SCENARIOS WORKSHOP

ARE WE THERE YET?

Instructions

1 Introduce a topic

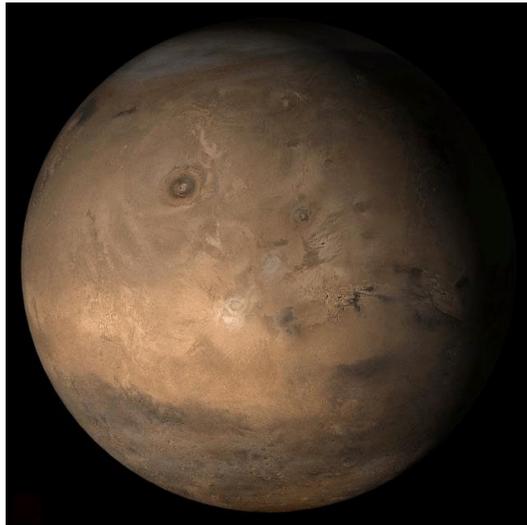**2** List possible milestones

3 Select your response

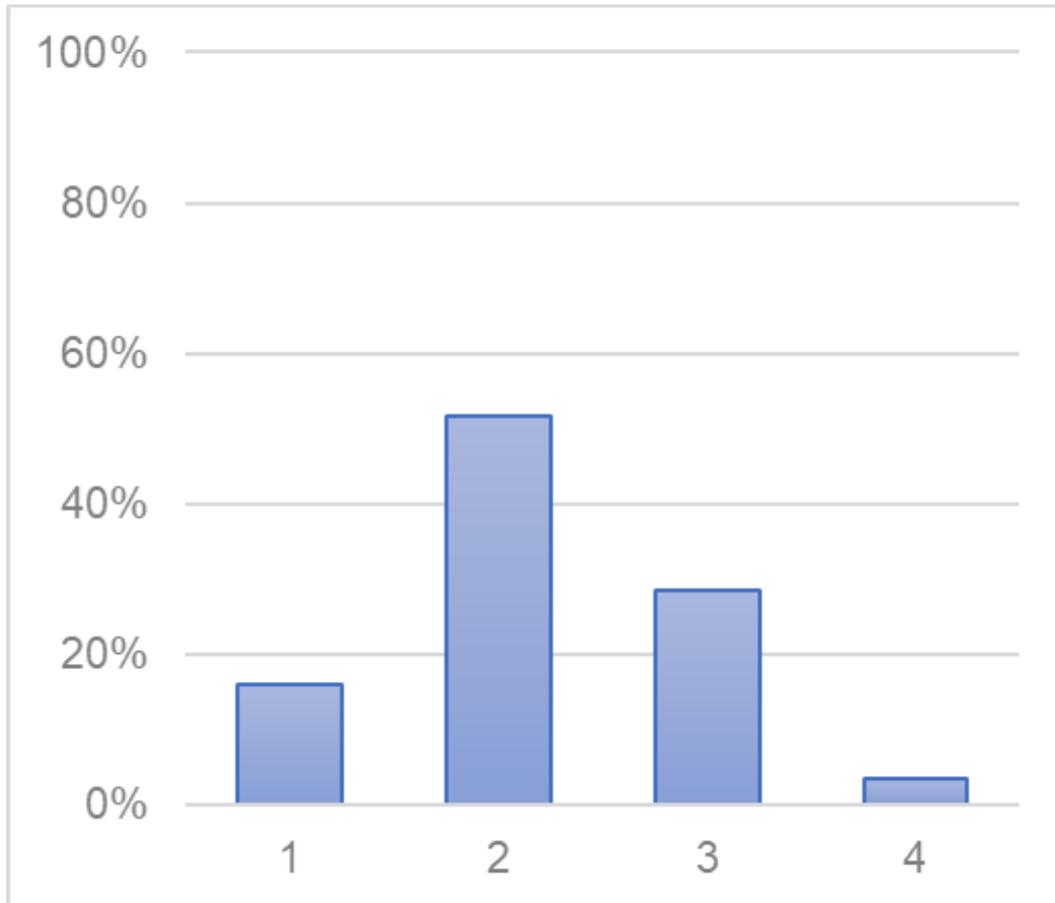**4** See how everyone voted

Topic 1: Space Travel

By 2035, the United States...

Option	Answer
1	...will not have returned to the moon
2	...will have successfully returned to the moon
3	...will have successfully sent individuals to Mars
4	...will have successfully sent individuals beyond Mars

Image credits (top to bottom): NASA and NASA/JPL/Malin Space Science Systems
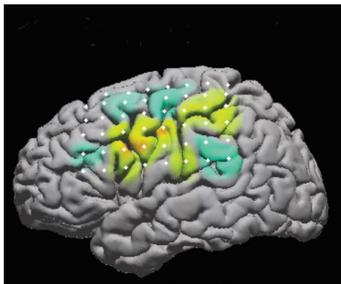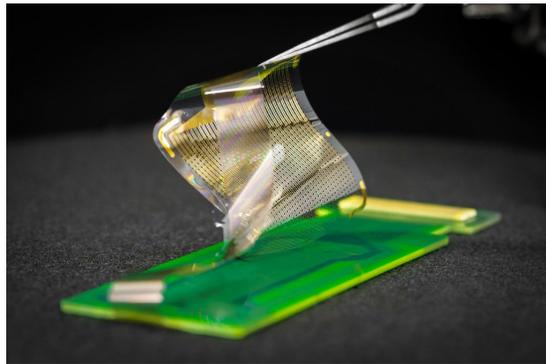
Audience Voting

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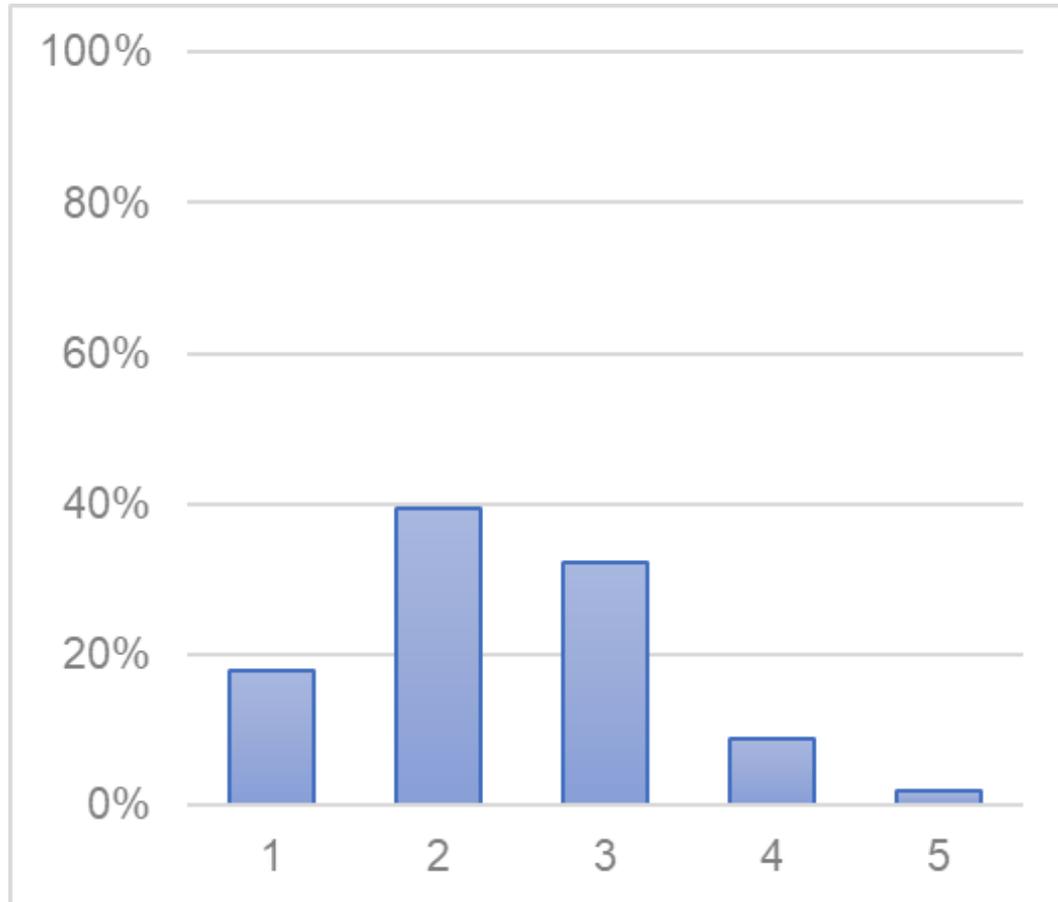
Topic 2: Brain-Computer Interfaces (BCI)

By 2035, how many of the following statements about brain-computer interfaces will be true?

- Noninvasive BCI headsets will monitor alertness, attention span, and indicators of fatigue in certain workplace environments

- Invasive BCI devices will allow for locked-in individuals to communicate at "able-bodied typing speeds" (~40 words per minute)

- Noninvasive BCI will be able to read an individual's unique brain patterns, like a biometric marker

- Information can be transmitted directly to the brain via an invasive BCI

Option	Answer
1	At least one
2	At least two
3	At least three
4	All four
5	None

Image credits (top to bottom): National Institutes of Health; David Baillot, UC San Diego Jacobs School of Engineering; and Kai Miller, Univ. of Washington

Audience Voting

1. At least one
2. At least two
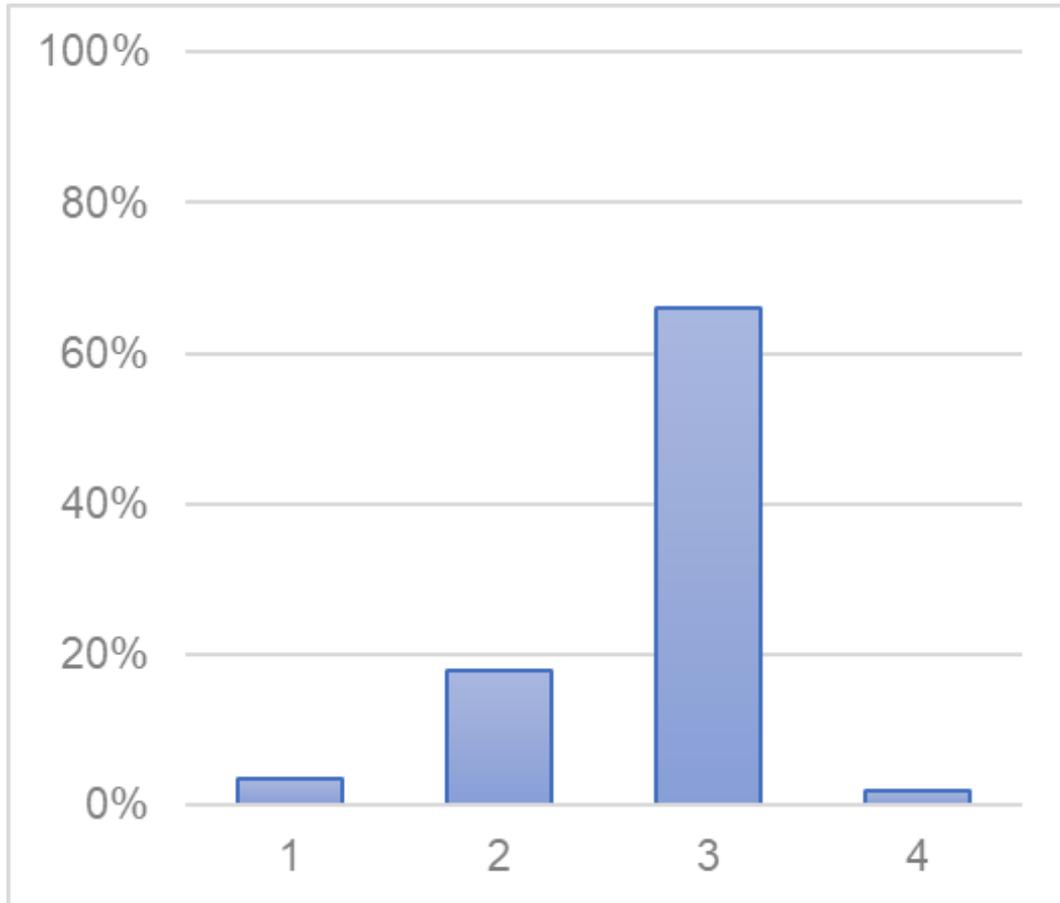3. At least three
4. All four
5. None

Topic 3: Virtual Reality

By 2035, virtual reality...

Option	Answer
1	...will be limited to a novelty or entertainment function and/or specific applications (e.g., training)
2	...will have permeated more broadly to society, but still largely for early tech adopters
3	...will be pervasive, with most of society spending some time in virtual worlds and environments
4	...will be pervasive, with most of society spending more time in virtual worlds than the real world

Audience Voting

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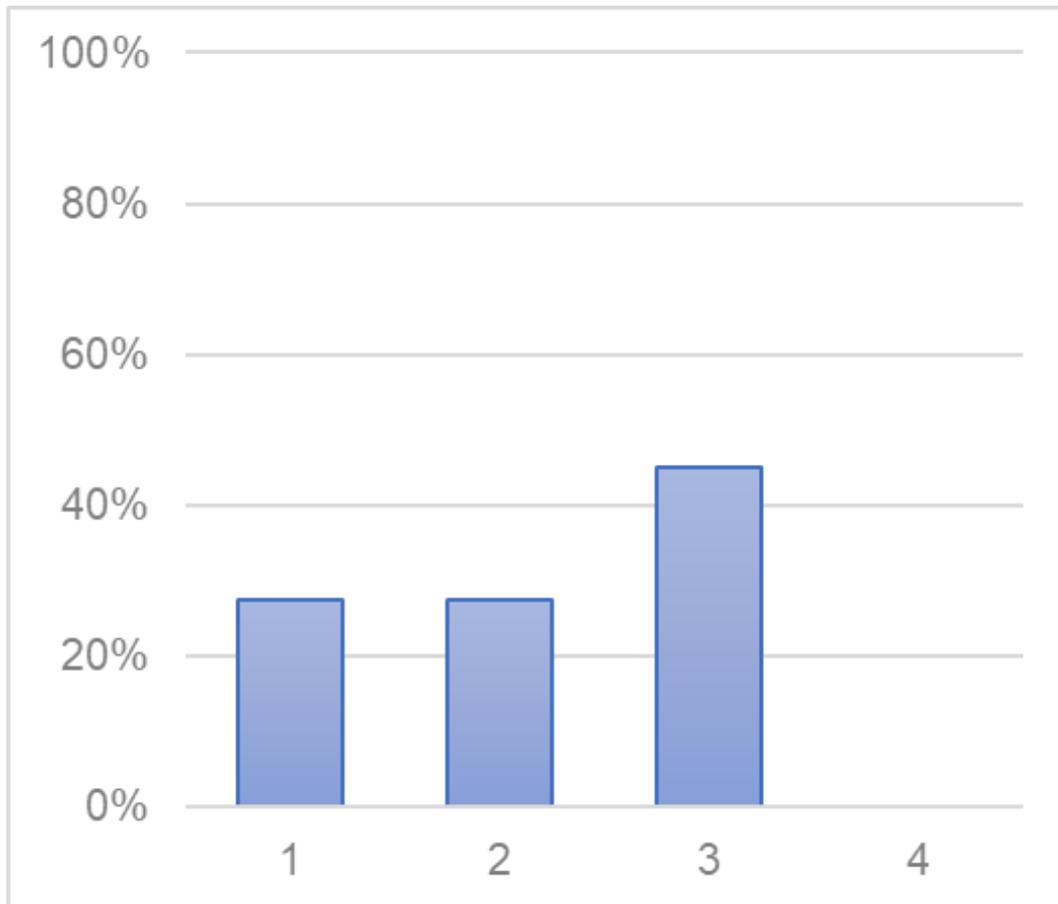
Topic 4: Hyperloop

By 2035, fully operational hyperloops for public transportation...

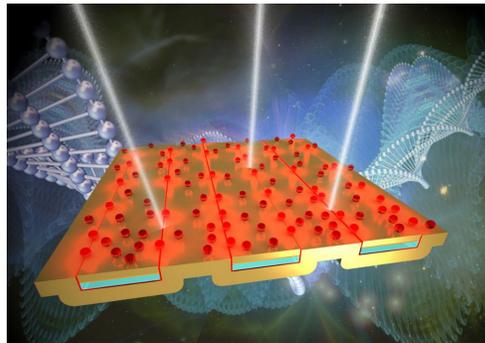| Option	Answer
1	...won't exist anywhere in the world
2	...exist in other countries, but not in the United States
3	...exist in the United States, but in small numbers (e.g., < 5)
4	...exist in the United States, with most promising hyperloop corridors in operation

Audience Voting

1. ...won't exist anywhere in the world

2. ...exist in other countries, but not in the United States

3. ...exist in the United States, but in small numbers (e.g., < 5)

4. ...exist in the United States, with most promising hyperloop corridors in operation

Topic 5: Synthetic Biology

How many of the following statements about synthetic biology will be true?

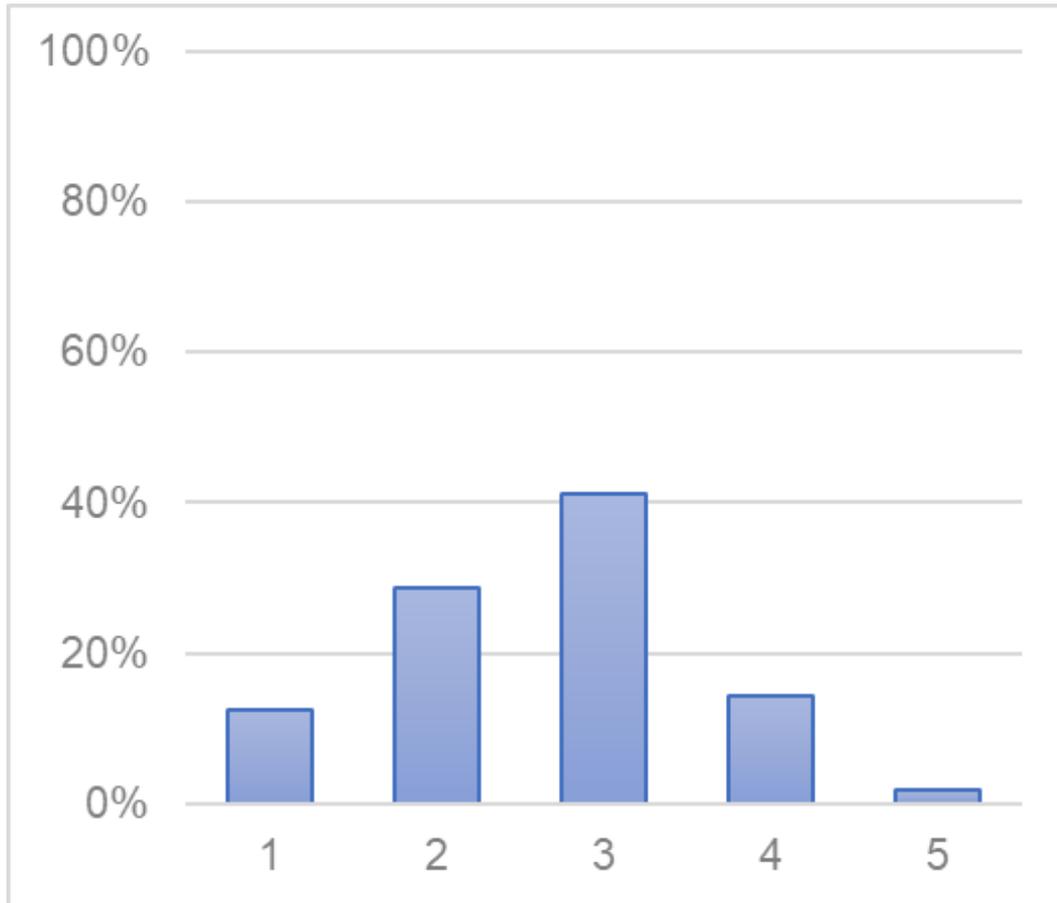By 2035, synthetic biology...

- ...will allow many forms of cancer to be cured

- ...will have provided a viable alternative to fossil fuels for petrochemical generation

- ...will produce cell-cultured seafoods that are widely available for consumers

- ...will lead to the eradication of malaria

Option	Answer
1	At least one
2	At least two
3	At least three
4	All four
5	None

Image credits (top to bottom): Bio-Rad Laboratories; Qiaoqiang Gan, University at Buffalo; and National Institute of Allergy and Infectious Diseases

Audience Voting

1. At least one
2. At least two
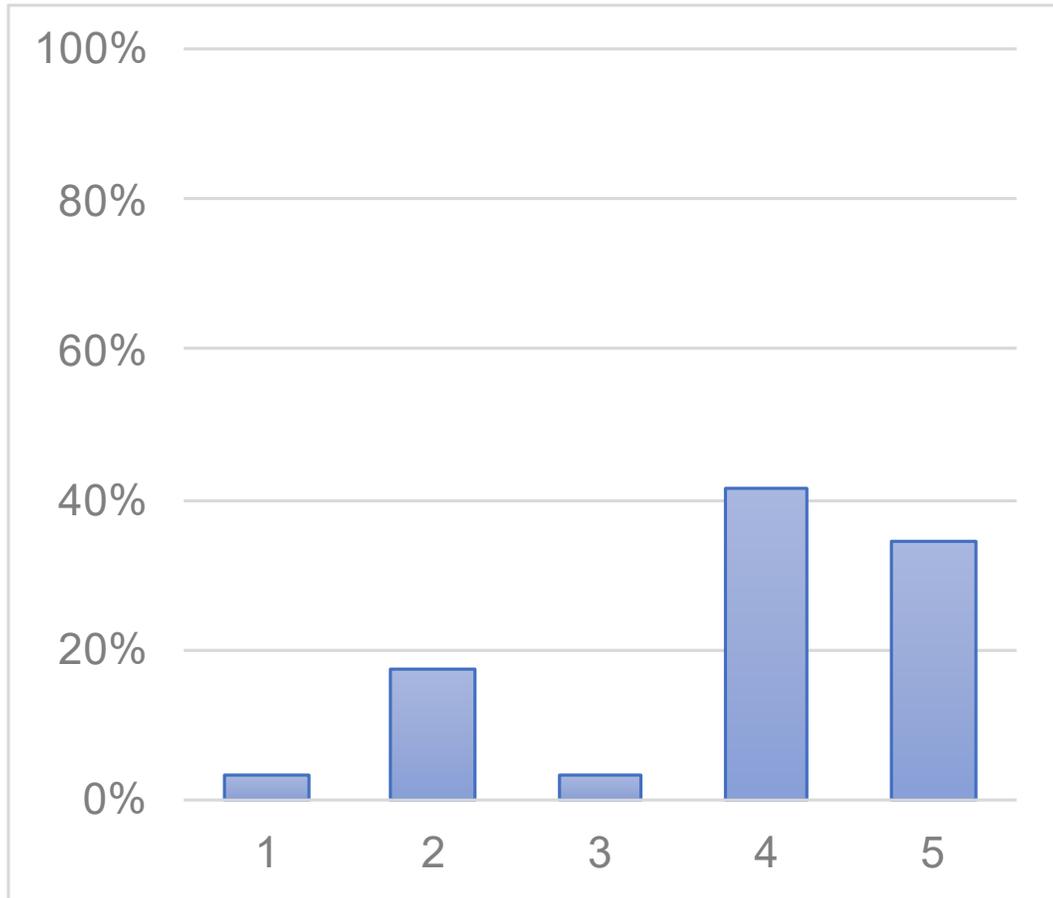3. At least three
4. All four
5. None

Topic 6: Zero Hunger

By 2035, food insecurity...

Option	Answer
1	...won't exist nearly anywhere around the world
2	...won't exist nearly anywhere in the United States, but will continue elsewhere
3	...will be significantly reduced in the United States relative to 2021
4	...will have experienced little or no positive change in the United States versus 2021
5	...will increase in the Unites States relative to 2021

Image credits (top to bottom): United Nations and USDA Agricultural Research Service
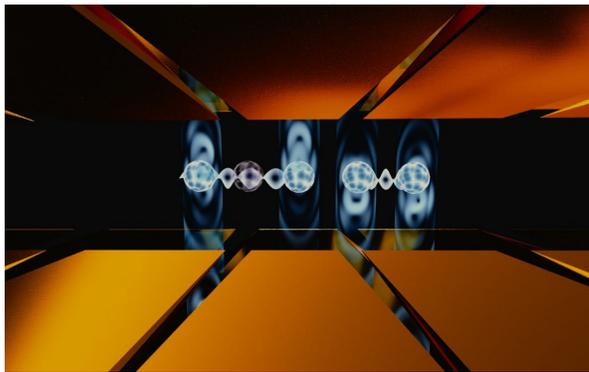
Audience Voting

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Topic 7: Quantum Technologies

By 2035, how many of the following will become a reality with quantum technologies?
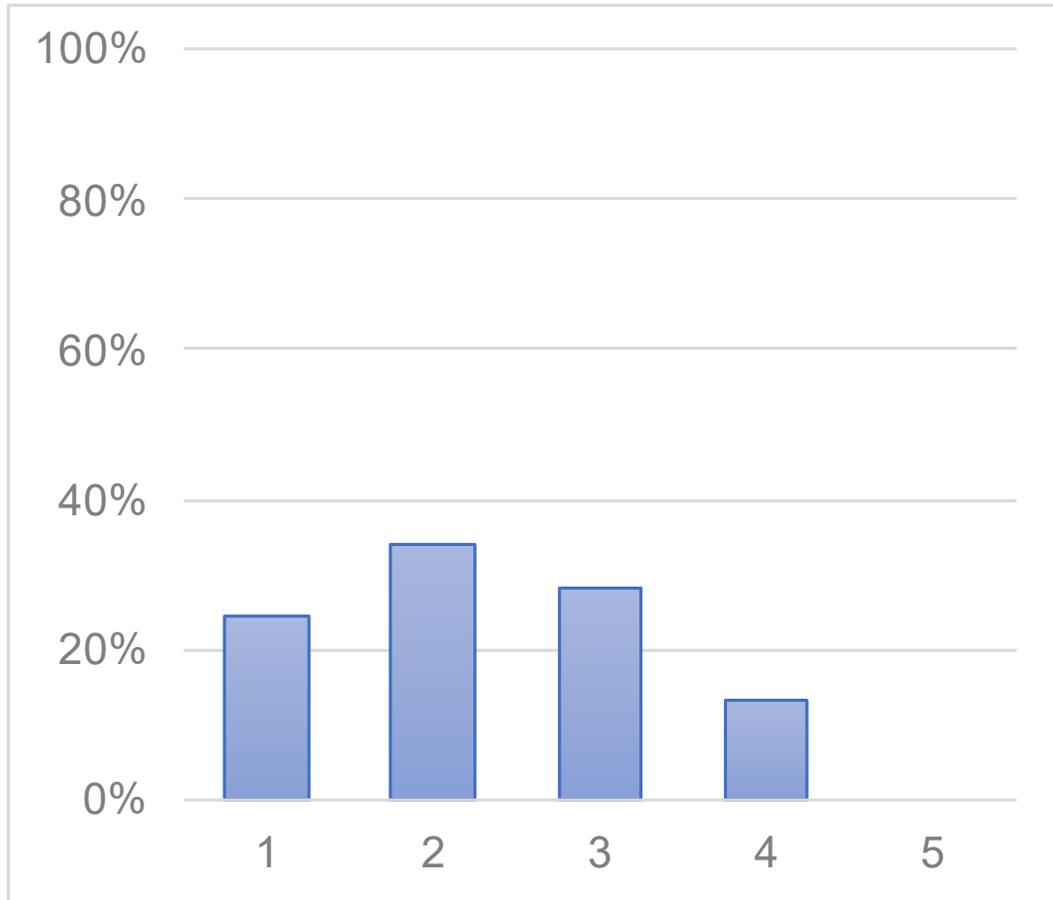
- Quantum sensors in commercial use for critical infrastructure detection and monitoring (e.g., pipeline leak detection)

- Development of the first nationwide quantum Internet in the United States

- Quantum computers capable of breaking public-key encryption

- Quantum simulations capable of addressing complex molecular interactions, leading to novel materials and therapeutics development

Option	Answer
1	At least one
2	At least two
3	At least three
4	All four
5	None

Image credits (top to bottom): Andrew Lindermann, IBM and E. Edwards, Joint Quantum Institute

Audience Voting

1. At least one
2. At least two
3. At least three
4. All four
5. None