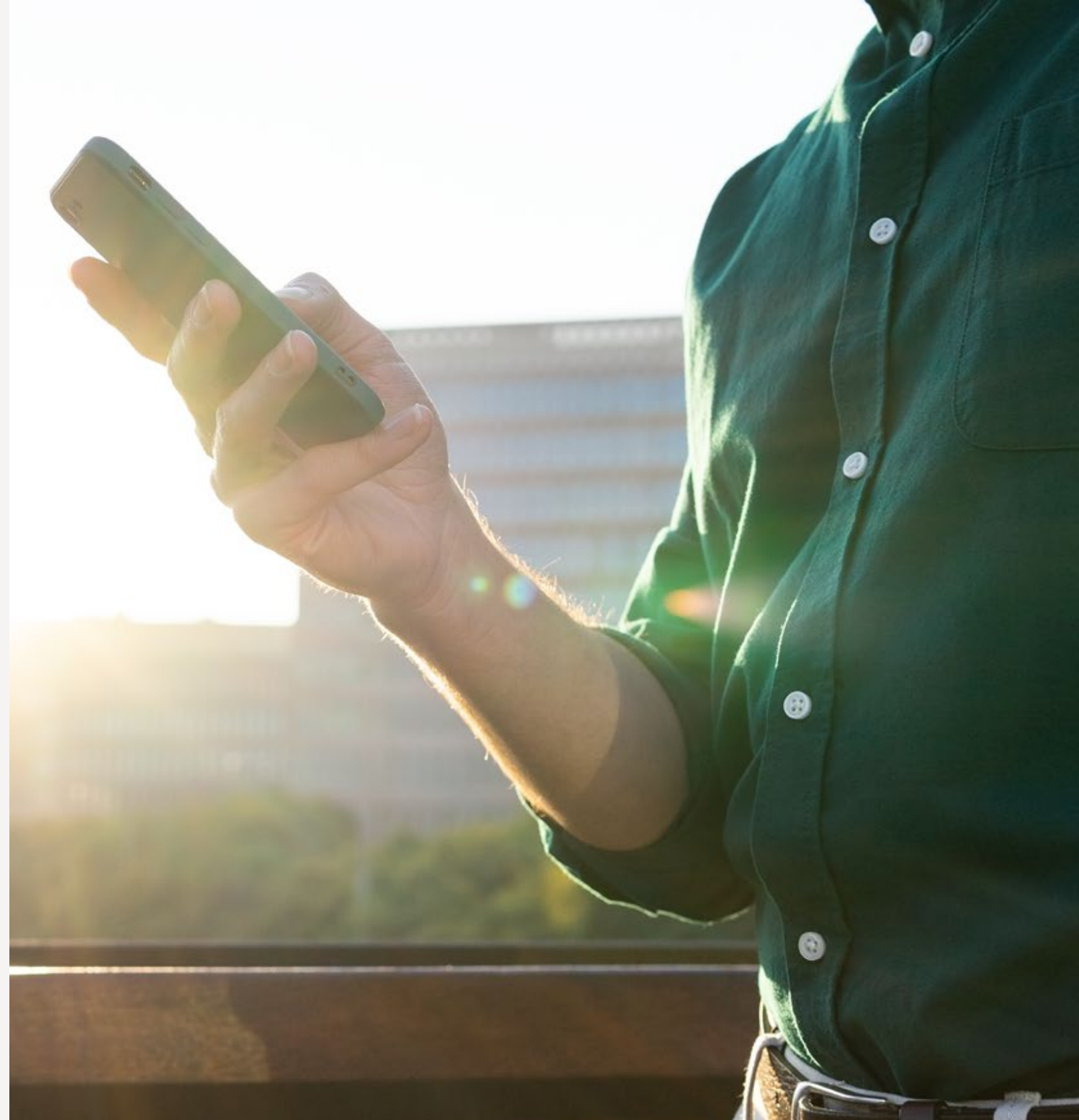


Technology Is the Fast Track to Net Zero

CO2 AI by BCG

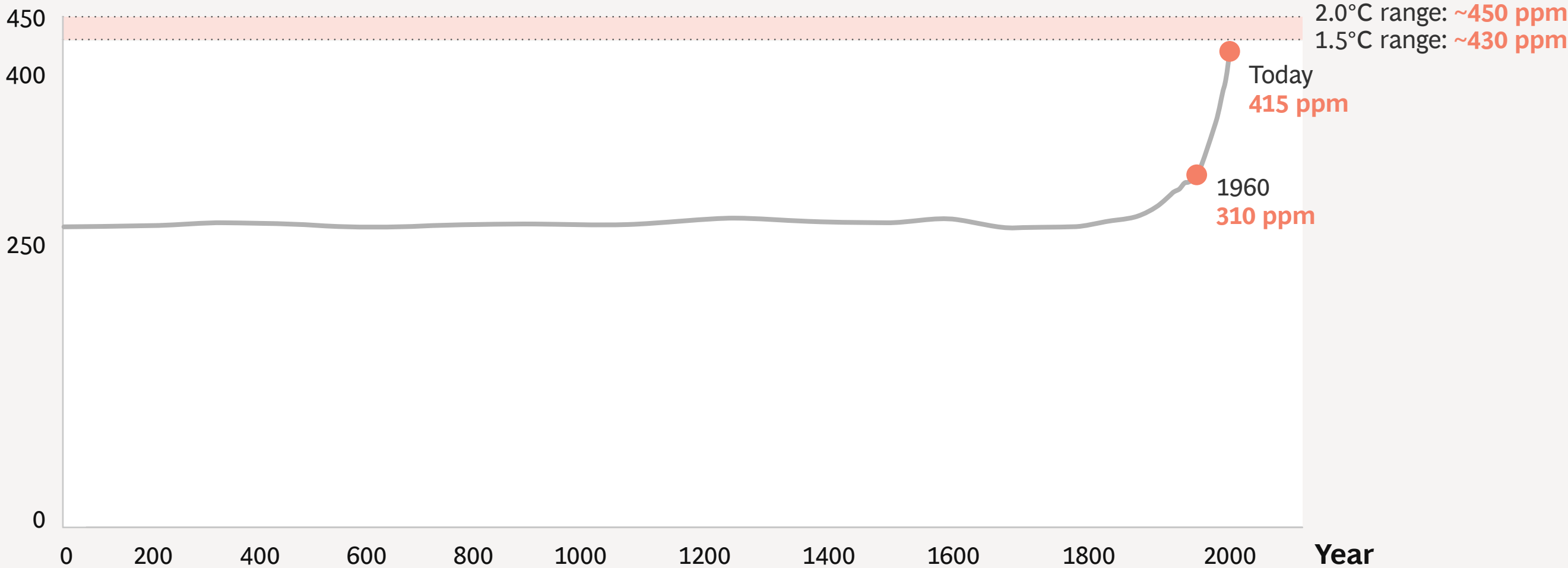
Carbon Emissions Survey Report 2022

OCTOBER 2022



We must act now to limit global warming

CO₂ concentration in the atmosphere (ppm)



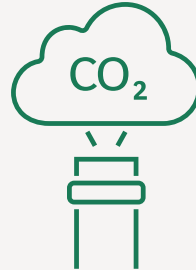
Source: NASA's Goddard Institute for Space Studies.

Our 2022 CO2 AI by BCG Carbon Emissions Survey represents a continuation of a 2021 investigation into where businesses stand on their net-zero journey

Second edition



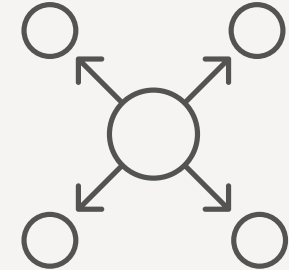
1,600+
respondents



40%+
global emissions



18
countries

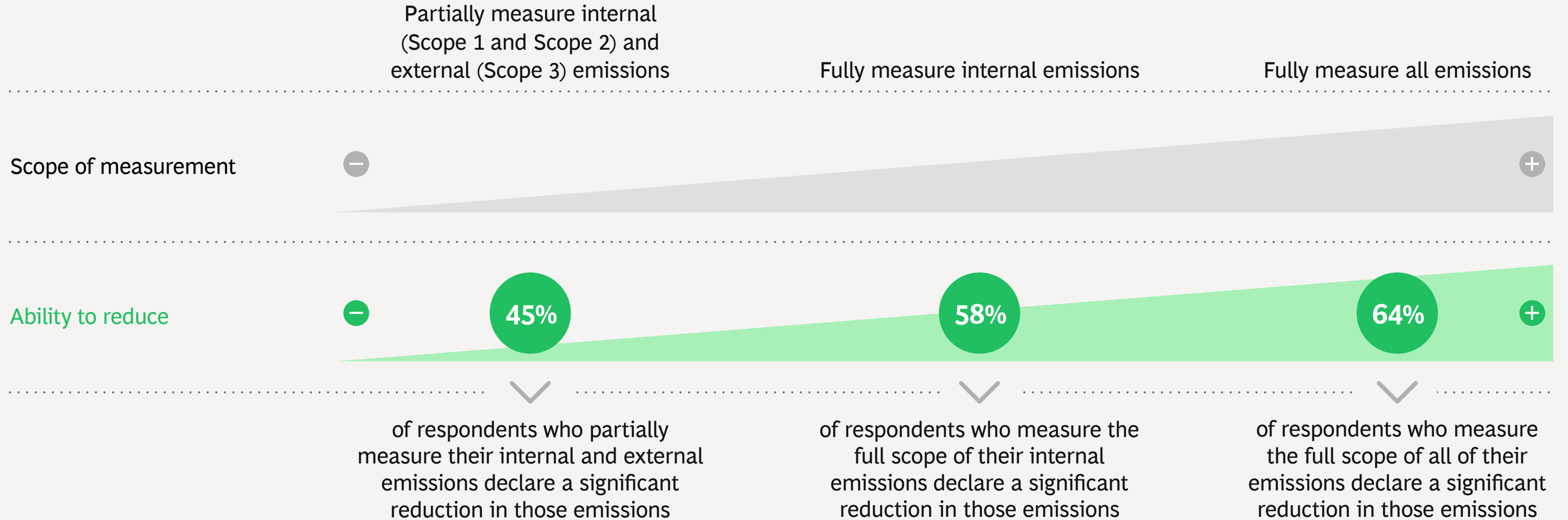


14
industries

Source: BCG analysis.

Note: Throughout this analysis, greenhouse gas emissions are measured in carbon dioxide equivalents.

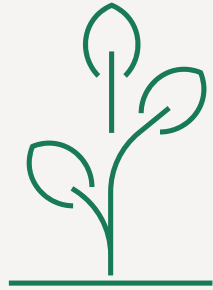
Our 2022 survey confirms that the better a company measures its emissions, the more it can reduce them



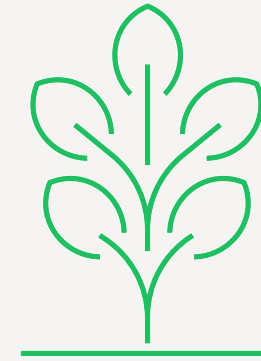
Source: CO2 AI by BCG Carbon Emissions Survey 2022.

Note: We define respondents who have realized more than 50% of their emissions reduction ambition as having made a significant reduction.

Corporations recognize the benefits of decarbonization



More than **70% of those surveyed** foresee **\$1 million or more** in annual benefits from emissions reduction

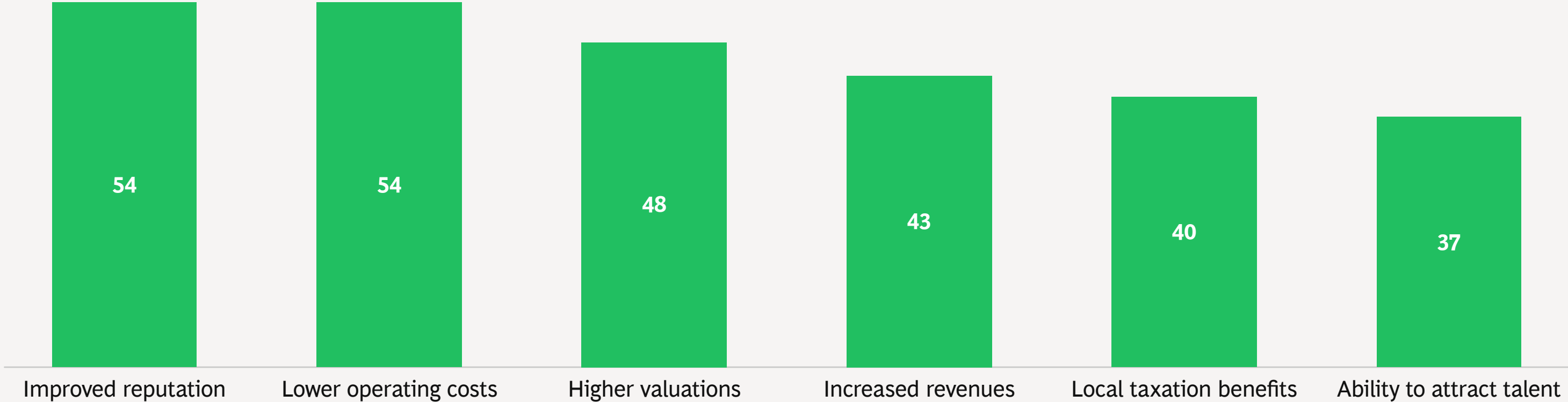


37% foresee \$100 million or more in annual benefits from emissions reduction

The largest perceived benefits are improved reputation and lower operating costs

Perceived benefits from emissions reduction

RESPONDENTS (%)

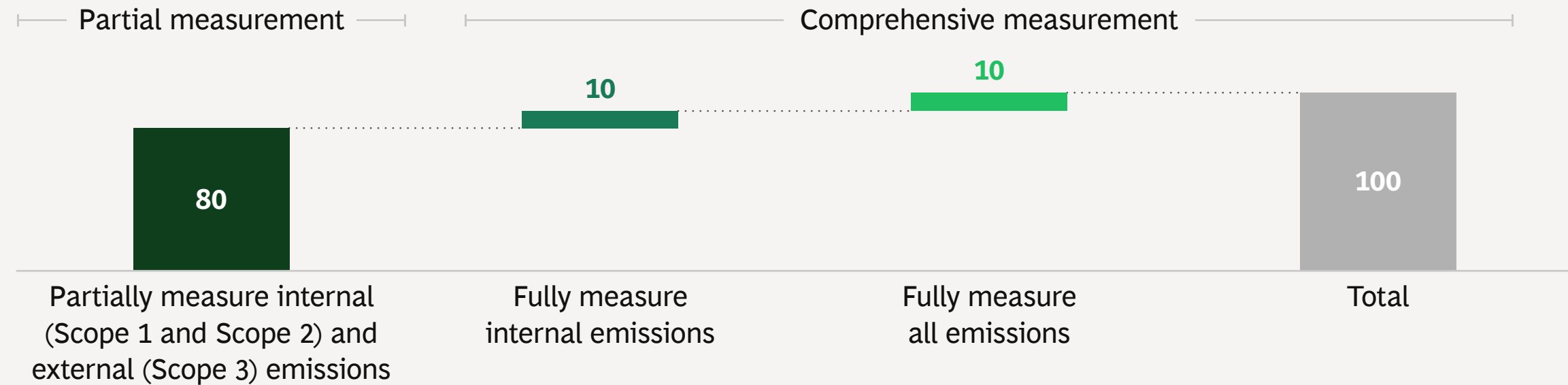


Sources: CO2 AI by BCG Carbon Emissions Survey 2022; BCG analysis.

Note: Percentage of respondent organizations; respondents were permitted to give more than one answer.

Measurement remains a leading roadblock, with only marginal improvements in emissions measurement since 2021

RESPONDENTS (%)



2021 survey results

81%

10%

9%

Internal emissions
(Scope 1 and Scope 2)



External emissions
(Scope 3)



● Fully ● To some extent

Organizations are not yet measuring their emissions accurately

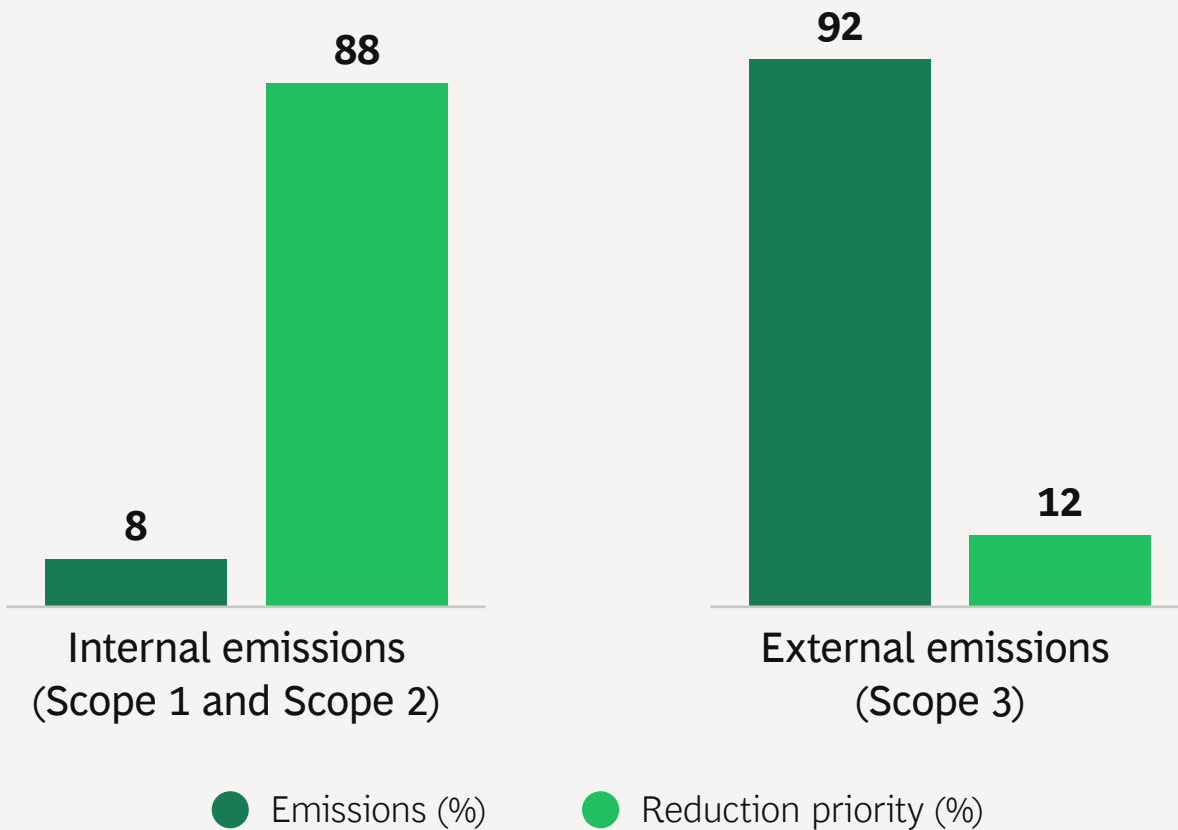


25%–30%

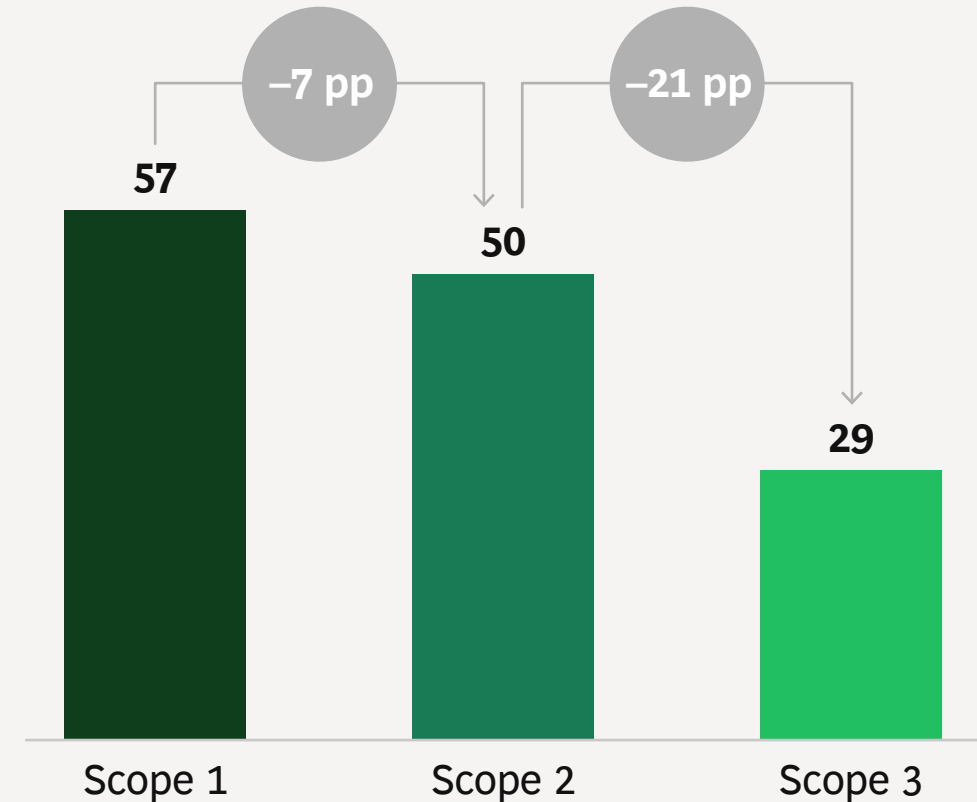
Our respondents estimate a **25% to 30% average error rate in their emissions measurement**, with an improvement of approximately 5 pp over 2021

Scope 3 is still challenging: it accounts for over 90% of emissions but is a priority for only 12% of organizations

Respondents (%)



Companies that measure the relevant scope and have defined targets (%)



The CO2 AI by BCG maturity index measures organizational maturity through four general stages of emissions measurement and reduction



Stage 1 – Lagging

- Poor measurement exhaustiveness and accuracy
- No targets, or targets set to a limited scope
- No obvious reduction

Maturity score

≤2.5 out of 10



Stage 2 – Emerging

- Limited measurement exhaustiveness and accuracy
- Targets are not systematically set
- Limited reduction

Maturity score

>2.5 to 5 out of 10



Stage 3 – Competent

- Good measurement exhaustiveness and accuracy
- Targets set systematically, at least for internal emissions
- Significant reduction

Maturity score

>5 to 7.5 out of 10



Stage 4 – Expert

- Comprehensive and accurate measurement
- Targets set systematically for all emissions
- Significant reduction

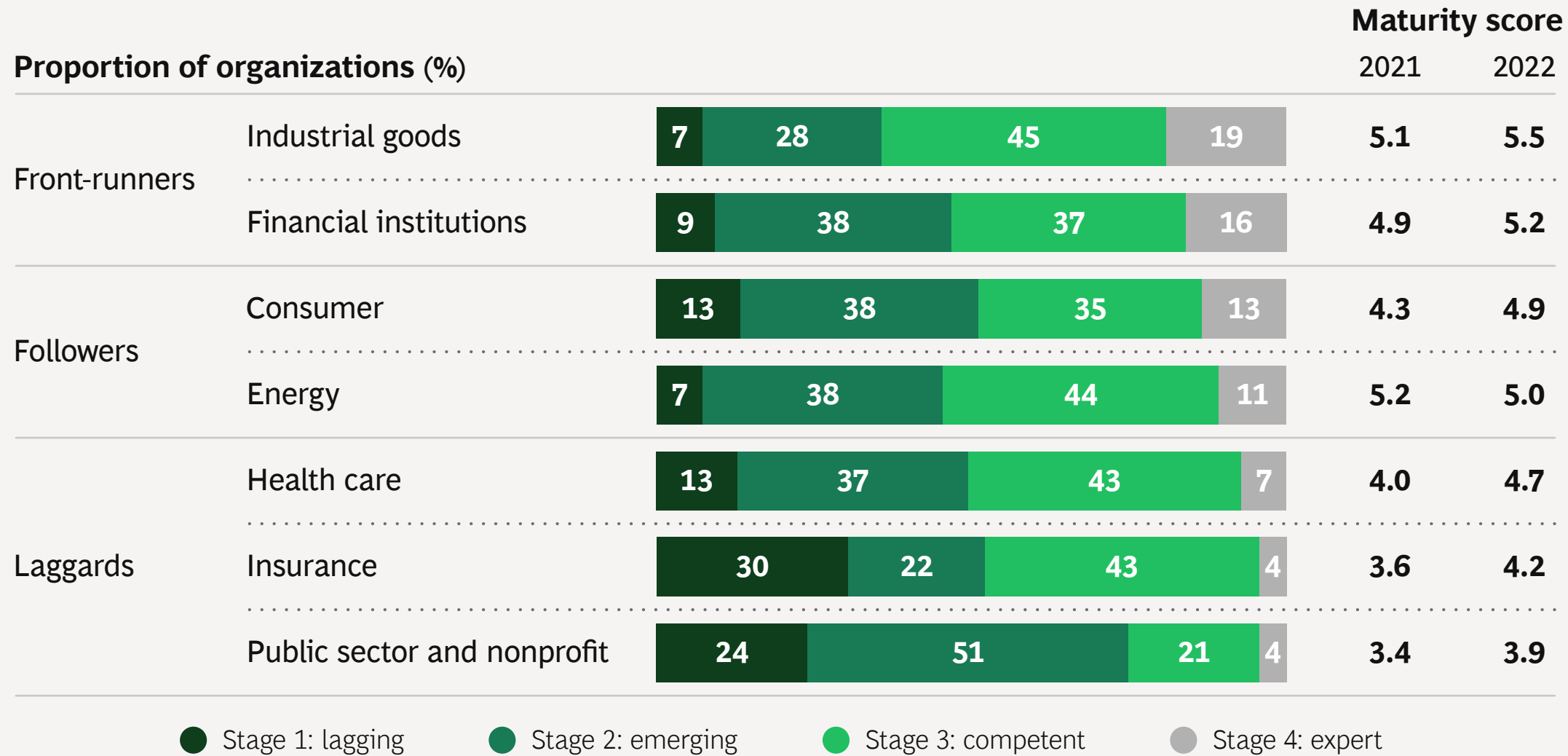
Maturity score

>7.5 out of 10

Sources: CO2 AI by BCG Carbon Emissions Survey 2022; BCG analysis.

Note: An organization's maturity score is determined by the average of various dimension-specific scores based on survey answers about emissions measurement (exhaustiveness, accuracy, automation, and frequency) and reduction (concern, target settings, equipment, and actual reduction). Across all organizations, the average dimension-specific score is 5.0.

The overall CO2 AI by BCG maturity index score for all sectors has improved marginally since 2021, from 4.7 to 5.0



- Industrial goods and financial institutions are at the forefront of carbon maturity
- Public sector and nonprofit organizations are the least mature, consistent with their nonprioritization of emissions reduction

Sources: CO2 AI by BCG Carbon Emissions Survey 2022; BCG analysis.

Note: Financial institutions are the most mature sector in terms of reducing emissions in line with their ambition. Because of rounding, not all bar chart totals add up to 100%.

What would accelerate emissions reduction?



Policy incentives

(e.g., regulation, tax incentives)

“Receive more state support to invest in renewable energy, such as tax incentives for the reduction of CO2 emissions.”

“Precise emissions standards and regulations, with well-defined rewards and penalties.”



Leadership support

“Full support from senior leadership and a willingness to allocate more budget. Immediate decisions and concrete actions, to help us move quickly from declarations to actions. No more delays or extensions.”



Adoption of digital solutions

“The breakthrough enabler would be the use of digital and AI technologies to accelerate carbon-emissions measurement and reduction by simulating new inputs and estimating the potential damage.”

Organizations with automated digital solutions for emissions measurement are...

2.2x

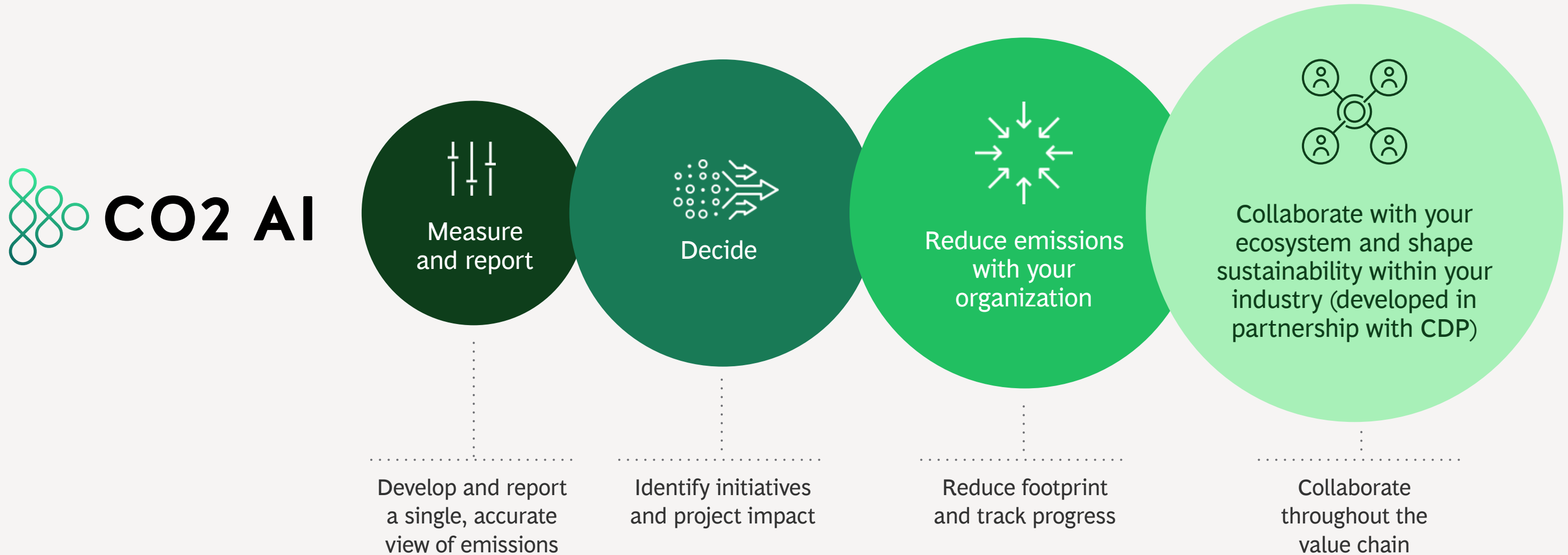
More likely to measure emissions comprehensively



1.9x

More likely to reduce emissions in line with their ambitions

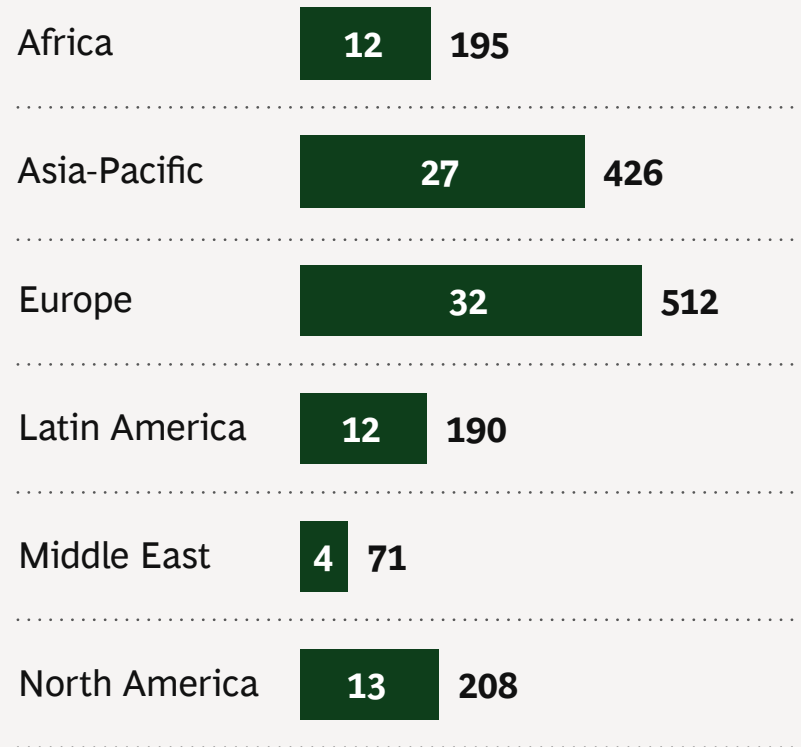
CO2 AI by BCG is a sustainability-as-a-service platform to help companies master their end-to-end net-zero journey



Respondents are distributed across geographies, industries, and organization sizes

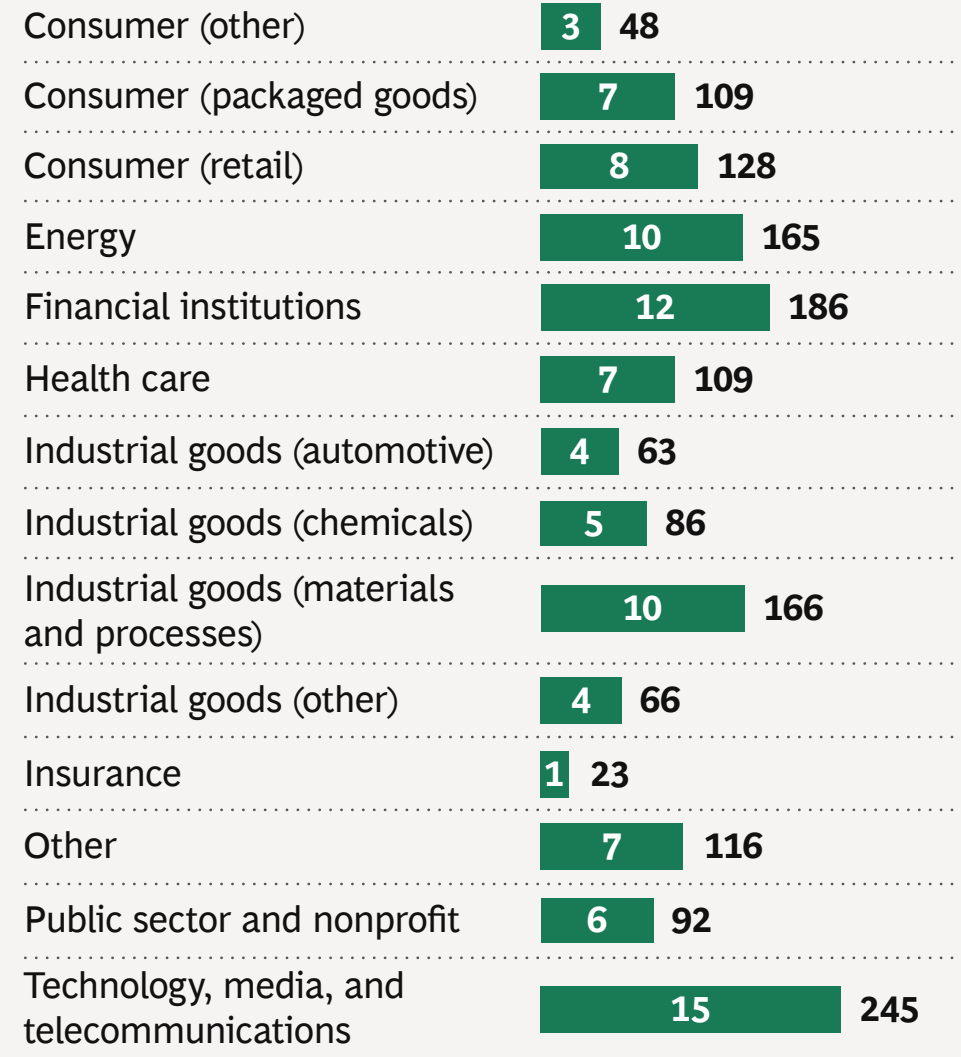
Geography

RESPONDENT REGION (%; NUMBER)



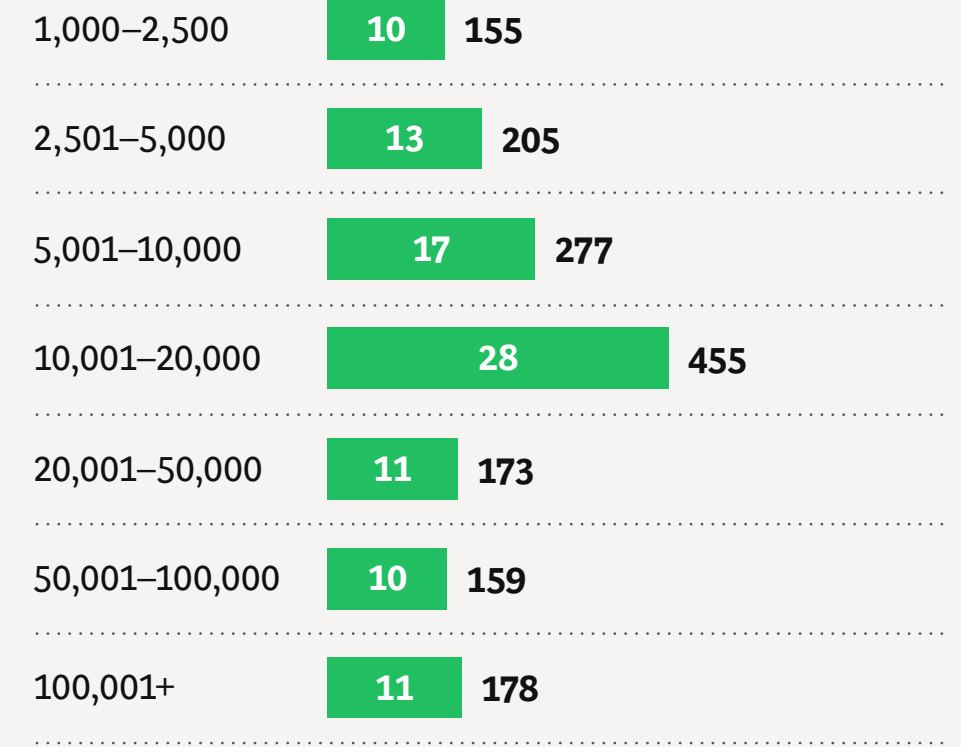
Industry

INDUSTRY OF OPERATIONS (%; NUMBER)



Organization size

EMPLOYEES (%; NUMBER)



Sources: CO2 AI by BCG Carbon Emissions Survey 2022; BCG analysis.

Note: Africa includes Egypt, Nigeria, and South Africa; Asia-Pacific includes Australia, China, India, and Japan; Europe includes France, Germany, Italy, Spain, and the UK; Latin America includes Argentina, Brazil, and Chile; the Middle East includes the UAE; North America includes Canada and the US. Because of rounding, not all bar chart totals add up to 100%.