concerned about climate change, 60% perceive NGTs positively, compared to only 39% of those who are not concerned.

Regional differences highlight this even further, in lower-middle income countries, 72% of those who state they understand NGTs feel positive towards them[1], recognizing their potential to address critical challenges like food security and environmental resilience. In contrast, only 47% of respondents in high-income countries share this optimism, potentially reflecting a divide in perceived necessity and urgency for such technologies.

59%

… agree it is worth developing a cure for a disease even if only a few can afford it

Impact of climate change concerns on opinion towards NGTs

Concerned about climate change

| 60% | | 6% |

Not concerned about climate change

| 39% | | 16% |

■ Positive ■ Neutral ■ Negative ▢ Don't know
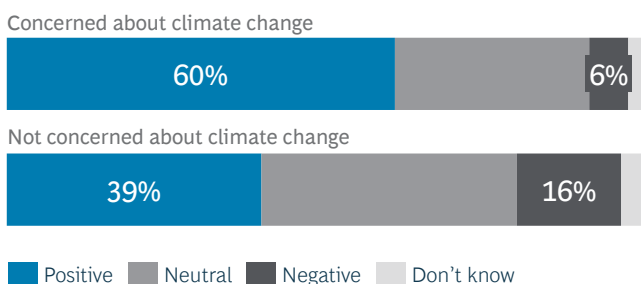
Q: Overall, is your opinion of new genomic techniques (NGTs such as genome editing tools like CRISPR) positive, negative or neutral? (n=11,951)
Note: Concerned including very and fairly concerned, not concerned including not very and not at all concerned

7

7. Global Gene Editing Regulation Tracker
8. European Commission- Proposal for new regulation on plants produced by certain new genomic techniques
9. Cultured meat in the European Union: Legislative context and food safety issues
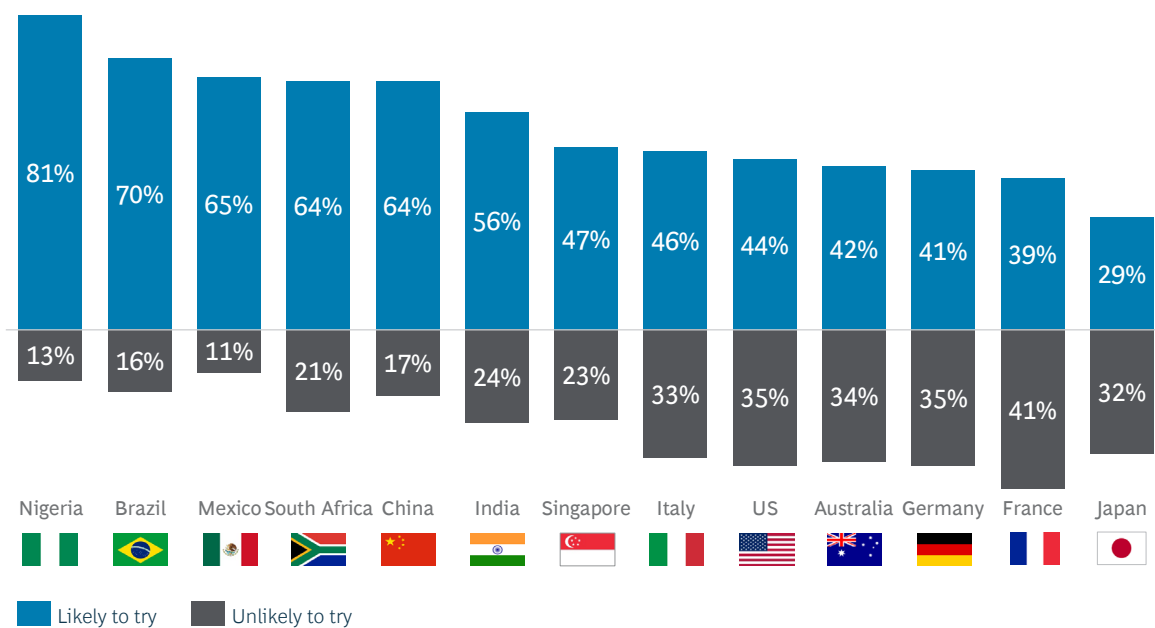
Cultivated Meat

Cultivated meat—likely the most controversial of the four breakthrough innovations in our analysis—shows mixed perceptions, with 39% of respondents expressing a positive view (lowest of the four in our study), 40% remaining neutral, and 19% negative (higher than any other).[1]

Regionally, the strongest negative opinions towards cultivated meat are in selected European countries such as France (33%) and Germany (28%) and the U.S. (28%), where concerns over the potential disruption to agricultural industries and skepticism around the safety and authenticity of cultivated meat are factoring into regulatory discussions.[1,9]

Likelihood to try cultivated meat if made available

Similarly, respondents of France (41%), Germany (35%) and the U.S. (35%) are unlikely to try cultivated meat if it were to become available near them—higher than the global average of 26%, and significantly higher than respondents in Africa such as Nigeria (13%) and the Americas such as Mexico (11%). Countries with high GDPs and high levels of meat consumption appear to be the most reticent to try cultivated meat compared to countries where cost and availability of meat may be limiting factors. [10]

Likelihood to try cultivated meat

	Nigeria	Brazil	Mexico	South Africa	China	India	Singapore	Italy	US	Australia	Germany	France	Japan
Likely to try	81%	70%	65%	64%	64%	56%	47%	46%	44%	42%	41%	39%	29%
Unlikely to try	13%	16%	11%	21%	17%	24%	23%	33%	35%	34%	35%	41%	32%

■ Likely to try   ■ Unlikely to try

Q: How likely or unlikely are you to try cultivated meat if it were to become available near you? Please assume that cost, taste and nutritional value would be the same as conventional meat (n=13,111)
Note: Likely to try includes very and fairly likely to try, unlikely to try includes very and fairly unlikely to try

8

10. Protein supply for animal foods vs. GDP per capita '21

The role of regulatory policy is not always a clear predictor of public sentiment. Cultivated meat is licensed for sale in Singapore, where less than half of the respondents (47%) are willing to try it. In France, only 39% are likely to try cultivated meat, outnumbered by the 41% who say that they are unlikely to try it. In Italy however, 46% state they are likely to try cultivated meat (higher than any other European country), despite recent regulatory bans in the country.

The impact of dietary preferences and gender

Across all dietary preferences almost every second respondent would be likely to try cultivated meat with minor differences between the dietary groups: 47% of pescatarians, 45% of vegans and 42% of vegetarians state that they are likely to try cultivated meat—only slightly lower than the 54% among omnivores.

Gender also plays a role in shaping attitudes, with 57% of men being likely to try cultivated meat, compared to 49% of women.

Impact of dietary preferences on likelihood to try cultivated meat
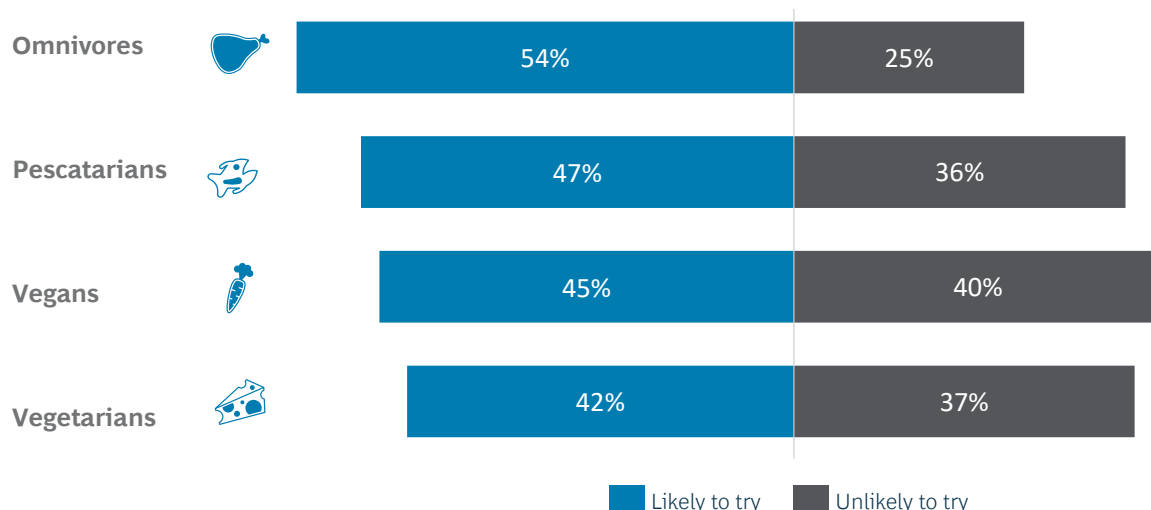
|	Likely to try	Unlikely to try
Omnivores	54%	25%
Pescatarians	47%	36%
Vegans	45%	40%
Vegetarians	42%	37%

■ Likely to try   ■ Unlikely to try

Q: How likely or unlikely are you to try cultivated meat if it were to become available near you? Please assume that cost, taste and nutritional value would be the same as conventional meat (n=13,111)

Note: Likely to try includes very and fairly likely to try, unlikely to try includes very and fairly unlikely to try, omnivores includes 'other' and 'none of these' (11806), pescetarian (269), vegetarian (679), vegan (164)

9

A Snapshot of US findings

While the four innovations we assessed are relevant for all countries, the US stands out given the outsized share of investment in US-based companies working in this innovative space[11]. For that reason, we are highlighting several noteworthy US-specific findings.

- **U.S. respondents are among the least likely among all surveyed countries to favor AI-supported treatment decisions,** with only 50% saying that they would be happy for their doctor to use AI to support them to make decisions about their medical treatment, and 36% saying they would not. This is significant given that the US already has 950 AI/ML-enabled medical devices cleared by the FDA, primarily in radiology, driving innovations in early diagnostics and personalized medicine.[3]

- **28% of U.S. respondents have a negative opinion of cultivated meat,** higher than people in most other countries we surveyed (global average 19%).[1] Similarly, only 44% of respondents in the U.S. say they are likely to try cultivated meat—roughly in line with people in the EU[12] (42%) but lower than the global average of 53%, and significantly lower than respondents in Latin America[13] (67%) and Africa[14] (72%).[1]

- **Just 56% of U.S. respondents agree that they trust health authorities to act in the public's best interest,** lower than the 62% total samples incl. all countries, and significantly lower than respondents in Africa[4] (74%) and Latin America[5] (67%).
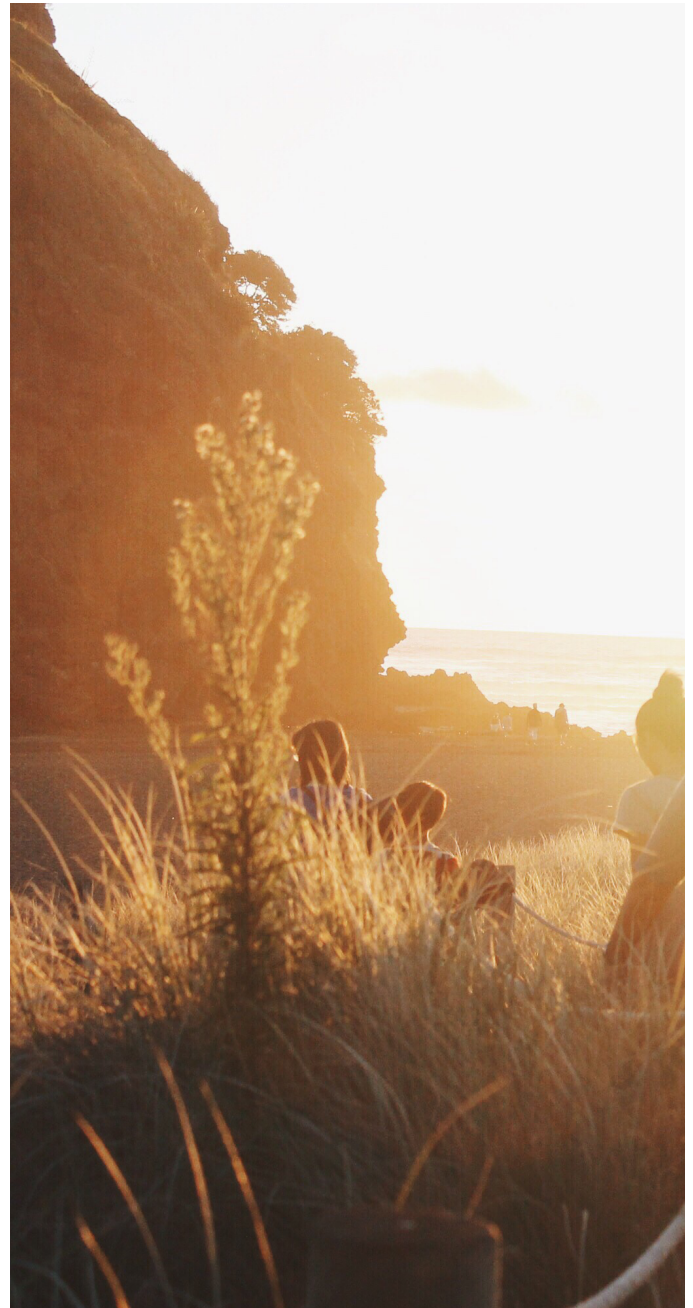
11. PitchBook Data, Inc.
12. EU incl.: France, Germany, Italy
13. Latin America incl.: Brazil, Mexico
14. Africa incl.: Nigeria, South Africa

2

Building Trust to Overcome Skepticism and Concerns

A recurring theme in the data is the growing need to build public trust in scientific innovation. While many respondents are enthusiastic about technological advancements, skepticism still lingers, especially regarding how these breakthroughs are integrated into public policy. There is a clear disconnect between science and governance, with only 40% of respondents agreeing that they feel their views on scientific innovation are reflected in government policy. In contrast, 22% disagree, and 30% neither agree nor disagree, indicating uncertainty or a potential lack of engagement on these issues.

It is essential to evaluate the varying levels of trust in health authorities and companies, as these differences significantly influence public opinion regarding scientific breakthroughs. Understanding where trust is high and where it falters can help stakeholders understand—and overcome—peoples' biggest barriers to adopting new innovations.

I feel my views on scientific innovation are reflected in government policy …
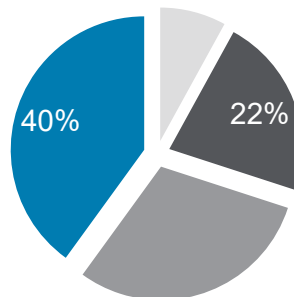
- **Agree** 40%
- **Disagree** 22%
- **Neither agree nor disagree**
- **Don't know**

Q: I feel my views on scientific innovation are reflected in government policy (n=13,111)

10

Trust in health authorities

Trust plays a central role in shaping public attitudes toward scientific innovation, particularly when it comes to health authorities. 62% of respondents trust health authorities to act in the public's best interest, but this varies widely by region. It is lowest in high income countries such as France (48%) and the U.S. (56%), while much higher in upper-middle and lower-middle income countries such as China (73%) and Nigeria (86%).

This trust—or lack thereof—directly correlates with how people view scientific advancements. Among those who trust health authorities to act in the public's best interest significantly higher levels of optimism to improve human health, improve access to food and solve environmental challenges were found.

Concerns about a lack of human oversight for AI in healthcare

While AI is making significant advances in healthcare, public concerns about AI's role remain, 77% of respondents say that they are concerned about the lack of human oversight over decisions with regards to AI use for medicine and healthcare and 74% are concerned about the potential for errors or misdiagnosis. Additionally, a substantial 76% of respondents believe that AI used in healthcare should be reviewed by national health authorities, and only 49% trust AI to handle their health and medical data.

The conviction that AI used in healthcare should be reviewed by national health authorities varies by region. Notably, this belief strongest in Nigeria (91%), Brazil (82%) and China (82%). In contrast, European countries (71% avg.) show still high but overall, the lowest demand for such review[15], possibly due to the EU's already existing comprehensive regulatory framework, such as the General Data Protection Regulation (GDPR) and the proposed AI Act.[16,17] These regulations focus on protecting privacy, ensuring transparency, and enforcing ethical use of AI, particularly in sensitive areas like healthcare.

15. Except for Japan with the highest number of indecisive respondents (37% - incl. 'don't know' and neither agree not disagree)
16. European Think Tank - The impact of the General Data Protection Regulation (GDPR) on artificial intelligence
17. European Commission - European AI Act comes into force

Trust in health authorities correlates with increased optimism in scientific breakthroughs

Significantly improve human health
- Trust in health authorities: 84%
- No trust in health authorities: 52%

Improve access to healthy, nutritious food
- Trust in health authorities: 84%
- No trust in health authorities: 46%

Solve environmental challenges
- Trust in health authorities: 72%
- No trust in health authorities: 36%

■ Trust in health authorities   ■ No trust in health authorities
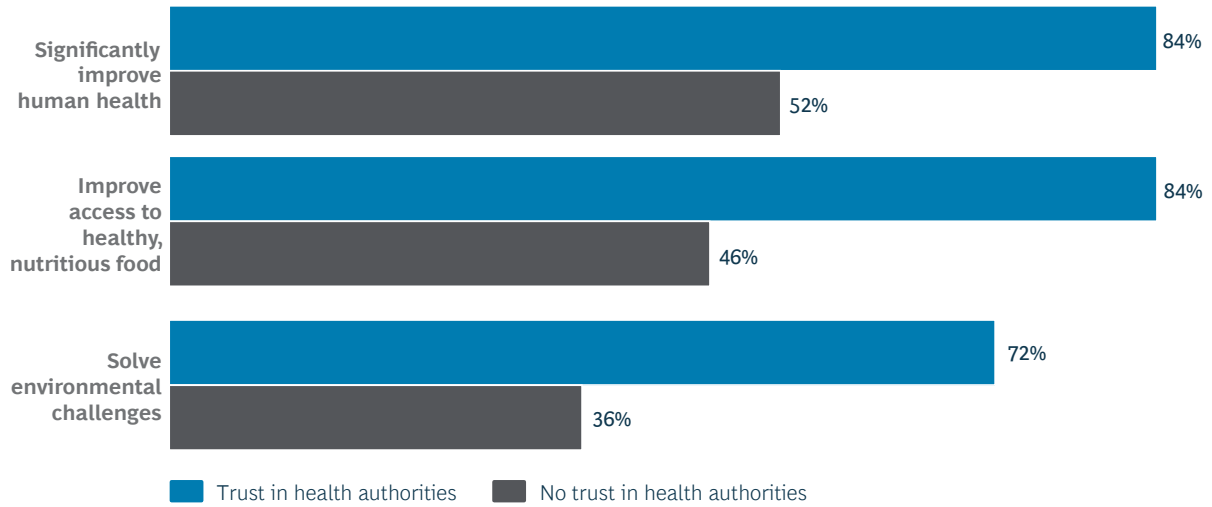
Cross-reference of Q1 x Q2 (n= 13,111)

Q1: I trust health authorities to act in the public's best interest Note: Trust in health authorities includes strongly agree and tend to agree, no trust in health authorities includes strongly disagree and tend to disagree

Q2: To what extent are you optimistic or pessimistic about the potential for scientific breakthroughs to achieve each of the following? Note: Optimistic includes very and fairly optimistic

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Trust in corporations

Companies pursuing scientific innovation face a trust challenge, with many respondents doubting their transparency and motives. Only 40% of respondents feel that companies pursuing scientific innovation are transparent on risks and opportunities. This trust deficit is especially high in high-income countries, where only 29% of respondents believe in this statement, compared to 64% in lower-middle-income countries. Additionally, generational differences stand out, with 50% of Gen Z and 48% of Millennials feeling that companies pursuing scientific innovation are transparent on risks and opportunities, compared to only 29% of Baby Boomers+.[2]

Public skepticism also extends to the pharmaceutical industry, with 46% of all respondents expressing skepticism that the pharmaceutical industry will pursue therapies that cure diseases instead of just treating symptoms. This doubt is more pronounced among younger generations, with 53% of Gen Z and 50% of Millennials questioning the priorities of the industry, compared to 38% of Baby Boomers+.[2] Highest skepticism was reported in lower-middle-income countries such as Nigeria (72%) and India (65%).
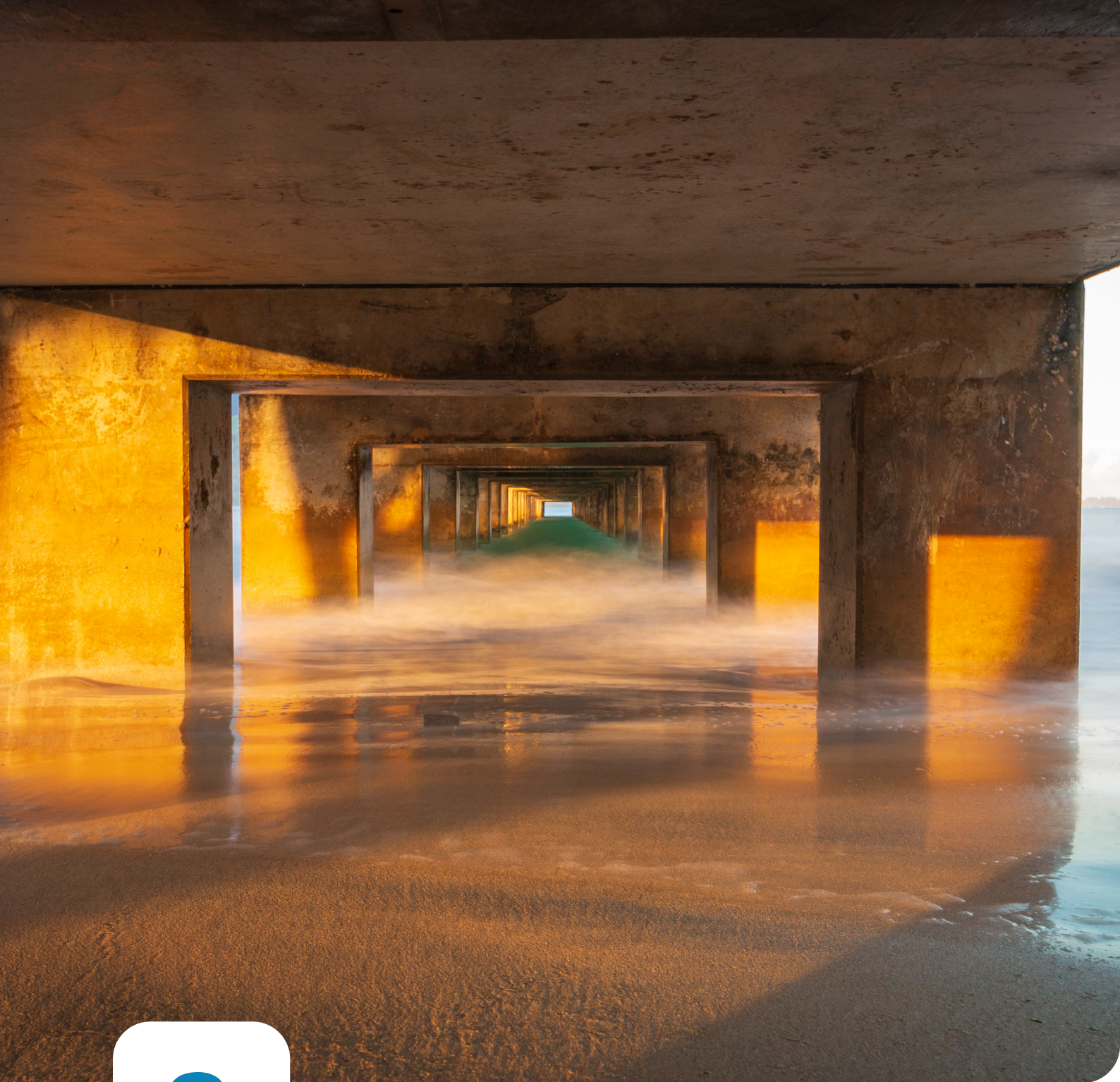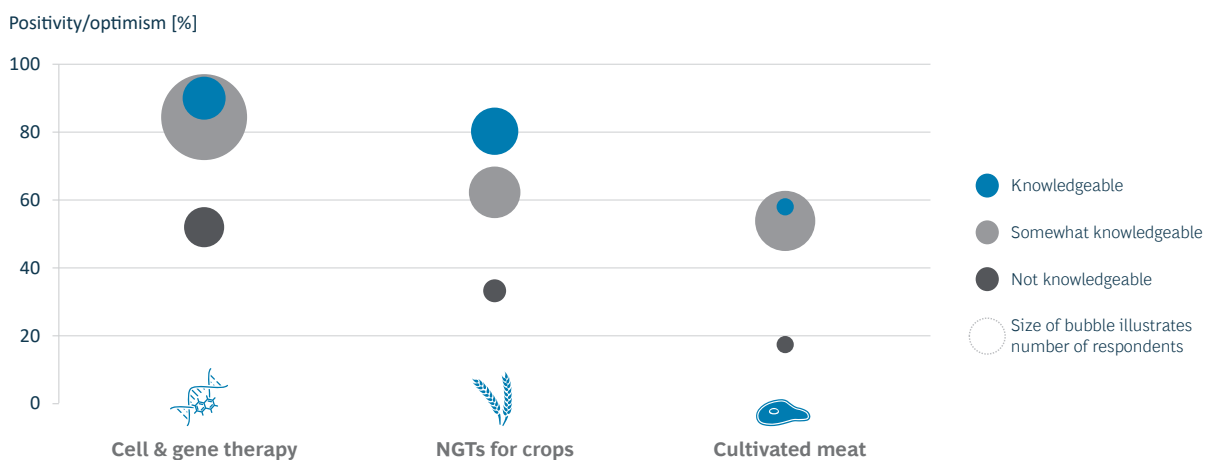
3

Conclusions and next steps

"The problem we face today is that while science is advancing exponentially, popular understanding is growing linearly, and the national and international regulatory infrastructure is only inching forward glacially."

Jamie Metzl, author of Hacking Darwin and Superconvergence.

There is extensive evidence supporting the potential impact of breakthrough technologies to increase human wellbeing.[18] Advances in cell and gene therapies and AI could dramatically improve human health, NGTs and cultivated meat could significantly reduce the environmental impact of agriculture and make food systems more resilient. However, our study demonstrates that globally, knowledge about these scientific breakthroughs and their potential impact on human wellbeing is lacking. History indicates that public acceptance is crucial for translating scientific advancements into tangible outcomes.

Our data shows a clear correlation between knowledge levels and optimism—those who know more about a particular innovation are more positive about it. Our study also found high levels of neutrality and uncertainty—particularly concerning cultivated meat and NGTs. This presents a vital opportunity for public engagement. Addressing target groups with mainly neutral views on new technologies could prove a critical focus to foster greater openness.

Knowledgeability correlates with optimism about breakthrough science[19]

Positivity/optimism [%]

Legend:
- Knowledgeable
- Somewhat knowledgeable
- Not knowledgeable
- Size of bubble illustrates number of respondents

X-axis categories: Cell & gene therapy, NGTs for crops, Cultivated meat

Q – CGT: Are you optimistic or pessimistic about the potential of CGT to cure diseases such as Parkinson's Disease and other degenerative diseases? (n=12,320) Q – NGTs: Overall, is your opinion of new genomic techniques (NGTs such as genome editing tools like CRISPR) positive, negative or neutral? (n= 11,951) Q – CM: Overall, is your opinion of cultivated meat positive, negative, or neutral? (n=12,485)

Note: Knowledgeability tested for each of these breakthrough topics with 4 true or false questions, knowledgeable = all 4 questions correct, somewhat knowledgeable = at least 2 correct of 3, not knowledgeable 3 or more incorrect, Only positive / optimistic view on breakthrough topic displayed

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18. Leaps 2nd report created with Happiness Research Institute
19. Knowledge about AI in healthcare not tested

However, our data also demonstrates that information overload is a formidable barrier—simply producing more information is likely insufficient to educate and drive openness. Fifty-three percent of respondents said they feel overwhelmed by the amount of information regarding food and health. This sense of overload is far higher in lower-middle-income countries, where 80% of individuals struggle with the volume of information, compared to just 40% in higher-income countries. Further, a clear generational divide exists, with 64% of younger generations (Gen Z) feeling more overwhelmed by information, compared to just 41% of older generations (Baby Boomers+).[2]

3.1 What's next? Actions for Innovators

Companies, regulators, policymakers, and other stakeholders all have a vested interest in building trust in scientific innovation. Promisingly, Eurobarometer data indicates that there is a high level of interest (82%) in science and technology across Europe[20]. However, there is a perennial challenge in translating complex scientific concepts into accessible communication – especially in an age where the average screentime attention span is 47 seconds.[21]

Considering the diversity of interests and attitudes across age, gender, and other factors, tailored communication strategies are necessary to encourage diverse demographic groups to learn more about innovation. What's more, by focusing on the demographics whose neutral stance provides an opening, stakeholders can be more effective, maximizing the impact of limited resources.

Also essential is fostering a culture of transparency, where all stakeholders communicate transparently about both the risks and opportunities of a particular innovation.[22] Our research highlights significant trust gaps for companies pursuing innovation, making transparency and science engagement vital. Improving public access to research, its processes and data – presented in an engaging and understandable manner – can enhance credibility. This is particularly crucial as the public often does not engage directly with scientific papers. It is important to find a balance where innovators share a vision for the transformative breakthroughs alongside real-world data that validates progress, all the while being cautious of over-promising with forward-looking statements.

20. Eurobarometer on science and technology
21. https://gloriamark.com/attention-span/
22. IPSOS Global Trustworthiness Monitor

3.2 What's next? Research Priorities

The global scope of our research reveals that knowledge and trust in scientific breakthroughs are unevenly distributed. Our initial analysis uncovers clear patterns across nations and demographics, but the diverse data collected invites deeper exploration. Are wealthier, urban Americans more receptive to using AI tools in their healthcare? Which demographics are the most resistant to NGTs, and what other attitudes do they have in common? In the coming months, we will release further insights into attitudes across key geographies and the four innovation areas.

This quantitative data provides a critical entry point to understand attitudes at a demographic level, but additional research is needed to understand why individuals hold these hopes and fears.

Why are U.S. respondents the least open to AI tools in healthcare, despite their advanced availability—especially compared to other countries studied? What factors contribute to low trust in health authorities in France? What are the roles access to healthy food healthcare and overall health literacy—especially in lower-middle-income countries—in shaping perception of breakthrough innovation? Large-scale qualitative research in key geographies could provide valuable insights, offering a deeper understanding of public sentiment beyond broad cultural norms.

Lastly, further research into the most effective communication tools and tactics for moving the needle with neutral or science-hesitant demographics will be important. Can facts and figures transform hearts and minds? Whose voices can truly move the need on opinions toward science and innovation? Scientists? Celebrities? Journalists? TikTok influencers? Additional insight paired with thoughtful, creative exploration could be a winning formula to build the public consensus needed for breakthrough innovation to positively impact human wellbeing.
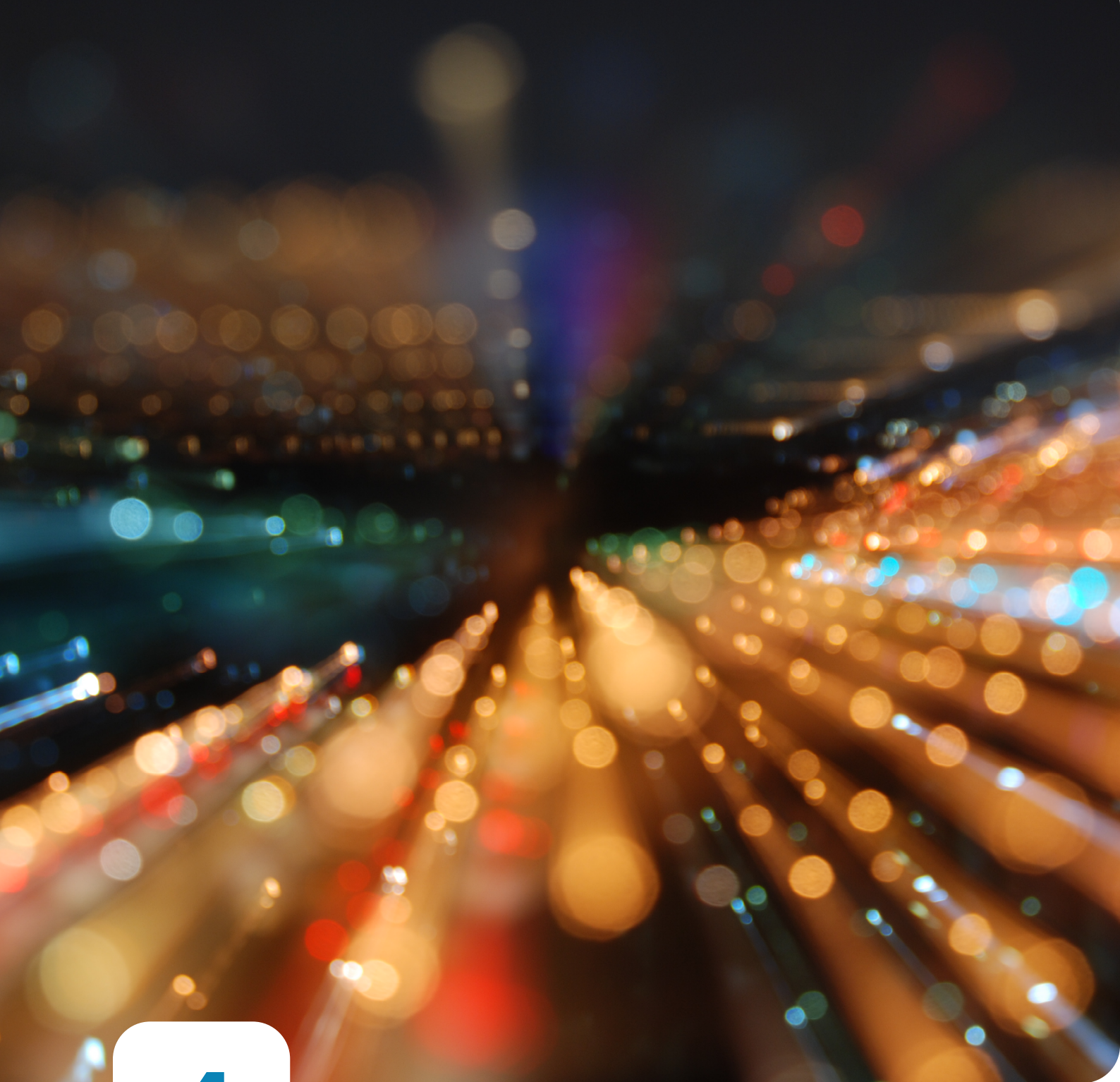
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Appendix:
Methodology

In 2024, a comprehensive survey was conducted by Ipsos on behalf of Leaps by Bayer and BCG to capture information on attitudes toward scientific innovations and emerging technologies across 13 countries.

A 15-minute online survey was conducted by Ipsos between 27th August 2024 and 18th October 2024, amongst adults aged 18+ from 13 countries including

- High income: the United States, Germany, Italy, France, Japan, Singapore

- Upper-middle income: Brazil, Mexico, China, South Africa, Australia

- Lower-middle income: India, Nigeria

The total sample was 13,111 (1,000 in each US, Germany, Italy, France, and Australia; 1,001 in each Brazil, Mexico, Nigeria, India; 1,002 in each South Africa and Japan; 1,003 in Singapore; and 1,100 in China). Participants were recruited from market research panels, and quotas were imposed to ensure national representation based on region, age and gender and employment status (as well as ethnicity in the US). The total number of interviews across the 13 countries was weighted to "country averages" (giving each country the same weight in the total), and weighting has been employed to balance demographics and ensure that the sample's composition reflects that of the adult population according to the most recent census data on region, age, gender, employment, and ethnicity in the USA. No weighting was applied to adjust on any other demographic. Due to the online manner of the survey, the survey results should be viewed as reflecting the views of the more "connected" segment of the population.

The survey explored topics such as artificial intelligence (AI) in medicine and health, cell and gene therapy (CGT), cultivated meat (CM), new genomic techniques (NGTs), and overall attitudes toward scientific innovation. Key areas of focus included:

Artificial Intelligence (AI) in Medicine: Awareness of AI applications in healthcare, opinions on its potential benefits, concerns regarding its use, and likelihood of utilizing AI tools or accepting AI-assisted medical support from doctors.

Cell and gene therapy (CGT): Levels of optimism or pessimism regarding CGT as a potential cure for diseases, perceived level and tested knowledge, concerns around the motives of pharmaceutical companies, and accessibility of CGT treatments.

Cultivated meat: Opinions, perceived level and tested knowledge, likelihood of trying cultivated meat, reasons for potential adoption, perceived benefits, and general awareness.

New genomic techniques (NGTs): Opinions on NGTs, perceived level and tested knowledge, perceived benefits, and understanding of the science behind it.

In addition, the survey evaluated broader attitudes toward food and nutrition, knowledge of CM, NGTs, and CGT, as well as the general mindset toward scientific advancements.

The survey also addressed overarching societal views, including:

- Perceptions of the direction in which the world is heading

- Self-defined attitudes or mindsets toward science and progress

- Climate change and its impacts

- Opinions on the potential for scientific breakthroughs

- The perceived pace of innovation

- Information overload on food, health, and food choices

- Trust in government policies, healthcare authorities, and pharmaceutical companies

Topic definitions

Cultivated meat is genuine animal meat that is produced by growing animal cells directly. This production method eliminates the need to raise and farm animals for food. Cultivated meat is made of the same cell types that can be arranged in a similar structure as animal tissues, thus replicating the taste, texture, and nutrition of conventional meat.

Cell therapies transfer living cells to a patient to prevent or treat diseases caused by damaged or malfunctioning cells. Gene therapy uses genetic material to address genetic diseases including Sickle Cell Disease, as well as some acquired diseases, like heart failure. There are thousands of cell and gene therapies in clinical trials globally. If successful, many of these therapies aim to deliver permanent or curative treatments.

New genomic techniques (NGTs) are innovative tools that can introduce small genetic changes to crops, similar to those that occur naturally or through conventional breeding, unlike GMOs. Scientists use NGTs including CRISPR and RNAi to develop crops with improved resilience to climate change, increased freshness to reduce food waste, enhanced nutrition, and other benefits.

No definition was provided for AI in Health and Medicine, given the widespread familiarity with the term AI. Additionally, in this context, a technical understanding of AI was less relevant than the use case. Instead, participants were asked about their awareness of the following health and medicine use cases for AI:

- AI used in drug discovery

- Remote patient monitoring tools that track risk factors and prioritize patient care

- Medical imaging analysis that could detect problems more accurately

- Applications that diagnose diseases based on symptoms

- Specialized, clinically tested chatbots that offer 24/7 health advice

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