



# The Push and Pull of Net Zero: **Drivers of Climate Action**

South Pole's 2021 net zero report



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## Remarks from CEO Renat Heuberger

# Show me, don't tell me!

The world is looking closely at private sector net zero commitments and saying:  
**'Show me, don't tell me!'**

Last year, South Pole's 2020 report on net zero found that COVID-19 had propelled climate ambition to the top of the corporate agenda – and surprisingly, many companies had set net zero targets during a year plagued by a pandemic. But few organisations had set concrete milestones on how to get there, prompting the question: Are they serious about their climate goals?

This year we were eager to see what, if anything, had changed.

What has changed is that, while net zero commitments seem to have remained at approximately the same level, more companies who have committed to net zero have now added science-based targets to support these. This would indicate that organisations are taking their net zero commitments more seriously – although far too few companies are recognising the urgency of the climate crisis by speeding up their climate action.

Another interesting finding is that climate action has still not permeated the whole company: it remains squarely in the hands of the CEOs and heads of sustainability, not middle management or operations. And it is being driven by competition, customer pressure, and risk management, not government regulation.

In fact, it seems like the private sector is pushing ahead with climate change no matter what governments are doing. This is why, when people ask me, what are your hopes for COP26,

I say: I hope for agreement on a rulebook for Article 6, but I wonder if anything decided at COP26 will have an effect on climate legislation soon enough? I certainly hope so, but I am not convinced that governments are ready to put in place the ambitious policies that would push all companies to radically decarbonise. One might be so bold to wonder if what happens in Glasgow, stays in Glasgow.

Whether or not COP26 is a success, actions speak louder than words. I hope that the private sector will ramp up their ambition and set net zero targets supported by science-based milestones that are ambitious, real and credible. Waiting won't make it easier. Too many companies are moving too slowly, taking an incremental approach to a challenge that demands a radical rethink. Now is not the time to be cautious or weak. Now is the time for companies to take credible leadership positions in the rapidly growing net zero space.

**Renat Heuberger**  
Ceo, South POle





# Executive summary

In the 2021 South Pole net zero survey, three things became abundantly clear:

**More companies are setting credible net zero targets, backed by science-based milestones to reduce emissions – but they are still uncertain about when and how to reach them.** In last year's survey, **none** of the respondents had set **both** a net zero **and** a science-based target, an important milestone on a net zero journey; in 2021, 13% had done so.

Still, 40% of those who either had a net zero target or were considering one did not have any clarity by when they plan to achieve their commitments, which shows that we still have a long way to go in seeing a global transformation to a low-emissions economy.

**The commitment required for such transformational targets has yet to permeate teams beyond the C-suite and sustainability departments:** almost 70% believe that the C-suite is responsible for helping the sustainability departments achieve net zero targets. Clearly, net zero goals have not yet been communicated throughout the company because very few middle managers have been assigned the responsibility for achieving them. While the high levels of trust in the C-suite are cause for optimism, it is clear that climate action is not a task where ownership is shared among all levels of a company. What COVID-19 has shown us is that transformational change does not happen in silos – it requires collaborative thinking and problem solving, and similarly, net zero targets must become 'whole organisation' initiatives to succeed.

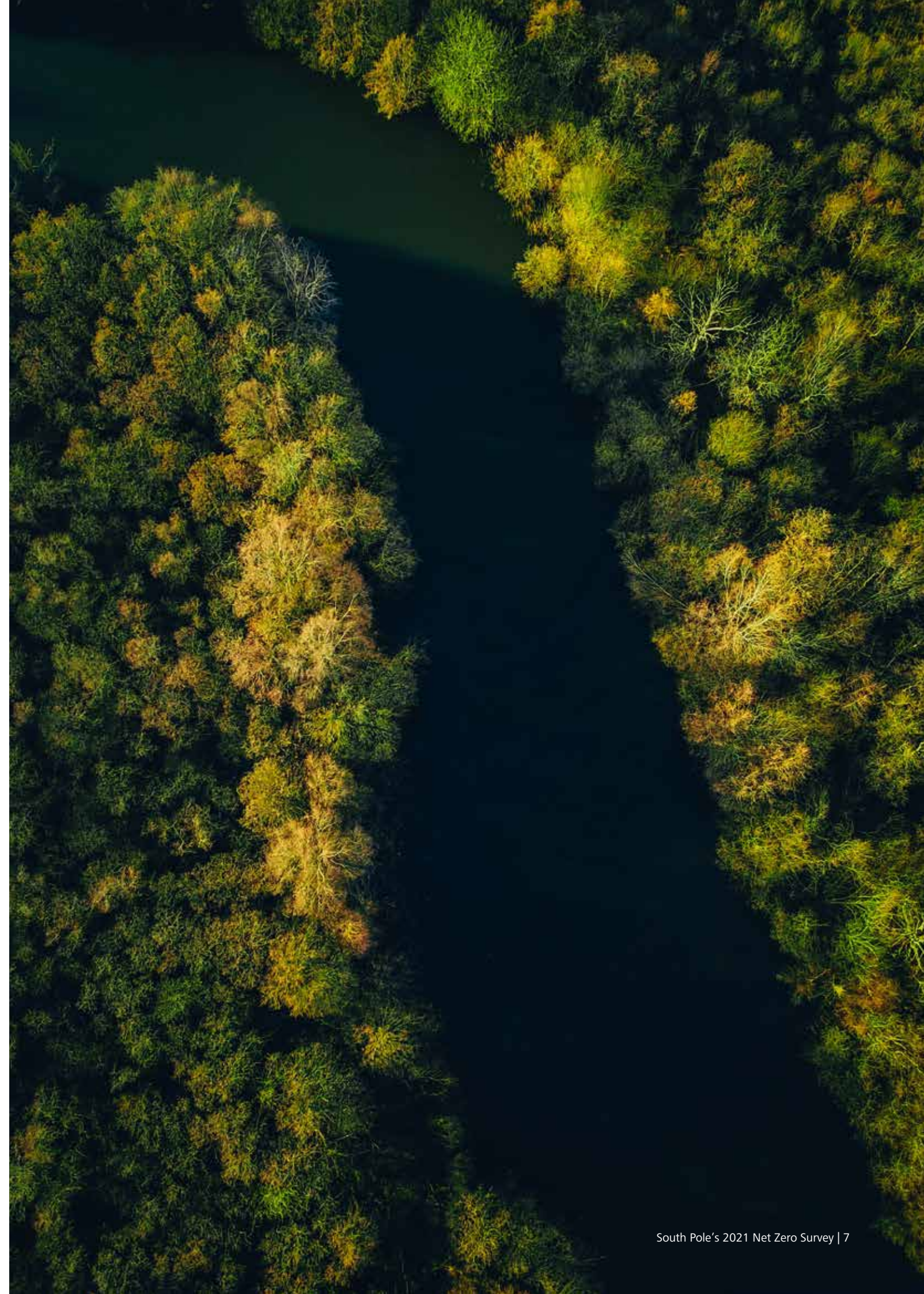
**The effect of government regulation may take several more years to kick in.** Until that happens, companies will continue to be driven toward net zero by customer demand (74%) and a desire for better market positioning (62%). Regulation or government policy, on the other hand, was trailing surprisingly far behind in the list of forces shaping the net zero landscape (31%), indicating that the pressure to reduce emissions is yet to pass from the government to the private sector. Similarly, only 23% of organisations considered investor demands a relevant factor, making it clear that the growing prevalence of climate and nature-related financial disclosures have not translated into real pressure in the daily lives of CEOs – yet. Employee acquisition and retention received the lowest overall ranking; only 16% of polled experts saw it as a driver for climate action.

Alongside actions to reduce, or 'mitigate', greenhouse gas emissions, companies are increasingly paying attention **to the need to adapt to a changing climate.** Well over half of polled companies, nearly 60%, indicated that climate adaptation was, in parallel with meeting net zero targets, a key priority to fend off the hazards of a warming world. Still, only 7% said they had increased spending on adaptation-related initiatives.

**In parallel with the net zero survey, our market insights team analysed South Pole's proprietary database of 54,000 companies** – including the Global Fortune 500, major stock indices, and all CDP and GRI reporting companies. We compared the database analysis with the survey results, and here is what we found:

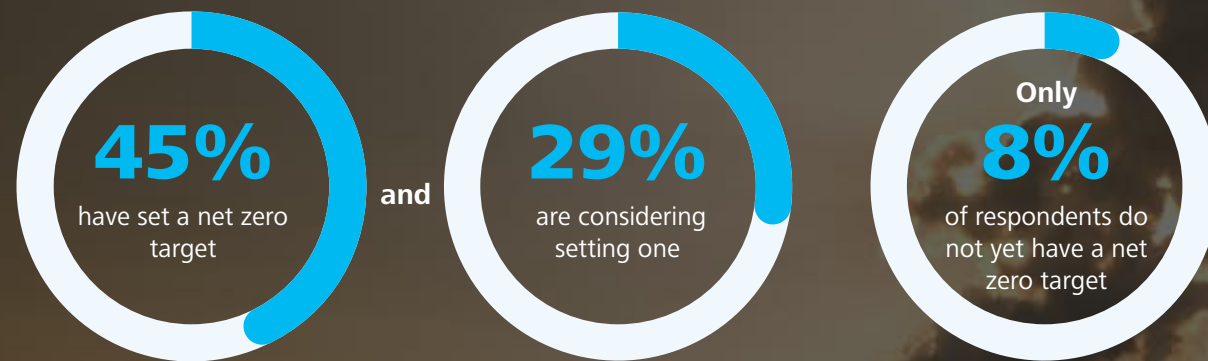
- The database paints a more discouraging picture of how serious companies are about net zero emissions. Of the 54,000 companies, barely 6% have set a net zero target. Of these, the vast majority – over 70% – were not underpinned by science-based reduction targets.
- Does investor pressure play a bigger role for the companies represented in the database, including Global Fortune 500 companies? Unfortunately, the findings were similar to the survey: even among big listed companies, investor pressure seems low.
- As for net zero target dates, less than 1% of the companies in our database have committed to achieving net zero by or before 2030. Around 64% are eyeing a date between 2030 and 2040, and 35% have a late target date of 2041–2050. This is a rather stark difference from the South Pole survey results, where most respondents were hoping to achieve net zero by or before 2030, or had no clear target dates at all.
- When it comes to regional momentum for net zero, both the database and the survey indicate that the United States had proportionately more companies with net zero targets compared to the German-speaking DACH region. With the US only just having rejoined the Paris climate agreement, this finding reinforces the conclusion that corporate net zero commitments today are driven more by markets than by policies.

**What's next?** Organisations big and small now need clear plans to reduce and compensate for emissions in the near term, but also a view to realise cost-effective carbon removal opportunities. When asked, companies responded that they are looking at switching to renewable energy in the short term and carbon removals (both nature-based solutions and technological solutions) in the long term. In particular, companies with complex business models and hard-to-abate emissions responded that they plan to use removals more to reach net zero. In all cases, however, decarbonisation needs to be at the heart of reaching any net zero targets and of building resilience towards external shocks and imminent climate regulation.





## Net zero targets



**18%**

of all respondents have set or committed to a science-based target (SBT) to reduce emissions

**13%**

of organisations have **both** a net zero target and an SBT



**2030**

is the most common target year for corporate net zero targets, followed by **2050**

**40%**

of respondents who have either set a net zero target or are considering setting one do **not** yet have a clear date for achieving it

## Net zero enablers



**76%**

are turning to renewable energy solutions,

and

nearly

**48%**

are focused on tackling scope 3 supply chain emissions to reach their net zero targets



**61%**

of all respondents plan to use carbon removal solutions in one form or another, primarily to compensate for residual emissions

## Beyond net zero



**58%**

of have an interest in addressing climate adaptation alongside net zero targets

Just

**20%**

claimed to have a clear strategy in place for how they will adapt to the hazards of a warming world, investments in climate adaptation efforts

and only

**7%**

have increased investments in climate adaptation efforts

## Net zero drivers



**74%**

see pursuing net zero as an opportunity for responding to stakeholder demands for low-carbon products & services



**62%**

believe net zero is a chance to lead and define the climate action space through positioning their brand



**42%**

are pursuing net zero to build resilience against external shocks



**38%**

see net zero as a way to manage reputational risk



**31%**

are setting net zero targets as a result of government regulation



**23%**

are under pressure from investors



**22%**

see net zero as a way to keep up with competitors' climate targets



**21%**

feel aiming for net zero would give them a better oversight of supply chain risks



**16%**

believe that net zero targets would drive employee acquisition and retention

## Net zero leaders



**69%**

believe that C-level leaders, followed by Operations (37%) and Marketing-Communications (34%), played the most critical roles in helping sustainability departments achieve net zero targets



**6%**

see HR as a core function for reaching net zero – this is the lowest ranked department along with legal (9%), sales (16%), finance (16%), and procurement (19%).



# Research approach

The conclusions of this report reflect the answers provided by 216 companies who responded to South Pole’s survey in September 2021.

It also provides an analysis, carried out in August 2021, of more than 54,000 companies who have made climate commitments. This database includes CDP and GRI reporting companies and companies listed on the Global F500, FTSE 100 and DAX30 stock indices.

Comparing the survey results with a comprehensive analysis of South Pole’s vast database of companies with climate commitments offers a unique perspective on how serious companies are about achieving net zero emissions.

## Survey analysis

South Pole’s online poll had multiple choice questions on net zero, SBTs, and decarbonisation milestones in the context of an organisation’s current climate ambitions. The research collated the views of executives from across the globe at different stages of their climate journey. Together, they represent 15 sectors across five continents.

More than 200 experts participated in the survey, including professionals from a range of sectors, including industry and manufacturing; consumer goods and services; media and telecoms; IT; property/real estate and construction; healthcare and pharmaceuticals; transportation (road, rail, shipping, aviation); finance and investment; environmental goods and services; automobiles and components; energy (Oil and Gas; utilities; public sector and government; and international development/ NGOs. A significant number of surveyed companies had global operations (~43%) .

Most respondents (50%) worked in CSR/sustainability departments. The sample also included other job roles, including C-Suite executives such as CEOs, CFOs, COOs (26%), as well as operations (6.5%), sales and business development (~6%) and marketing and communications (~5%).

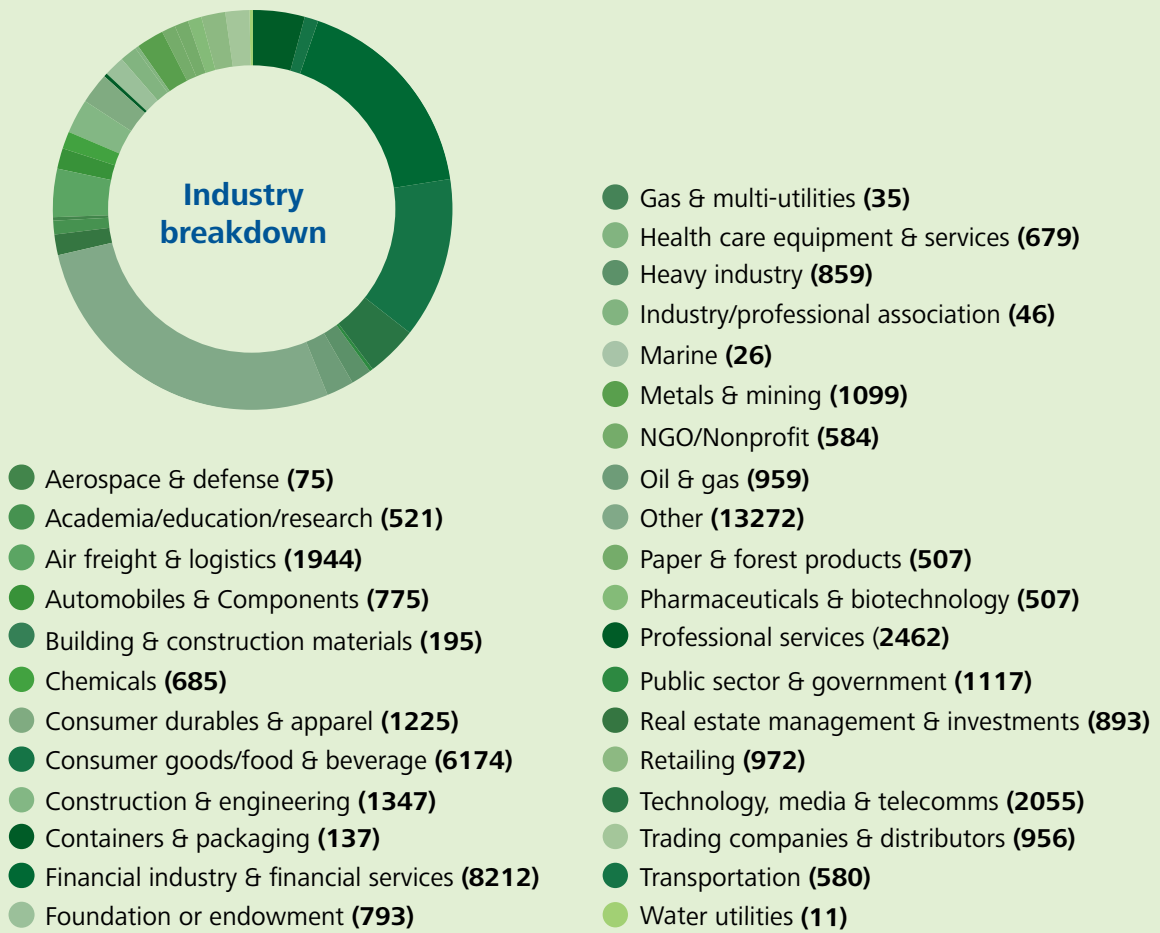
## Database analysis

In order to put the survey findings into the broader context of the climate marketplace, South Pole compared the survey results with its market-leading, global climate commitment database of more than 54,000 companies, including:

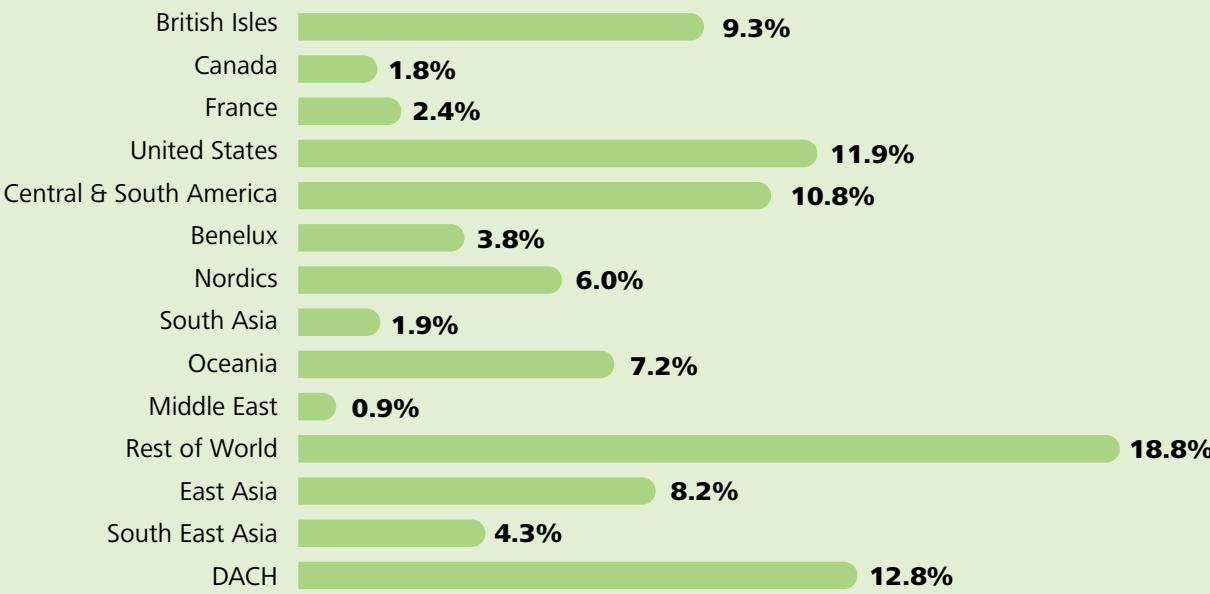
- all CDP reporting companies
- all GRI reporting companies
- major stock indices (Global F500, FTSE100, DAX30)
- top revenue/market cap companies in major regions

The insights from South Pole’s database draw on the most comprehensive screening of publicly disclosed net zero targets and SBTs. These include global pledges and initiatives such as the Climate Ambition Alliance, BCorp Net Zero, Business Ambition for 1.5 (part of the Science Based Targets initiative, or SBTi), and corporate net zero commitments (company websites/ annual reports).

## OVERVIEW OF THE SOUTH POLE DATABASE

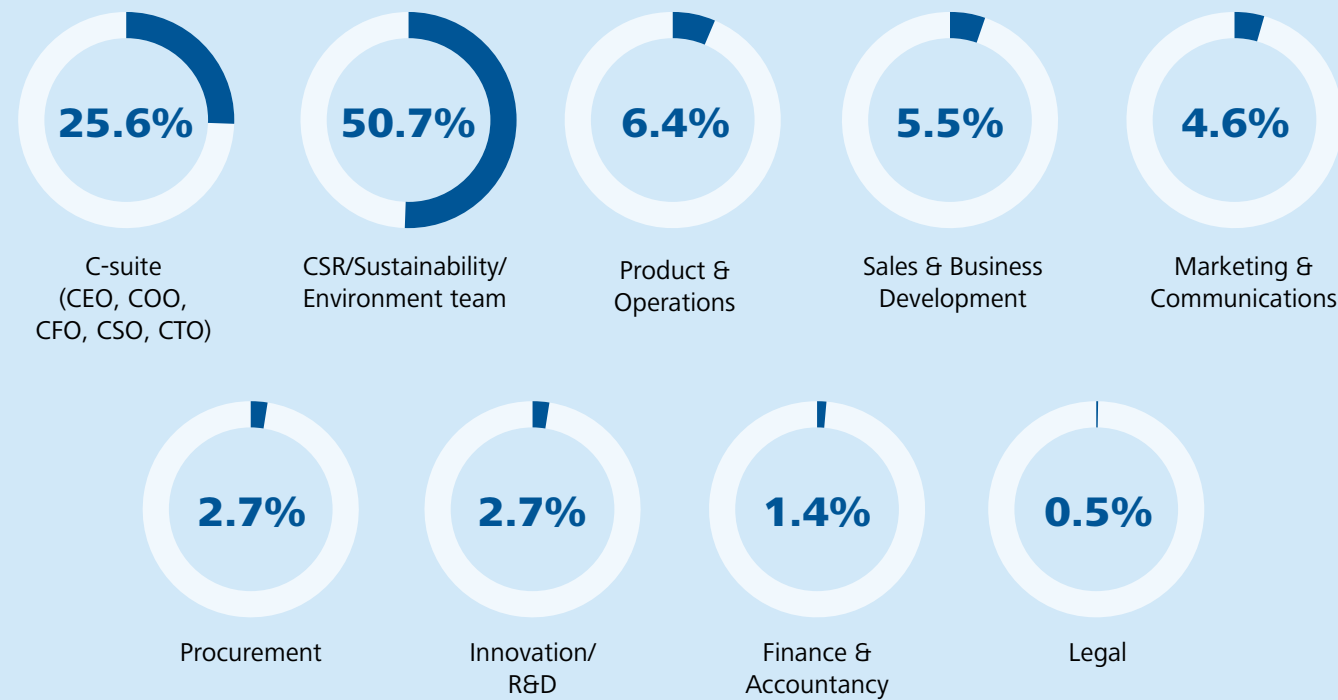


## Regional breakdown

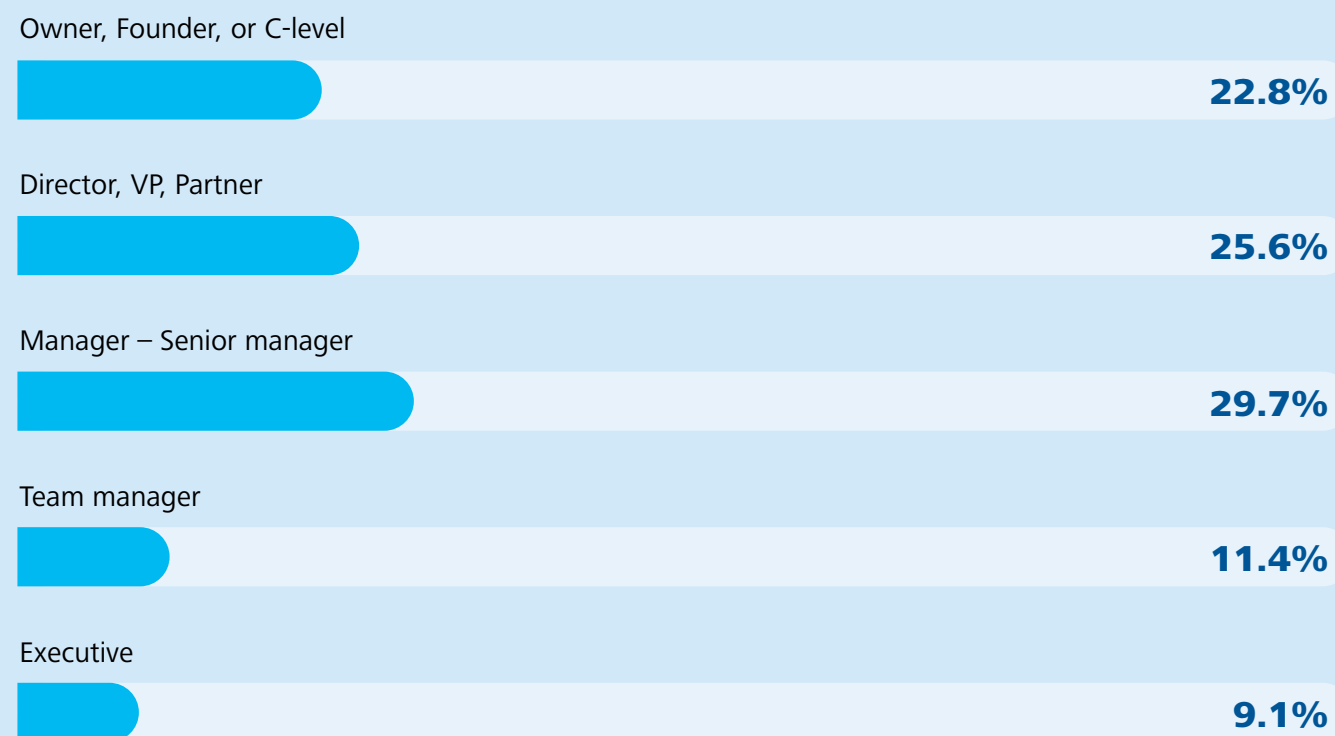


## Overview of South Pole survey respondent

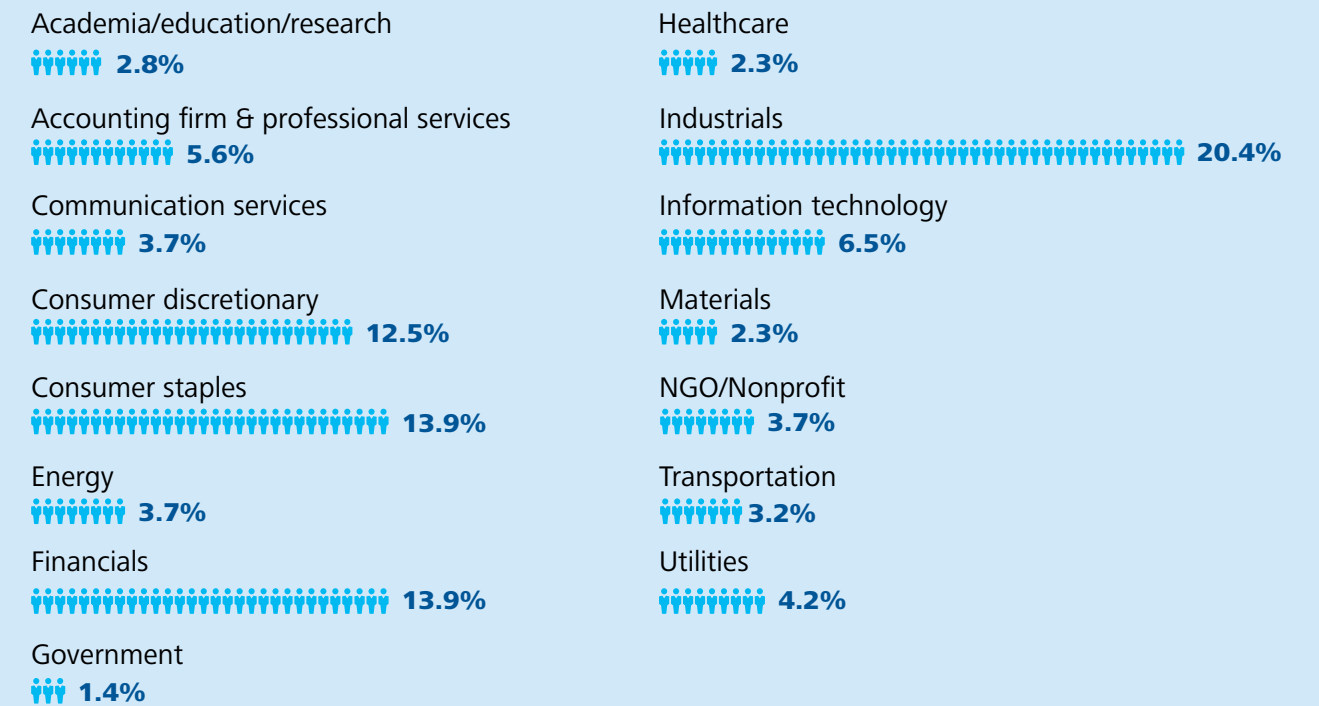
### Job role of survey respondents



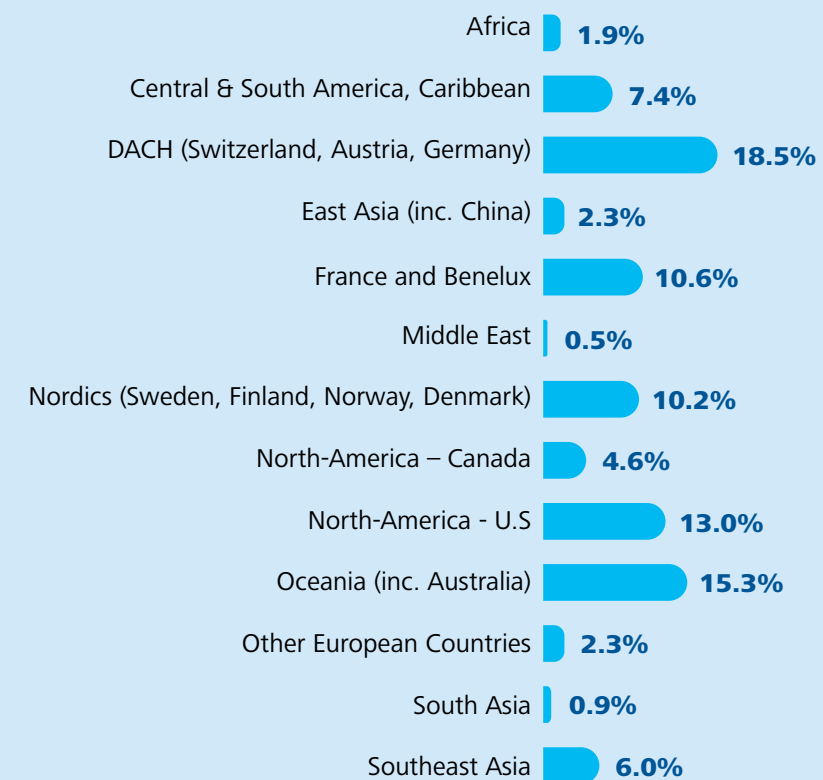
### Job level



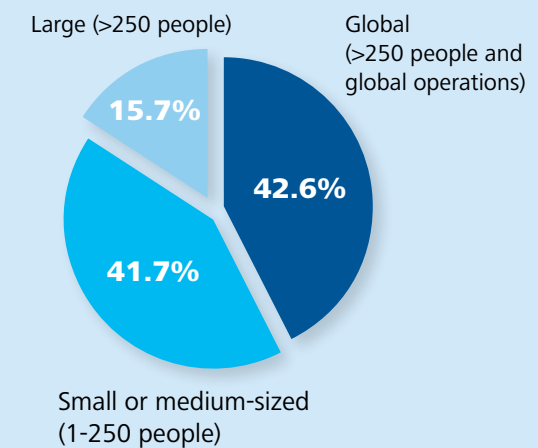
### Breakdown of surveyed sectors



### Breakdown of regions



### Size of organisation



# Net zero drivers

## Consumer demands are pushing organisations towards net zero – regulatory pressure is yet to have an effect

Regulation and investor pressure are further down among the influences on companies taking action on net zero, indicating that governments may not be doing enough to implement their own national climate plans (NDCs) in law. Similarly, despite more money managers ramping up funds and investment for the green economy, the full effect of climate and nature-related financial disclosures may not have fully kicked in, implying that the alignment of financial flows with a net zero future may not have taken effect just yet.

Our research explored the key drivers pushing surveyed sustainability leaders to fully integrate net zero into their corporate strategies. Overall, responding to consumer pressure (74%) and pursuing brand leadership positions in the climate action space (62%) presented the most compelling case for respondents to go after net zero.

This may be the reason why a tidal wave of climate initiatives has materialised in the past year alone. These have come from corporate reporting standards like the SBTi, but also from companies themselves, such as the Amazon Climate Pledge. While this is encouraging, the sheer number of similar initiatives may also create more confusion and uncertainty for businesses. Which one is the best to join? Companies may find it difficult to know which horse to bet on.

The survey shows that the other highest-ranking drivers of net zero were all related to risk management – future-proofing operations and building resilience (42%) and safeguarding reputation (38%). Interestingly, better and more granular oversight of supply chain risks scored relatively low among overall drivers (21%), indicating that organisations may underestimate the risks related to effective programmes to address scope 3 emissions, or the opportunity for setting the standard for smaller companies that are part of their production processes.

Employee acquisition and retention received the lowest overall ranking among polled experts as a driver for climate action. This could present a challenge, as more and more employees – especially among millennials and Gen Z – are pushing the companies they work for to follow a moral imperative rather than sitting in silence, and will penalise those who fail to do so by taking their talent elsewhere.

### Government regulation and investor pressure have not yet kicked in

Achieving national and corporate net zero targets will require extensive collaboration between central and local governments, industry actors, and across supply chains. Yet in the South Pole 2021 survey, ‘government policy/regulation’ was placed as only the fifth driver for pursuing net zero targets. This is astonishing, but perhaps not surprising, since there has been very little government climate regulation in the past years (especially on a global level) that implements the national commitments made in the Paris Agreement. While we see certain regional climate policies proposed – such as the EU Green Deal – these are still very much in the planning stage and are not pushing companies to act just yet. Most governments are still figuring out how to action their national climate commitments and have not sent enough signals to the private sector about how certain policies, once in place, will impact them. In other words, the accountability for reaching net zero targets has not been fully transferred to companies, and the collaboration between businesses and the public sector is yet to materialise.

The polled experts also ranked investor pressure at the lower end of the drivers, implying that the full effect of climate and nature-related financial disclosures may not yet have fully kicked in, despite more money managers ramping up funds and investments for the green economy.

This same trend held true when examining specific drivers across different industries. The few respondents who ranked government action and policy in their top three drivers came from heavily regulated industries such as energy and transportation. The surveyed participants who ranked investor pressure among their three core drivers came from healthcare (17%) and utilities (11%).

### DATABASE ANALYSIS

#### The global pulse: contrasting survey results with the South Pole database

South Pole’s cutting-edge database shows that, proportionately, the UK has the highest number of companies with net zero commitments compared to other regions with 13%. Despite government regulation being ranked low on the list of net zero drivers, could the COP26 climate conference in Glasgow have had an impact on pushing up the number of corporate targets?

Contrary to what was expected, the database indicates that the United States had proportionately more companies with net zero targets (~9%) than the DACH (German-speaking) region (2%). The survey findings indicate the same. With the US only just having rejoined the Paris climate agreement, this finding reinforces the conclusion that corporate net zero commitments are today much more driven by markets than policies.

#### The paradox of choice: the number of climate initiatives has exploded in 2021

While encouraging, the sheer number of similar initiatives may also create more confusion and uncertainty for businesses, possibly leading to paralysis as they wait for others to make a choice before investing time and money into committing to one or the other. Which is the best one to join? Which is the most robust? Which will be backed or used by governments when setting standards?

South Pole’s market insights team has highlighted the most popular climate initiatives in 2021.

Initiative	Led by	Net zero ambition	Industry focus	Members to date
<a href="#">BCorp Net Zero</a>	B Corp	Net zero 2030	All industries	1600+
<a href="#">Business Ambition 1.5C (SBTi)</a>	Science-Based Targets Initiative (SBTi)	Net zero by 2050, with SBTs	All industries	900+
<a href="#">The Climate Pledge</a>	Amazon	Net zero by 2040	All industries	200+
<a href="#">Net Zero Asset Managers</a>	UNPRI	Net zero by 2050	Financial industry/Asset managers	128
<a href="#">Net Zero Banking Alliance</a>	UNEP Finance	Net zero by 2050	Banking	60+
<a href="#">Better Retail Better World</a>	British Retail Consortium (trade association)	Net zero by 2040	Retail	70+
<a href="#">Alliance to Zero</a>	Alliance to Zero, non-profit	Net zero by 2030	Healthcare/ Pharmaceuticals	8
<a href="#">Net Zero Carbon Building Commitment</a>	World Green Building Council	Net zero operational carbon by 2030	Building & Construction	100+
<a href="#">Tech Zero taskforce</a>	Bulb	Net zero by 2050	Tech	170+



## What is driving industries towards net zero?































The lure of the **first mover advantage** – effectively responding to stakeholder demands for low-carbon products, for example, or strengthening their market position – is the strongest driver among industries that are generally more market-driven and/or consumer-facing: materials (33%), transportation (32%), utilities (30%), professional services (25%), and consumer durables and apparel (24%) are all more likely to commit to net zero as a result of demand-side pressure from customers or clients. Traditionally, most of these industries have extensive operations and strong competition. By listening to their customers and taking the lead on climate action, these organisations can use climate action to differentiate themselves and set the standard in their markets.

**Risk management**, including future-proofing operations against anticipated shocks and managing reputational risk, was the top ranking driver among industries that are generally risk-averse, where inaction could mean catastrophic business outcomes within relatively short timeframes.

Those most concerned about building resilience to climate change included consumer goods (18%), utilities (15%), heavy industry and manufacturing (14%) – all of which are sensitive to external shocks due to the size and nature of their operations – as well as professional services (16%) and information technology (14%). These were largely the same industries who ranked reputational risk high on their list of drivers, with the exception of healthcare. Managing reputation was also the highest driver among NGOs/the nonprofit space (30%).

The survey shows that focusing on the **longer term outlook of business operations**, such as developing more granular supervision of supply chains and acquiring new talent, is not a strong enough incentive for organisations to pursue net zero today, and perhaps lack the immediate value-add in the form of profits or positive reputation gains. The few organisations that had a higher-than-average ranking of employee acquisition and retention as a net zero driver came from media and telecommunications (13%) and information technology (10%).

## External drivers of net zero

Drivers	How this driver was ranked overall	Which industries ranked this driver the highest			
Stakeholder demand for low-carbon products and services	74%	 <b>33%</b> Materials	 <b>32%</b> Transportation	 <b>30%</b> Utilities	 <b>25%</b> Professional services
The opportunity to lead and define the climate action space	62%	 <b>27%</b> Materials	 <b>23%</b> Transportation	 <b>22%</b> Customer durables & apparel	
Future-proofing and building resilience against external shocks	42%	 <b>18%</b> Consumer goods/food & beverage	 <b>16%</b> Professional services	 <b>15%</b> Utilities	 <b>14%</b> Heavy industry
Improving reputational risk management	38%	 <b>22%</b> Healthcare	 <b>16%</b> Professional services	 <b>13%</b> Media & telecommunications	
		 <b>30%</b> NGO/Nonprofit	 <b>22%</b> Public sector	 <b>13%</b> Heavy industry	
Government regulation/policy	31%	 <b>20%</b> Energy	 <b>20%</b> Materials (metals & mining)	 <b>18%</b> Transportation	
Pressure from investors	23%	 <b>17%</b> Healthcare	 <b>11%</b> Utilities		
Keeping up with competitors' climate targets	22%	 <b>17%</b> Healthcare	 <b>11%</b> Financial industry	 <b>9%</b> Professional services	
Better, more granular oversight of overall supply chain risks	21%	 <b>11%</b> Healthcare	 <b>9%</b> Consumer goods	 <b>8%</b> Customer durables & apparel	
Employee acquisition and retention	16%	 <b>13%</b> Media & telecommunications	 <b>10%</b> Information technology		



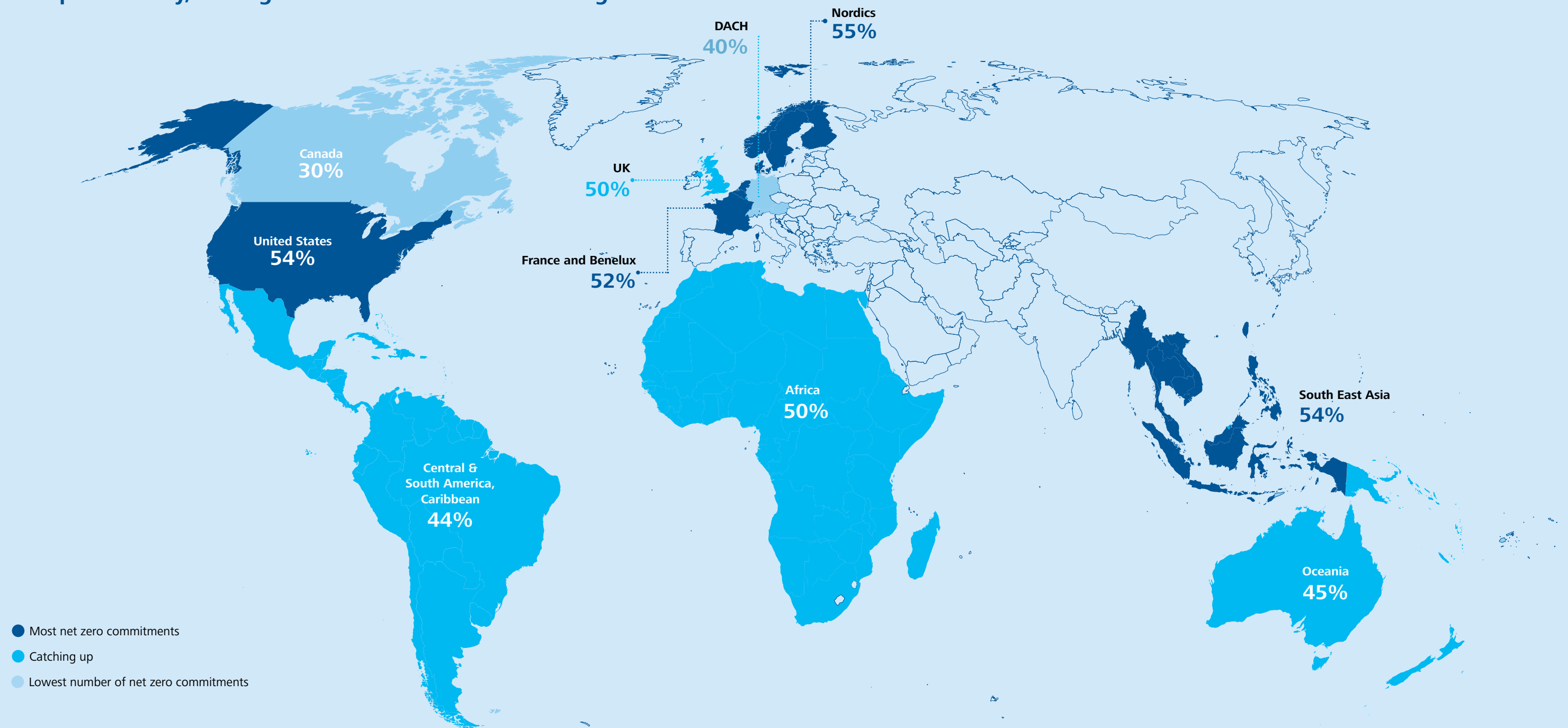
## Government action and regional momentum for net zero

While certain regional climate policies, such as the EU Green Deal, have been proposed, the past few years have seen very little government climate regulation implementing the national commitments made in the Paris Agreement. How has this influenced the regional momentum for net zero?

In certain regions, government regulation was, relatively, ranked relatively higher as a key influencer on climate action: 17% of polled experts both in Central and South America and in East Asia saw government regulation as a driver of net zero, followed by Southeast Asia (14%), the Nordics (13%), France and Benelux (11%), DACH (8%), the UK (7%), the US (7%), Canada 6% and Oceania (5%).

However, these were not the same regions as those with the most net zero commitments proportionately.

### Proportionately, the regions with the most net zero targets





Finding #1

The number of credible net zero targets is increasing – but there is uncertainty on when and how to reach them

The past year has shown increased appetite among companies for showing off their climate credentials and committing to bold climate targets: from Amazon’s Climate Pledge to Microsoft’s ambitious goal of being ‘Carbon Negative by 2030’. This has provided a glimmer of hope during a challenging year, dominated by COVID-19.

Our poll of more than 200 sustainability leaders shows a great deal of promise when it comes to the accountability of the rapidly growing number of corporate net zero targets. Nearly half (45%) of all organisations polled have set a net zero target, and more than half of those (59%) also indicated that they had clear milestones on how to reach them. Encouragingly, only 8% said that they have not set a net zero target and were not even considering one.

Overall, this shows clear progress compared to South Pole’s 2020 net zero report, where a similar number of polled organisations had net zero targets (50%), but **less than half of them** had set any kind of milestones to reach them.

Furthermore, in 2021, we see an increasing number of companies who not only set milestones for reaching their net zero target, but who also use a science-based approach to do so. In the absence of the official, external verification of corporate net zero targets, anchoring commitments to science-based approaches has become a cornerstone of overall climate pledges. This year, the total number of respondents with SBTs (18%) has nearly doubled since 2020, where only around one in ten (11%) of all survey participants had an SBT. Similarly, in last year’s survey, none of the respondents had set **both** a net zero **and** an SBT (an important milestone on a net zero journey); in 2021, 13% had done so. This leads us to conclude that the seriousness behind net zero target claims is rising.

Yet despite a higher percentage of companies showing more accountability for their net zero targets, it seems that too many leaders still fail to grasp the urgency of action. One in five (22%) have set a net zero target date of 2040 or beyond – or worse, a net zero target with no clear date at all. Nearly 40% of those who either had a net zero target or were considering one did not have any clarity on when they plan to achieve their commitments.

“More companies with net zero targets are underpinning them with real action, but plenty of uncertainty remains on when and if they will reach net zero.”

Is it too hard to think about climate action?

Half of all respondents have set a specific target date for their net zero commitment – an important way to take accountability by ensuring that climate-related goals are time-bound. 2030 remains the preferred net zero target year among respondents, echoing the findings from last year’s report, and well over a third (38%) aim to reach net zero targets by 2030 or sooner.

While major commitments like setting net zero and SBTs are critically important steps, the current pace of action is still much too slow for the transformation we truly need: based on the latest climate science, global greenhouse gas emissions should be slashed by half as soon as 2030. However, 40% of respondents are still missing a clear target date for their net zero commitments, while 22% have dates pushed to 2040 or beyond. An interesting finding this year is that fewer organisations have set ambitious targets dates of 2030 or before (38%) compared to last year, where nearly half of polled experts (46%) claimed to have a target date of 2030 or even 2025. This may simply be the result of different sectors answering the poll, or it may be a result of increased hesitancy due to regulatory uncertainty and some backlash against net zero pledges among stakeholders, including the media and civil society.

With 2030 getting closer and with no time to spare, this is a worrying trend that seems to reveal that many respondents do not appreciate the urgency of action required.

Which sectors are moving ahead, which are lagging, and why?

The past couple of years have seen companies tripping over each other to prove their climate ambition to a consumer base that is increasingly more informed about climate change and who wants to know whether companies can thrive in a warming world.

Also high up among the reasons for setting net zero targets is risk mitigation. The survey shows that after responding to consumer pressure and pursuing brand leadership in the climate action space, future-proofing operations is the third most compelling reason to take action. This may imply that companies are not only more aware of the actual physical risks posed by climate change (which they see creeping closer and closer each day), but also that the reputational risk of inaction is growing.

These drivers are critical to moving climate action, the survey shows, and are particularly prominent in certain industries (especially consumer-facing ones) and businesses (global, listed ones) where companies and their boards face growing demands for climate action, including setting targets and having clear transition plans.

To provide some detail, the survey reveals that respondents with the clearest milestones in place for achieving net zero came from consumer durables and apparel (52%), consumer goods (47%) and the financial industry (50%). Interestingly, nearly 70% of utilities also fell into this category – which, in addition to higher expectations from investors and customers, could be explained by the plummeting cost of renewable energy and the relative ease of building more wind plants or grid-scale solar, for example.

Organisations in IT and healthcare have been the slowest to commit to net zero: of all respondents, those from the IT (29%) and healthcare (20%) industries made up the majority of those who had not set any targets and were not considering doing so. For the IT industry, this is somewhat surprising given the high climate ambition of many of the world’s leading tech giants, who may in turn be increasing the pressure for decarbonisation across the rest of industry. For the healthcare sector, it is possible that the lack of ambition is due to the preoccupation with the COVID-19 pandemic.

Those with the ‘weakest’ net zero targets – i.e. targets with no clear milestones on how to achieve net zero – came from materials (40%) and transportation (29%). Finally, the energy sector is the most on the fence about setting any kind of targets: 63% respondents had not set a net zero target or an SBT, but were considering one or the other. Some possible reasons for this reluctance are explored in the next section.

DATABASE ANALYSIS

The global pulse: contrasting survey results with the South Pole database

South Pole’s cutting-edge database shows that, out of the 54,000 companies analyzed, barely **6%** (around 3,000) have set a net zero target, and the vast majority of those – over **70%** – were not underpinned by science-based reduction targets (SBTs). However, of these same 3,000 companies, the **28%** that have a net zero target **and** an SBT seem to be very committed to matching words with deeds: 75% of this group is pursuing the most ambitious level of decarbonization (aligned with a 1.5 degree trajectory).

Only **3%** of the entire database, around 1740 companies, had set or committed to a science-based target, which is a critical milestone on the journey to net zero.

Overall, the industries in the database who had the most commitments towards both a net zero target **and** a science-base decarbonization target were professional services (10%), consumer durables & apparel (8%), consumer goods/food & beverage (7.5%), and construction & engineering (6%). This is comparable with the findings of the South Pole 2021 survey results, where many of the industries with the most net zero targets with clear milestones were largely the same.

When it comes to net zero target dates, less than **1%** of the database companies have committed to achieving net zero by or before 2030. Around **64%** are eyeing a date between 2030-2040, and **35%** have a late target date of 2041-2050. This is a rather stark difference from the South Pole survey results, and could be due to the type of company that self-selected to answer the survey, i.e. the ones who are more active on climate.

Bucking the trend on net zero target dates: who are the outliers?

Looking at the broader marketplace, we are pleased to see a number of companies hailing from industries with notoriously complex operations that are challenging the norm or bucking the trend by setting more ambitious net zero target dates. These companies have both net zero targets and science-based reduction targets, and a target date of 2030 or before.

Industry	Company	Target year
Consumer Goods	Compass Group UK & Ireland	2030
IT	Colt Group	2030
Healthcare/ Pharmaceuticals	AstraZeneca Novo Nordisk	2030



Structure and size can help or hinder net zero ambition

The drive to reduce emissions and, ultimately, bring them to net zero, begins with the task of measuring greenhouse gas emissions across direct and indirect operations. The complexity of this endeavour varies substantially depending on the type of organisation: a professional services company like McKinsey & Company will have a wildly different greenhouse gas ‘footprint’ compared to Nestlé, a multinational food and drink conglomerate with multiple sites, brands, and sourcing locations.

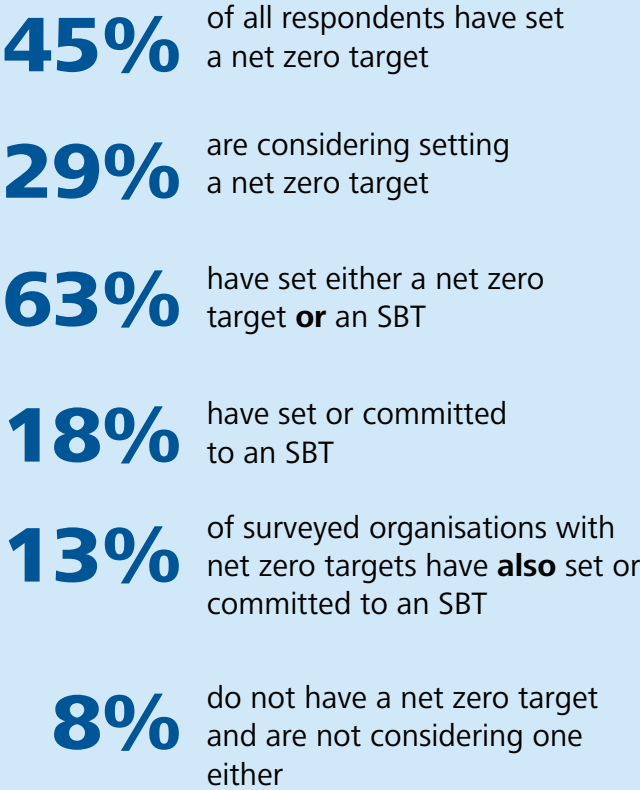
The survey results reflect this challenge, and show that sectors with more complex structures are lagging behind in terms of setting net zero targets, versus companies that have more simple operations where implementing climate action (such as switching to renewable energy or energy efficiency solutions) is more straightforward and does not require dramatically changing the business model.

Our survey findings point to a trend where easily measurable (and hence easily manageable) emissions lend themselves to companies having more confidence in setting and reaching targets – and, by extension, bolder/earlier target dates. This applies not only to net zero targets, but also to science-based reduction targets, which are a key milestone for achieving net zero emissions.

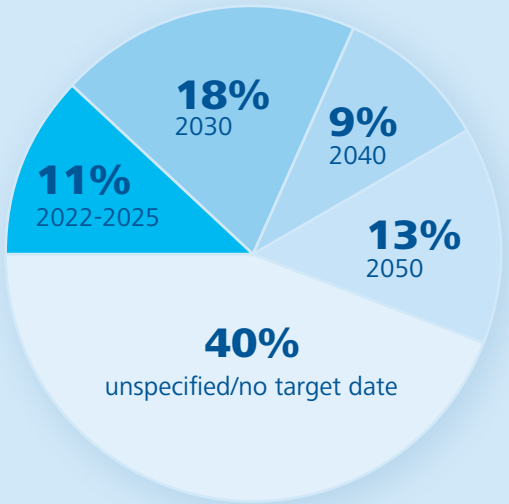
Against this backdrop, it was unsurprising that the organisations with the most ambitious timelines worked in the professional services (50%) and media and telecommunications (50%) industries with more easily manageable emissions, especially direct emissions; both indicated 2022–2025 as their target date for reaching net zero. This raises the question: have these companies included all of their indirect emissions in their targets (including scope 3) to make them credible?

Similarly, the companies with the most net zero targets geared towards 2040 came from the consumer goods industry (29%). The majority of energy companies (50%) are eyeing 2050 as their target date – unsurprisingly, since this sector requires the most dramatic change to its operations, or even entire its business model.

Are we on target?



Preferred net zero target date overall



10% of organisations claim to have already reached net zero. This does not seem feasible and suggests some confusion about the definition of net zero.

Where do industries stand on net zero?

Industry	How many have net zero targets (with or without clear milestones)?	Most popular net zero target year among industry respondents
Academia	50%	2050
Consumer durables & apparel	45%	2030
Consumer goods/ food & beverage	34%	2040 or 2050
Energy	26%	2050
Financial industry	53%	2030
Healthcare	0%	2050 or no date
Heavy industry	52%	2022-2025
IT	36%	2030
Materials (metals & mining)	60%	2030
Media & telecommunications	25%	2022-2025
NGO/Nonprofit	51%	2030
Professional services	34%	2022-2025
Public sector/government	67%	2030
Transportation	72%	2050
Utilities	78%	2050



## Finding #2

# Climate adaptation is a priority – just not an investment priority

The South Pole 2021 survey also took a look at how many companies are considering adaptation actions, in addition to climate mitigation activities. While over half of organisations claimed to be pursuing some form of climate adaptation efforts, a negligible amount have actually increased investments towards climate adaptation activities. This is reflective of global trends: only 5% of today's climate finance goes towards climate adaptation – and virtually none of it comes from the private sector.

### Strong interest in adaptation, uncertainty about how to tackle it

While nearly 60% of companies polled answered that they are pursuing some efforts towards climate adaptation, only 1 in 5 (20%) claimed to have a clear strategy for how their organisation would adapt to the hazards of a warming world. Even fewer, just 7%, have actually increased spending on adaptation-related work or initiatives.

The overwhelming majority of respondents, nearly 40%, were still in the process of exploring specific climate adaptation work, and 22% did not have any kind of plan in place for how their organisation would tackle climate adaptation. 5% said that they did not care about climate adaptation and were not prioritising it.

Could it be that companies do not know how to invest in adaptation? Or that the market lacks solutions for corporate climate adaptation that are fit for purpose? Or is the problem perhaps that, as we discuss in our next chapter, the ownership of climate action remains concentrated in the hands of CEOs and CSR heads, and has not trickled down – or been delegated – to those who are responsible for budgets and planning? This could explain the gap between what companies understand needs to happen versus what they are actually putting money behind.

Whether we like it or not, our world has changed and we need to adapt with it. While climate mitigation is one key response, adaptation can be framed as the other, increasingly and urgently relevant, response to tackling the climate crisis. Adaptation means developing solutions to the effects of climate change locally and making the necessary changes to exist within the context of a warming planet. Effective mitigation and adaptation require many changes: in human behaviour, corporate strategy and supply chains, ingrained geopolitical and economic power structures, and building infrastructure on a global scale.

### From world-saving to world-building

According to the survey, climate adaptation seems to be the most pressing issue among respondents working in the materials sector, including metals and mining (40%), information technology (36%) and heavy industry (27%), with many of them claiming to have already put a plan in place to address adaptation.

Surprisingly, these are not the same industries that have increased spending on climate adaptation efforts. The most adaptation-related investments came from utilities (22%), healthcare (20%) and consumer goods (17%). The increased spending from utilities may reflect how closely their services and structures are tied to the natural world: extreme weather events are already demanding a high price, which is expected to rise. For utilities in particular, the impacts can be sobering, from lower efficiency to more power outages – just as demand for energy continues to skyrocket across the globe. The most severe example of this was the power outage across the state of Texas in 2021, which was caused by record-setting cold temperatures and heavy snow, something that was unheard of in the American South.

The majority of industries are all in the process of exploring ways to adapt to a changing climate, bar a few outliers: the professional services industry (59%) had the highest percentage of organisations showing the least concern about climate adaptation and were not prioritising it in any way, followed closely by the financial industry (50%). This is somewhat alarming, as proactive climate adaptation should concern the financial industry for several reasons, not least in view of safeguarding investments. Extreme weather poses both an immediate and a long-term threat that will ripple throughout the sector's lending and investment portfolio. More importantly, the finance industry plays a critical role in enabling adaptation efforts by funding adaptation-focused projects, companies, and communities in vulnerable regions and landscapes.

At the same time, it is worth noting that many companies may still be new to using the terms “adaptation” or ‘resilience’, but may instead be referring to them as “credit risk” or “operational risk”. So, while adaptation awareness may be low, there may be measures in place that take into account climate risks and adaptation.

### How are regions responding?

The COVID-19 crisis has shown just how connected we all are. Something happening on the other side of the globe can directly impact our local communities and livelihoods. The pandemic has also shown how susceptible society is to threats that we do not anticipate, and more importantly, threats that we do not prepare for.

According to the survey, the majority of organisations with clear plans in place for adaptation hailed from South and Southeast Asia, the Nordic countries, and France and Benelux, which is somewhat reflective of today's reality: many Asian societies are or will be on the frontline of a changing climate. At the same time, the countries of the region, spread across river basins, archipelagos and rainforests, are home to some of our planet's most spectacular natural diversity. Similarly, many companies based in Europe or North-America tend to source from regions that are and will be the hardest hit by the impacts of global warming – including Southeast Asia.

However, it was striking to see that of the respondents who claimed to have specific adaptation strategies, it was only the

respondents from Southeast Asia who had increased funding for climate adaptation efforts, with organisations from the Nordics (5%) and France and Benelux (4%) being in the lowest percentile.

Those who had more investment going towards adaptation came primarily from East Asia (20%), Central and South America (13%), Canada and the DACH region (10% respectively). Although DACH-based companies were among the top three to have increased spending, the majority of them were either not prioritising adaptation or did not have a plan in place (43%).

Climate adaptation seemed to be of the least concern to American organisations, with over half (54%) of US respondents indicating that they did not have a strategy for preparing for future climate calamities or were not prioritising it in any way. Of their Canadian counterparts, on the other hand, an eye-catching 80% were actively researching their options for climate adaptation, with many having increased funding for it, too.

Just as the global response to COVID-19 has involved first tackling acute cases and outbreaks, then investing in vaccines for long-term prevention, ideally followed by greater investment in pandemic preparedness and learning how to live in a world where COVID-19 may be endemic, the same approach is key to solving the climate crisis. Global efforts are currently focused on initial mitigation responses to the climate crisis, but a growing number of companies with net zero targets are showing that there is a shift towards increasing our preparedness for living in a permanently changed climate: a future that is “vaccinated” against further climate hazards. The challenge is that this is not happening quickly enough.





## Where do companies stand on climate adaptation?

**38%**

In the process of exploring climate adaptation solutions

**20%**

Have a clear strategy for climate adaptation

**7%**

Have increased spending on climate adaptation

**22%**

No clear strategy for climate adaptation

**5%**

Not prioritising climate adaptation efforts

**7%**

Don't know how their organisation is tackling climate adaptation

## Who is leading the charge on climate adaptation?

**In the process of exploring climate adaptation solutions**



**100%**

Media & telecommunications



**71%**

Transportation



**63%**

Energy

**Have a clear strategy for climate adaptation**



**40%**

Materials



**33%**

Public sector



**36%**

Information technology

**Increased spending on climate adaptation**



**22%**

Utilities



**20%**

Healthcare

**No clear strategy for or prioritization of climate adaptation**



**40%**

Professional services



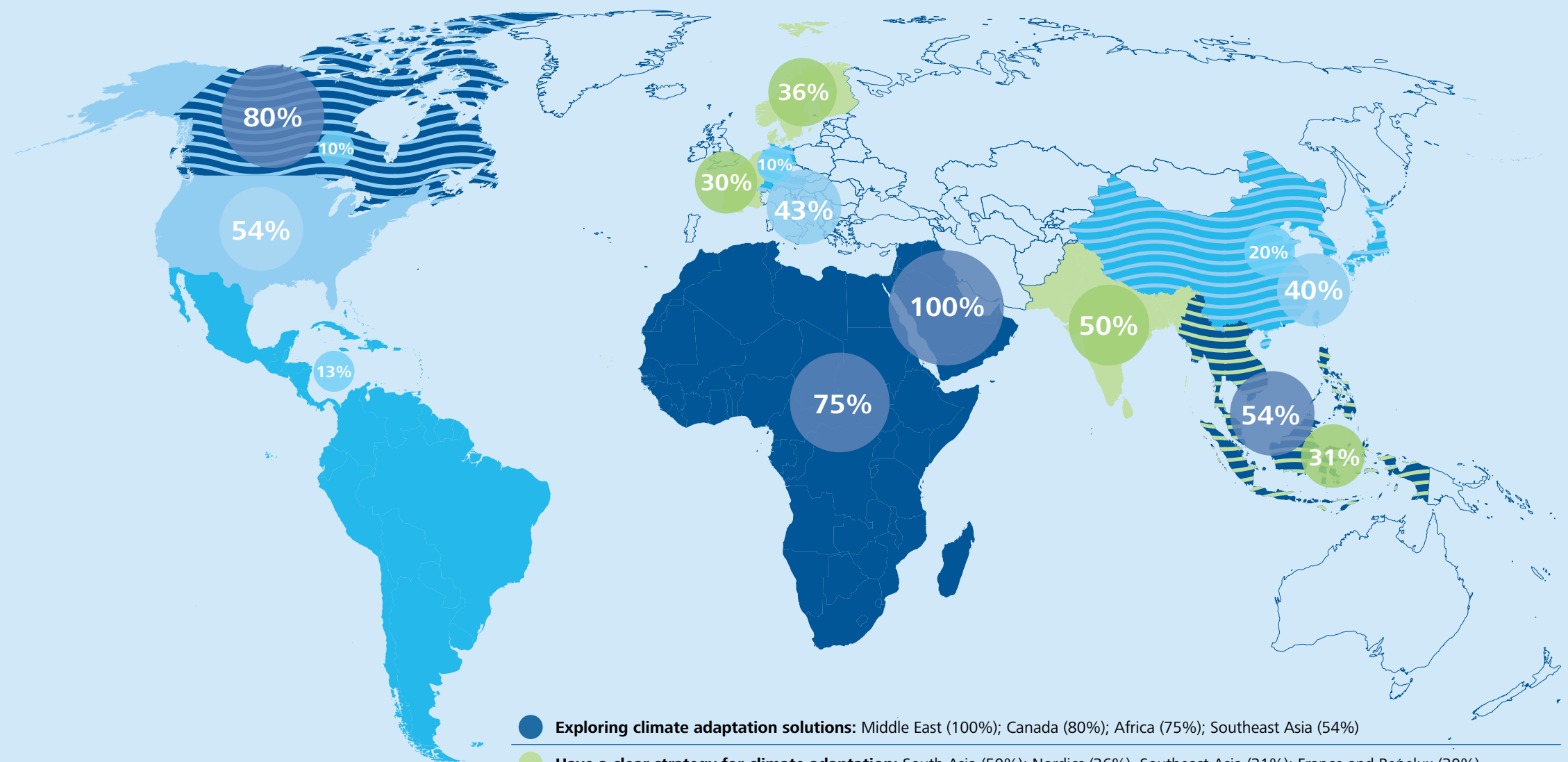
**36%**

Financial industry



**33%**

Customer durables & apparel



**Exploring climate adaptation solutions:** Middle East (100%); Canada (80%); Africa (75%); Southeast Asia (54%)

**Have a clear strategy for climate adaptation:** South Asia (50%); Nordics (36%); Southeast Asia (31%); France and Benelux (30%)

**Increased spending on climate adaptation:** East Asia (20%); Central & South America, Caribbean (13%); DACH (10%); and Canada (10%)

**No clear strategy for or prioritisation of climate adaptation:** United States (54%); DACH (43%) and East Asia (40%)



## Finding #3

# Beyond the C-suite, most corporate functions do not feel ownership of net zero

Outside of sustainability teams, the responsibility for reaching net zero emissions still sits with CEOs and the C-suite. Could it be that the business priority of taking climate action has not yet trickled down from the leadership to different units within a company and, most importantly, to employees? While there is no one-size-fits-all solution for net zero, delivering on such a transformational target requires collaboration across all functions. Ultimately, the risks of the climate crisis will affect all units of an organisation and internal transformation needs to be the responsibility of all if we are to rise to the challenge.

### Climate action has not yet been ‘democratised’

The past year’s pandemic focused the minds of organisations on their vulnerability to external shocks, and many experts are looking to their leaders for direction on how to navigate the looming climate crisis.

Our survey shows that, beyond corporate sustainability units, the overwhelming majority still expect top-down leadership to drive net zero commitments, with 69% indicating that C-level leaders – including CEOs, COOs and CFOs – played the most critical roles in achieving targets. This expectation from the C-suite has not changed since 2020, although the pressure has grown significantly: in 2020, just about half of polled organisations (49%) expected the C-suite to drive corporate net zero actions; this year it is much more.

Beyond the C-suite, operations (37%) and marketing-communications (34%) departments received the most responses as being the personnel looked to for their expertise to support with the net zero transformation, followed closely by R&D (31%) and product/service development (25%). The functions that were seen as the least important allies to the sustainability teams were procurement (19%), sales and finance (both 16%), legal, (9%) and HR (6%).

While the high levels of trust in the C-suite are a cause for optimism, COVID-19 has shown that transformational change does not happen in silos – it requires creative, collaborative thinking and problem solving, and agency among all participants. In other words, in order to succeed, net zero targets must become ‘whole organisation’ initiatives.

The terminology used by business to make climate-related claims is an evolving space and the high level of trust in marketing-

communications teams is no coincidence. As corporate net zero targets are increasingly scrutinised by consumers, investors and the media, the role of marketing-communications teams remains essential in an organisation’s journey to net zero. The choice of words matters and to safeguard reputation, it is key that words are matched with deeds.

The high ranking of R&D departments, which remain right behind marketing-communications in both the 2020 and 2021 surveys, is indicative of the pressing need to think outside the box for new solutions, but also of the opportunity that companies see in low-carbon innovation.

The lower rankings of key roles such as procurement, finance, HR and legal remains a challenge. With a considerable number of companies rushing to address and manage their scope 3 emissions, procurement teams can act as critical facilitators in effective net zero supplier engagement. Bringing procurement on board will require commitment from senior leadership to reevaluate the incentives and KPIs that guide the work of procurement teams, who are driven by the price and availability of raw materials. Making low-emission raw materials a key criterion alongside price and availability, for instance, will be one important incentive for helping companies shift towards a net zero mindset.

Similarly, finance departments will be critical in driving the journey to net zero through measurement, targets and the integration of sustainability concepts within the strategic, financial decision-making of the organisation. Support for climate action in HR and legal will be key to managing the legal obligations of climate-related financial disclosure and climate regulation, but also to recruiting the top talent with ‘climate-smart’ skills.

### The outliers across industries and regions

The majority of respondents across industries and regions shared the same ranking, with C-Suite, marketing-communications and operations holding the top three positions. There were, however, a few notable outliers.

The only industry to rank the R&D (20%) and sales departments (15%) as key allies alongside the C-Suite (35%) was transportation. This could be tied to the prominent role and visibility that transportation plays in global decarbonisation efforts, but also in people’s everyday lives, where consumer and user preference can be influenced and ultimately nudged in a more climate-smart direction. This can be done through innovation that makes new transportation technology and its related benefits stand clearly above technology of the past, as well as sales teams that bring this message home and play an important role in nudging preferences and habits in the right direction.

Another outlier was the materials industry, where most representatives considered R&D (19%) to be the most important function after C-level executives (25%). This is perhaps expected given the central role that minerals and metals play in the global economy and in supplying the raw materials we need for industrial processes and daily use. For example, the production of minerals such as lithium and cobalt will need to increase substantially to meet the growing demand for clean energy technologies, including energy storage. Adopting a more ‘circular’ approach to low-carbon minerals or effectively reusing and recycling low-carbon minerals will require new ways of operating. Innovation and R&D will play a key role in making this happen.

Among consumer durables and apparel, the role of marketing-communications (19%) was ranked much higher than operations (9%). This sector also ranked product and service development functions (16%) as more critical for reaching net zero compared to operations, for example. This is no surprise for an industry that is highly consumer-facing and market-driven, where the

identity of a company is often closely linked to its customers and the way in which they engage with the company through their use of its products. This in turn influences how they perceive the company’s climate action ambitions, which – makes net zero a key marketing opportunity, but also creates the possibility for sharper brand positioning among both consumers and investors.

Some industries also ranked procurement higher than marketing-communications – including healthcare (21%) and IT (14%), the same two industries that have been the slowest to commit to net zero. Is it possible that sustainability leads in these industries view climate action, if they pursue it at all, as something that they can do simply by buying their way out rather than taking a deeper look at more fundamental transformations that should be carried out internally?

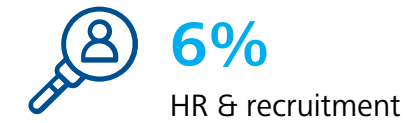
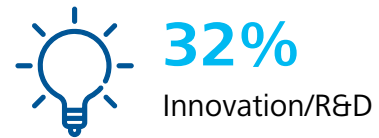
In most regions, operations teams were the second most trusted to lead the net zero transition. This reflects the general trend among survey respondents of ranking the C-Suite, operations and marketing-communications as the top three most important functions after sustainability/CSR functions. Interestingly, the majority of US-based organisations ranked marketing-communications (21%) nearly as high as the C-suite (25%). This may indicate that, in the United States, climate change is still a marketing function. Demonstrating that they are listening to customers is an important piece of US sustainability strategy in general. It makes sense that marketers would take an interest in net zero to feel close to the pulse of public sentiment.

Innovation and R&D were ranked among the most important allies for sustainability teams for UK-based companies – even above the C-Suite! (Innovation 21%; C-Suite 18%; operations 15%; marketing-communications 13%.) Post-Brexit and with no European climate policy frameworks to follow, the UK is working to redefine itself as a frontrunner for the new, green industrial revolution. Seemingly, innovative green technologies and manufacturing are value-added services that could help ensure the economic prosperity of the UK, its businesses and their global relevance in the future.





## C-suite executives are expected to lead the way on net zero



### Industry breakdown of net zero allies outside sustainability departments

Academia & research	<b>18%</b>	<b>36%</b>	<b>18%</b>
Professional services	<b>38%</b>	<b>21%</b>	<b>21%</b>
Media & telecommunications	<b>35%</b>	<b>15%</b>	<b>15%</b>
Consumer durables & apparel	<b>22%</b>	<b>19%</b>	<b>16%</b>
Consumer goods	<b>15%</b>	<b>17%</b>	<b>17%</b>
Energy	<b>26%</b>	<b>21%</b>	
Financial industry	<b>23%</b>	<b>13%</b>	<b>13%</b>
Public sector	<b>20%</b>	<b>20%</b>	<b>20%</b>
Healthcare	<b>21%</b>	<b>29%</b>	<b>21%</b>
Heavy industry	<b>26%</b>	<b>19%</b>	
Information technology	<b>32%</b>	<b>14%</b>	
Materials (metals & mining)	<b>25%</b>	<b>19%</b>	
NGO	<b>29%</b>	<b>29%</b>	
Transportation	<b>35%</b>	<b>15%</b>	<b>20%</b>
Utilities	<b>32%</b>	<b>16%</b>	<b>16%</b>

### Regional breakdown of net zero allies outside sustainability departments

Africa	<b>18%</b>	<b>18%</b>	<b>18%</b>
France + Benelux	<b>25%</b>	<b>13%</b>	<b>15%</b>
Central & South America, Caribbean	<b>21%</b>	<b>14%</b>	
DACH	<b>38%</b>	<b>12%</b>	<b>11%</b>
East Asia (inc. China)	<b>14%</b>	<b>21%</b>	<b>21%</b>
Middle East	<b>50%</b>	<b>50%</b>	
Nordics	<b>30%</b>	<b>17%</b>	<b>17%</b>
Canada	<b>24%</b>	<b>12%</b>	<b>15%</b>
United States	<b>23%</b>	<b>21%</b>	<b>12%</b>
Oceania (inc. Australia)	<b>25%</b>	<b>19%</b>	<b>13%</b>
Other European countries	<b>31%</b>	<b>19%</b>	<b>13%</b>
South Asia	<b>14%</b>	<b>29%</b>	<b>29%</b>
Southeast Asia	<b>26%</b>	<b>23%</b>	<b>15%</b>
UK & Ireland	<b>18%</b>	<b>15%</b>	<b>21%</b>



## Net zero enablers

# Solutions focused on decarbonisation are ranked the highest; carbon removals are preferred by those with later targets

According to our survey, greening operations and finding efficiency gains along corporate supply chains is perceived as the go-to method for achieving net zero – perhaps as a result of strong campaigning from corporate reporting standards such as CDP and the SBTi. While the majority of polled experts plan to use carbon removal (CR) solutions in some shape or form, technological removal solutions were overall the least preferred approach for reaching net zero – except among organisations who did not have any clear milestones to reach their net zero targets or who have later target dates of 2040 and beyond.

### Decarbonisation is essential

For net zero targets to have the desired effect on climate change, they need to be underpinned by credible, science-based milestones that drive emissions down across direct and indirect operations, support collective resilience (within and beyond value chains), and invest in innovation.

The survey shows that greening operations through renewable energy (76%) and finding efficiency gains along corporate supply chains by addressing scope 3 emissions (48%) are perceived as the go-to methods for achieving net zero emissions. This is followed by carbon offsets (35%) and nature-based solutions (either nature-based removals, like reforestation (34%), or solutions that help protect and preserve forests and ecosystems (29%)).

Technological removal solutions were overall the least popular solutions: only 13% of all companies saw technological CRs, like Direct Air Carbon Capture and Storage (DACCS) and Bio-Energy with Carbon Capture and Storage (BECCS), as their best approach for achieving net zero targets.

In terms of reducing emissions, only 10% believed that carbon capture and storage (CCS) would have the greatest impact, and just 8% saw carbon capture and utilisation (CCU) as their solution of choice for reaching a state of net zero emissions.

As CCS captures emissions from fossil fuels, rather than directly from the atmosphere, it is generally considered a technological carbon reduction solution that can help address emissions in sectors with hard-to-abate emissions. Similarly, as CCU focuses on the applications and uses of the captured carbon dioxide from fossil fuels – meaning that the carbon dioxide is

not permanently stored – CCU is also not considered a carbon removal technology, but as a high-tech means to reduce and avoid emissions. CCU plays a key role in the circular economy by allowing us to work with raw materials that we already have, rather than extracting more.

### How are industries ranking climate solutions for net zero?

In the effort to better define corporate net zero, a shared consensus has emerged: reducing emissions must be front and centre of any net zero strategy. It is not possible or acceptable to meet net zero targets with carbon offsets alone – there must be efforts in place to reduce emissions too, in line with what science demands.

What are industry preferences for reducing emissions?

Renewable energy is most favoured by utilities (29%), information technology (25%) and professional services (25%). Interestingly, most government organisations (33%) indicate that renewable energy is their preferred solution. One of the most straightforward ways for companies and public sector bodies to start an emission reduction pathway is to reduce their scope 2 emissions – i.e. the indirect emissions from the electricity purchased and used by the organisation. Most of these industries are heavily reliant on electricity to power their government buildings, corporate operations or energy-guzzling data centres, which need large amounts of power to keep the servers cool. So it makes sense for them to look at switching to renewable energy.

The respondents who were most focused on greening their supply chains as part of their net zero targets, specifically by addressing scope 3 emissions, came from consumer durables and apparel (20%) and consumer goods (15%). This is perhaps unsurprising given their complex supply chains and industry commitments to SBTs. Others included healthcare (20%) and media and telecommunications (16%).

Buying carbon offsets was favoured by professional services (18%), where, presumably, the bulk of emissions across the industry comes from business travel which is currently difficult to address, as well as energy (14%) and transport (14%). All of these are sectors in transition; many are having to reinvent the way they do business. The clean energy transition implies radical changes especially for the energy sector, affecting businesses across the fossil fuel production supply chain and those who depend on them.

The surveyed organisations who had their sights on nature-based solutions, specifically nature-based carbon removals such as reforestation, came predominantly from the consumer goods industry (15%), followed by information technology (11%) and materials/metals and mining (11%). These were the same industries who ranked other nature-based solutions (namely forest and ecosystem protection) higher in their list of preferred solutions for reaching net zero. For consumer goods, this reflects the industry's need to move from reduction to regeneration, to safeguard the ecosystems that are crucial to its raw materials and food commodity chains, now and in the future. For metals and mining, it could be part of maintaining a social licence to operate through sustainable natural resource management while greening their businesses in parallel.

Interestingly, many government organisations (22%), as well as representatives of the NGO (11%) and academic communities (11%), were ahead of many industries in selecting nature-based solutions (ecosystem protection) as their preferred net zero enablers. Is this due to a growing awareness around a rapidly declining biodiversity and the need to protect the flora and fauna of forests – a cornerstone of a community's economic and social fabric?

The go-to solution for the transport (18%), healthcare (15%), and utilities (14%) industries was future green fuels, such as green hydrogen. For utilities, this could imply a focus on innovating operations and looking for new business opportunities as part of the transition to low-carbon: green hydrogen, for example, has been touted as one possible way to provide a form of long-term storage when renewable energy resources, such as wind or solar, are offline.

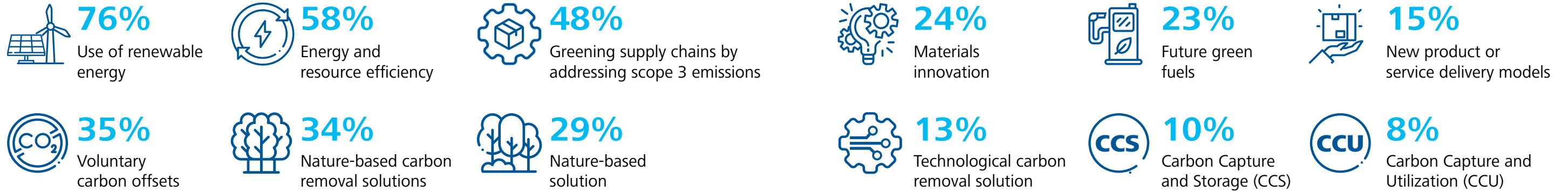
Materials innovation was the most popular solution among energy industry representatives (20%), followed by carbon offsets (11%). Innovative materials with novel properties could play a part in enabling savings in energy-intensive processes and applications, perhaps even creating new ways for renewable energy generation.

While technological carbon removal solutions ranked low overall, the energy industry was, alongside materials/metals and mining, the industry that showed the most interest in various technological carbon removals or technological carbon reductions as a means to reach net zero. The materials industry was the most open to prioritising frontier climate-technologies, including some form of CCU (21%) or materials innovation (16%) over existing solutions for reducing emissions.
























































































## Most popular solutions and enablers for reaching net zero targets



### Industry breakdown of most popular net zero enablers

Academia & Research	 <b>17%</b>	 <b>21%</b>	 <b>17%</b>
Professional services	 <b>25%</b>	 <b>13%</b>	 <b>18%</b>
Media & telecommunications	 <b>23%</b>	 <b>19%</b>	 <b>16%</b>
Consumer durables & apparel	 <b>18%</b>	 <b>15%</b>	 <b>20%</b>
Consumer goods	 <b>19%</b>	 <b>15%</b>	 <b>15%</b>
Energy	 <b>11%</b>	 <b>14%</b>	 <b>20%</b>
Financial industry	 <b>22%</b>	 <b>17%</b>	 <b>13%</b>
Public sector	 <b>33%</b>	 <b>22%</b>	 <b>22%</b>
Healthcare	 <b>20%</b>	 <b>15%</b>	 <b>20%</b>
Heavy industry	 <b>22%</b>	 <b>17%</b>	 <b>10%</b>
Information technology	 <b>25%</b>	 <b>11%</b>	 <b>11%</b>
Materials (metals & mining)	 <b>16%</b>	 <b>16%</b>	
NGO	 <b>19%</b>	 <b>15%</b>	 <b>19%</b>
Transportation	 <b>18%</b>	 <b>18%</b>	 <b>14%</b>
Utilities	 <b>29%</b>	 <b>21%</b>	 <b>14%</b>

### Regional breakdown of most popular net zero enablers

Africa	 <b>17%</b>	 <b>17%</b>	 <b>48%</b>
France + Benelux	 <b>23%</b>	 <b>17%</b>	 <b>15%</b>
Central & South America, Caribbean	 <b>17%</b>	 <b>20%</b>	 <b>14%</b>
DACH	 <b>24%</b>	 <b>20%</b>	 <b>16%</b>
East Asia (inc. China)	 <b>23%</b>	 <b>13%</b>	 <b>13%</b>
Middle East	 <b>33%</b>	 <b>33%</b>	
Nordics	 <b>23%</b>	 <b>10%</b>	 <b>15%</b>
Canada	 <b>14%</b>	 <b>14%</b>	 <b>14%</b>
United States	 <b>19%</b>	 <b>12%</b>	 <b>13%</b>
Oceania (inc. Australia)	 <b>22%</b>	 <b>16%</b>	 <b>13%</b>
Other European countries	 <b>29%</b>	 <b>24%</b>	
South Asia	 <b>29%</b>	 <b>29%</b>	
Southeast Asia	 <b>14%</b>	 <b>14%</b>	 <b>14%</b>
UK & Ireland	 <b>18%</b>	 <b>15%</b>	 <b>16%</b>



## Zooming in on carbon removals: nature still ranks higher than technology

The need for cost-effective carbon removal solutions is urgent. The need for cost-effective carbon removal solutions is urgent. In addition to drastic decarbonisation efforts, the removal of carbon dioxide from the atmosphere will be required to meet the goals set by the Paris Agreement, achieve net zero emissions by 2050 and move towards net-positive emissions immediately after. Both nature-based solutions – such as sustainable reforestation and ecosystem restoration – and robust technological carbon removal solutions are key to meeting these goals.

Advanced carbon removal systems, such as Direct Air Carbon Capture and Storage (DACCS), with CO<sub>2</sub> mineralisation or geological storage, will be of critical importance – nature-based solutions alone will not be able to remove the required billions of tons of CO<sub>2</sub> per year in just a few decades. The survey shows that, overall, nature-based carbon removals (34%) – such as sustainable reforestation – still placed slightly higher than technological carbon removal solutions (31%).

When it comes to industry preferences, nature-based solutions ranked higher among consumer goods (15%), while technological solutions to remove or reduce carbon – such as CCU and CCS – were picked more often by representatives from the energy industry (17%); materials/metals & mining (16%); and information technology (11%). As described above, this split is likely due to the nature of the industries, where consumer goods companies have an imperative to find approaches that restore, revitalise, and protect the natural resources and the human capital they rely on for their goods and products.

On the other hand, a net zero energy system – top of mind for the energy industry, for instance – requires a profound transformation in the way that energy is produced and used; a transformation which cannot be achieved without a broad suite of technologies. CCU and CCS are a key group of technologies that contribute to directly reducing emissions in key sectors by capturing, storing, or using the ***carbon dioxide from fossil fuels*** – all while creating an infrastructure for advanced carbon removal solutions such as DACCS and BECCS that can ***remove carbon from the atmosphere*** and tackle residual emissions.

Looking across the globe, nature-based carbon removal solutions are most preferred (over technological ones) mainly in developing regions, such as Central & South America (15%), Southeast Asia (14%), and East Asia (13%). These are the same countries that are home to some of the world’s largest swathes of forests – from the Amazon rainforest that spans eight rapidly developing countries in South America, to the jungles of Borneo that stretch across Indonesia, Brunei, and Malaysia.

Despite being ranked low overall, the regions that were more open to technological carbon removal solutions compared to others were the United States, Canada, the Nordics and the German-speaking DACH region. Of the technological removal and reduction solutions, American representatives preferred solutions like Direct Air Capture (4%) and CCU (3%); Canadian organizations favored CCS (11%), and DACH organizations selected DAC (4%) over CCU and CCS.

“Among companies who have net zero targets, the ones most open to using carbon removal solutions are those with later target dates, between 2040 and 2050.”

## Technological carbon removals – the next frontier for climate innovation

The next few years are shaping up as the potential tipping point for technological carbon removal solutions, with more and more big brands announcing substantial commitments to invest in carbon removal technologies – from Microsoft’s extensive portfolio of carbon removal projects to meet its ‘carbon negative’ target, to Stripe’s large-scale carbon removal purchase tool. A handful of countries such as Switzerland and Sweden, as well as the European Union, have also included removals in their national climate action strategies.

Carbon removals, especially technological CRs, will be most needed once a company has reached a point of no net emissions, after which any new, unavoidable **residual** emissions must be neutralized with carbon removals. However, to a limited extent, businesses can also use CRs to compensate for **existing** emissions that they have not yet addressed as they progress on their journey to net zero. Removals can also be used to tackle **historical** emissions as companies move to a net positive footprint.

Overall, nearly two in three of all polled organizations (61%) plan to use technological carbon removal solutions to achieve net zero targets, primarily to compensate for residual emissions (35%) or existing emissions (24%). Nearly none of the organizations planned to use CRs to compensate for past, **historical** emissions (2%).

Those most open to using technological CRs in some form (73%) are the organizations that have set net zero targets, but **no clear milestones** to reach them. These net zero companies **without** milestones could be betting on technological CRs as a ‘later safeguard’, a future solution to hedge against the uncertain landscape they are navigating today, including inconclusive government regulation on climate and somewhat

ambiguous definitions for net zero. Taking a slightly more pessimistic view, this approach may also imply too much hopeful thinking and betting on a technological ‘quick fix’ in the distant future – all while delaying action to reduce emissions today and continuing with business as usual.

Among companies who have net zero targets **and clear milestones**, the ones that are the most open to using carbon removal solutions to compensate for residual emissions are those with a later target date, either 2040 (71%) or 2050 (58%). Such companies may have developed a detailed, long-term plan to reduce emissions, but do not see a cost-effective pathway to reduce the tail-end of their emissions to zero and believe they will need removal solutions later in the future.

The industries that plan to use carbon removal solutions seem to be mainly those who are service providers or suppliers to others, especially when it came to compensating for residual emissions: 75% of experts in media & telecommunications said they planned to use technological CRs for residual emissions, followed by health care (60%), transport (43%, and heavy industry (41%). Interestingly, an equal number of heavy industry representatives (41%) did not plan to use CRs to reach their net zero targets. This may be due to a lag in light of more imminent emissions reduction obligations under regulatory compliance regimes, and limited direct exposure to consumer pressure given a more B2B orientation.

When it came to addressing current emissions, consumer goods (30%) and consumer durables & apparel (33%) were more likely to use CRs to compensate for existing emissions.

The NGO community was the least inclined to use CRs, with 63% indicating that they did not have any plans to use technological CRs to reach net zero targets. While the choice to use CRs will depend on the structure of each organization and their individual roadmap to reduce and address emissions, the NGO community may also see that a greater focus on removals may cause a reallocation of resources at the expense reductions.

## Businesses still lack clear definitions and dedicated budgets to invest in technological carbon removals

The South Pole survey shows that the main roadblocks for pursuing carbon removal solutions are mainly related to the specific definition of what is considered a CR (24%) and the amount of (or perhaps lack of) capital investment available for CR projects (20%). These were followed by the level of ‘technical’ maturity of CR solutions, namely the pace and scale at which they could be deployed (16%), and the lack of clear guidance on how to use carbon removal solutions (16%). Interestingly, the lack of GHG accounting methodologies for CR solutions (13%) and regulation around technological CR solutions (11%) placed the lowest when it came to barriers for adopting such new

climate technologies. This may indicate that most stakeholders have yet to move beyond considering the possible long-term need for CR to focusing on how to implement CRs in practice.

In fact, the lack of clarity around what is considered a technological CR may be hindering the ability of businesses to pursue or select suitable CR solutions – further exacerbated by the lack of clear guidance on how to best use technological CRs towards meeting net zero targets. Understanding what constitutes a carbon removal and how to incorporate it in a climate action strategy remains a critical prerequisite for the wider adoption of CR solutions. It is difficult to develop a clear business case without such clarity. The high ranking of capital constraints may therefore be an indication of corporate budgets not being set up to accommodate the higher cost of investing in CR projects or solutions, which remain significantly more expensive than, for example, nature-based removal solutions or other existing environmental commodities such as voluntary offsets from projects that help avoid emissions.

The inconclusive definition of a carbon removal was holding back the majority of respondents in healthcare (60%), professional services (38%) finance (35%) and consumer durables & apparel (29%). Professional services was also among the industries that ranked the lack of guidance on using CRs high on their list of roadblocks (25%), along with materials/metals & mining (67%), media & telecommunications (33%), and academia (20%).

Of all industries, materials/metals & mining (33%) and consumer goods (22%) were most held back by the lack of accounting methodologies. This is a clear sign that stakeholders in these sectors have moved from considering CR to the actual implementation of them. Getting into the practical details of applying CRs is also a reflection of how serious these industries may be about using CRs as part of their climate and corporate positioning strategies and/or developing services that help other stakeholders use CR solutions.

The professional services experts (25%) were relatively more concerned with the lack of clear regulations for CRs compared to other sectors, which may be due to the nature of their work in providing consulting services and guidance to others on new technologies, such as technological CRs.

The level of ‘technical’ maturity of CR solutions was the most pressing roadblock for transport (50%), energy (40%) and information technology (27%). These same industries also seemed to struggle with the amount of (or perhaps lack of) capital investment available for CRs: energy (40%), transport (33%), and heavy industry (23%). This sense of urgency among energy, transport, and heavy industry is perhaps unsurprising, as they have very few alternatives to getting to a net zero emissions pathway by 2050 or earlier due to the complex and carbon-intensive nature of their operations. Technological CRs will play a critical role in decarbonizing hard-to-abate industries, even if access to CRs may not be guaranteed for all such industries at the required scale and price.

<sup>1</sup> According to the IPCC Special Report “Global Warming of 1.5 °C” (SR15) there is an urgent need to scale up efforts to remove CO<sub>2</sub> from the atmosphere in order to achieve the 100-1’000 Gt of CO<sub>2</sub> removals by 2050 required to keep global warming within 1.5°C. If we are to reach net-zero GHG emissions by 2050, we will require both nature-based and technological solutions in addition to steep decarbonisation and emissions avoidance efforts (such as forest conservation for example).

<sup>2</sup> <https://blogs.microsoft.com/blog/2021/01/28/one-year-later-the-path-to-carbon-negative-a-progress-report-on-our-climate-moonshot/>

<sup>3</sup> <https://stripe.com/newsroom/news/climate-launch>




















Alphabet soup:  
decoding technological carbon  
removals and reductions

**Carbon Capture and Storage (CCS)**  
CCS is generally understood to mean the capture, transportation and permanent storage of carbon dioxide **from fossil fuels**. Given that CCS captures emissions from fossil fuels, rather than directly from the atmosphere, it is considered a **technological carbon reduction solution** that can help address emissions in sectors with hard-to-abate emissions.

**Carbon Capture and Utilisation (CCU)**  
While CCS involves the permanent storage of carbon dioxide, CCU focuses on the applications and uses of the captured carbon dioxide from fossil fuels. As the carbon dioxide is not permanently stored, CCU is **not considered a carbon removal technology** – but as a high-tech means to reduce and avoid emissions. CCU plays a key role in the circular economy by allowing us to work with raw materials that we already have, rather than extracting more.

**Technological Carbon Dioxide Removals (CDR)**  
Advanced **carbon removal systems**, such as Direct Air Carbon Capture and Storage (DACCS) and Bio-Energy with Carbon Capture and Storage (BECCS), **capture carbon dioxide from the atmosphere** and, through carbon dioxide mineralisation or geological storage, ensure that it is durably stored. These technologies will be key to removing the last amounts of stubborn, unavoidable emissions that will help us reach net zero emissions, and move towards net positive emissions afterwards.

What is holding companies back from pursuing technological carbon removals?					
Roadblocks	How this roadblock was ranked overall	Which industries ranked this roadblock the highest			
No clear agreement on what defines a carbon removal	24%	 60% Healthcare	 38% Professional services	 35% Finance	 29% Consumer durals & apparel
Available capital investment into removal projects	20%	 40% Energy	 33% Transport	 23% Industry	
Technical maturity of carbon removal solutions	16%	 50% Transport	 40% Energy	 27% Information technology	
Missing guidance on how to use carbon removal solutions.	16%	 67% Materials (metals & mining)	 33% Media & telecommunications	 25% professional services	
Lack of accounting methodologies for carbon removal solutions	13%	 33% Materials (metals & mining)	 22% Consumer goods		
Lack of regulation of carbon removal solutions.	11%	 60% Academia	 25% Professional services		



# Conclusion

## What's next on the journey to net zero?

With more frequent climate-related extreme weather events bringing massive power outages, flash floods, and burning forests, the scramble to apply innovation, ambition and vision to the challenge of climate change has never been more urgent – and many businesses are stepping up to set bold climate targets and find climate change solutions.

Despite the uncertainty that continues to dominate the climate action landscape, presenting the private sector with a lack of predictability and clarity, there are key steps that can already be taken to successfully embed a net zero target into an organisation's climate strategy. A clear climate journey will give CEOs the direction they need to lead the way, and provide them with the cover to move forward.

### The vision of net zero

The world's leading climate scientists at the Intergovernmental Panel on Climate Change (IPCC) define net zero as a state where there are no incremental additions of greenhouse gases into the atmosphere. This means that all avoidable emissions have been reduced and residual emissions have also been removed from the atmosphere.

To achieve this, an organisation must:

- **Reduce:** Plan a trajectory to reduce emissions across the entire value chain. Set a Net Zero target year based on science,<sup>4</sup> with interim milestones on how to get there, consistent with a 1.5°C mitigation pathway.
- **Compensate:** Become climate neutral by financing projects to further avoid and remove emissions
- **Neutralise:** Eventually eradicate unavoidable residual emissions with carbon removals to achieve Net Zero

### The components of a credible net zero strategy

#### Reducing emissions in line with science

The first step on any net zero journey is understanding the organisation's impact on the planet by calculating its carbon footprint – an assessment of the annual GHGs along its entire value chain. The next step is to develop a strategy to **reduce** this footprint. This can be done through a wide range of measures, including energy and resource efficiency; switching to renewable energy; targeted supply chain interventions; and product or service delivery model innovation.

**The cost of tackling climate change increases with every year of delay, and organisations can make this cost more tangible and evident in their business by creating an internal price on carbon.** This would ideally drive further emission reductions. For example, compensating for emissions by purchasing carbon credits not only enables a company to take immediate climate action (by funneling financing to a project that is reducing emissions today) but it also creates an internal cost for their actual emissions, which can be used to encourage teams to reduce emissions across the value-chain and factor emissions – and, importantly, the expected price hike of future carbon credits – into their long-term investment decisions.

### Compensation and neutralisation: activating all available levers to achieve net zero

The next step on a company's climate journey is to make the most of the critical levers and solutions at its disposal today in order to decarbonise, whilst proactively planning for the future by financing and adopting new innovations, such as technological carbon removals and sustainable fuels.

By activating these levers, companies can achieve the interim milestone of climate neutrality while transitioning towards net zero. Climate neutrality companies are those who transparently show they are taking every action to reduce all material emissions within their operations and value chains, and compensating for all unavoidable emissions on the way to net zero.

Purchasing carbon credits allows companies to contribute to tackling climate change beyond their value chains today, while actively supporting other important goals, such as climate justice and the Sustainable Development Goals (SDGs). For example, supporting forest conservation projects is key to protecting our declining ecosystems and avoiding biodiversity loss. As we work towards net zero, we must make sure to invest in solutions that mitigate climate change and support those who are hardest hit by the impacts of it.

### Getting to net zero: waiting won't make it easier

The first movers to pursue corporate net zero targets will be the leaders and advocates for changing the way we do better business. And the business benefits of pursuing a net zero strategy are many, as highlighted by this report: from effectively responding to customer needs and getting ahead of upcoming climate policy and managing risk to enhancing reputation and building a competitive advantage.

However, to be successful, all functions of an organisation must feel the ownership of net zero. In the coming years, great leadership will be expected from the C-suite as well as from middle management to ensure that net zero is driven from the 'inside out' – and that it permeates every function and level. To do this, leaders must steer departments to understand the relevance of net zero to their own interests and break the climate journey down into clear, actionable milestones that focus the efforts of every department.

While there are still many unknowns on how each company will get to net zero and what route they will take, every journey starts with a first step. At its core, net zero is an opportunity to reset the ambition of organisations, to unify them under a single initiative, and to define the journey for entire industries and sectors in this next decade of climate action.



It is abundantly clear that in the next decade, near-term SBTs aligned with a 1.5°C warming scenario need to be set by the majority of companies – especially big emitters – if emissions are to be drastically reduced. Most of these reductions are accessible and achievable today. Along the journey to decarbonising 90% of our emissions by 2050, we must use the solutions available today, and develop the necessary technological solutions to reach that last 10% that will take us over the finish line.



Every step of an organisation's Climate Journey offers opportunities to reduce, avoid and remove emissions and to communicate transparently about progress. Ultimately, to cement net zero aspirations with accountable and transparent milestones

<sup>4</sup> The Science-based Targets Initiative defines the net zero state has been achieved when emissions have reduced by an average of 90% to the base year, with residual emissions being neutralised through removals credits.





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