Microsoft

Accelerating the journey to net zero

A UK blueprint for carbon reduction

Foreword

The clock is ticking. As we embark upon perhaps the most important decade in our planet's history, we have a limited amount of time to accomplish the enormous behavioural, technological and societal transformation required to address the climate emergency. All while holding onto the advances in medicine, science, food production and energy provision that enable our way of life.

It sounds daunting. Impossible even. But that could not be further from the truth. As world leaders gather for COP26, the means by which to prevent the worst effects of climate change are within our grasp. Technology, in particular, has the potential to unlock solutions to some of the biggest challenges we face. But only if we act now. Only if impressive ambition becomes real, lasting action.

This is not all on governments. As citizens and as organisations, we have a key role to play in driving humanity's collective decarbonisation. Of course, that starts with getting our own individual houses in order – which is why the research featured in this report is not about simply calling for progress or pointing the finger at those not doing enough. Through the blueprint we lay out, we give UK organisations a set of clear, actionable steps to reduce their carbon footprint in both the short- and long-term.

At Microsoft, we are on that journey too – and you

"As citizens and as organisations, we have a key role to play in driving humanity's collective decarbonisation"

can read more about how we are doing in the final section of this report. By 2030, we aim to be carbon negative, reach zero waste and be water positive. We have also committed to removing all the carbon we have emitted either directly or through electricity use since we were founded in 1975 by 2050. But we appreciate it is challenging to make and meet meaningful carbon reduction objectives without the ability to accurately track emissions.

Put simply, you cannot manage what you cannot measure. So, with that in mind, we are focusing particular attention on the following areas:

- The meaning of net zero – developing a global definition for any net zero commitment grounded in both carbon removal and reduction
- The measurement of net zero – establishing protocols and digital tools to ensure progress reported on an accounting statement is truly progress
- The markets to support net zero – securing both the financial and human investment needed across the economy.

Addressing these areas will help set sustainability standards for everyone. Because this is about more than just ourselves. We are working closely with our customers, partners and other stakeholders to create true systemic change. Every organisation, especially those with the largest scale and influence, has a duty to do the same.

Indeed, above all, this report is a story of shared responsibility and united action. Our study shows there is an impressive desire among UK organisations to build back greener from COVID-19 and accelerate towards net zero. And the pandemic has proven how quickly challenges can be addressed when we all join forces to do so. If we can replicate that same sense of speed and collaboration when it comes to tackling climate change, I am confident we can make the positive changes our world so urgently needs.

CLARE BARCLAY,
CEO, MICROSOFT UK

Introduction

The climate emergency is well documented and well underway. But when it comes to addressing it, words have so far spoken much louder than actions. Yes, the scale of ambition from governments and organisations in setting carbon emissions reduction targets has been impressive. Yet the translation of these pledges into tangible improvements has been far less so.

"Over the past 25 years international climate negotiations have achieved important goals such as the 2015 Paris Agreement, but with the science demanding even greater urgency it is now businesses, supply chains, investors, individuals and places that are stepping up to the transformation challenge and turning ambition into action."

– Dan Dowling, PwC UK Partner, Net Zero Leader

In this report, we assess in detail how effectively UK organisations are embedding environmental sustainability and decarbonisation into their operations, drawing on practical insights from a range of leading experts, academics and business leaders. We ask if and how their strategies are being executed. And we separate UK organisations into three distinct categories according to where they sit on their journey to net zero.

Crucially, we also lay out a clear blueprint for action. Building on a strong and positive appetite among UK leaders and employees to accelerate their sustainability progress, we provide a series of short- and long-term steps that organisations across sectors can take to reduce their climate footprint and push the UK towards a more sustainable future.

Click on the icons below to read more about the topics covered in this report.

The current climate

As world leaders prepare to gather for COP26 in Glasgow, what carbon emissions reduction goals have they set so far and what part must UK organisations play in achieving them?

On board but off track?

There is no shortage of ambition among UK organisations when it comes to decarbonisation. **Yet 59% will miss the government's target to be net zero by 2050 without more targeted action.**

The scorecard

74% of UK organisations have 'one foot in and one foot out' on sustainability. Find out what makes a straggler, an aspirational organisation and a sustainability leader.

The blueprint

Discover the short- and long-term actions UK organisations can take to reduce their climate impact and achieve net zero faster.

Case studies

Learn how five UK organisations, **NatWest, the Met Office, Bupa, HMVC and AO.com**, are accelerating their own journey to net zero.

Chapter 1

The current climate

The current climate

"This is the crunch decade. We need continued, credible action now to avoid the worst of climate change."

— **Susanne Baker,** Associate Director, Climate, Environment and Sustainability, techUK

Sustainability is the language of our times. From the air we breathe to the energy we consume. The links in our supply chains to the technological innovations reshaping how we live, connect and do business. Discussion is at fever pitch and the drive towards a more sustainable future is now at the very heart of modern life.

And rightly so. The scale of the climate emergency facing the planet – and humans' survival upon it – is clear. When the Intergovernmental Panel on Climate Change (IPCC) released the findings of its report in August 2021, UN Secretary-General António Guterres described it is "a code red for humanity," warning that "greenhouse gas emissions are choking the Earth and placing billions of people in danger." Even amidst the ongoing disruption of the pandemic, we must, he said, "act decisively now to avert a climate catastrophe."

Other recent reports, such as the UK's own independent Dasgupta Review, have painted a similarly perilous picture while many politicians, business leaders and environmental campaigners have added their voices to the call for action. In the words of UK Prime Minister Boris Johnson during his speech to the UN General Assembly, "It is time for humanity to grow up."

Yet even so, progress remains slow. In the run-up to a seminal COP26 conference in Glasgow in November, many nations, including the UK, have been forced to reappraise both their own carbon emission reduction targets and their rate of progress towards meeting the net zero goals of the Paris Climate Agreement.

Green shoots

Yet alongside the jeopardy lies hope. As Guterres was quick to make clear, "Inclusive and green economies, prosperity, cleaner air and better health are possible for all, if we respond to this crisis with solidarity and courage." In other words, time may be running out but the opportunity to course-correct is by no means lost.

In the UK, there are further reasons for cautious optimism. In June 2019, it was the world's first major economy to set a target of being net zero by 2050. And despite recent evidence from the UK's Climate Change Committee that the gap between the level of climate risk and the level of behaviour adaptation has grown during the pandemic, the country is still widely considered to have done more to decarbonise its economy than any other G20 nation in the last two decades.

There is also a rising appetite among policymakers for the UK to lead the world into a sustainable future – something to which hosting COP26 should add valuable weight. For example, in early 2021, the government built on its 2019 commitment by passing into law a new target to slash carbon emissions by 78% compared to 1990 levels by 2035.

A third of the UK's biggest companies have since followed suit, signing up to the United Nations' Race to Zero campaign. And while there is limited information about how British organisations are currently performing in terms of environmental sustainability – something this report seeks to address – the green shoots of green impetus can be seen.

Indeed, according to this study, conducted by researchers at Goldsmiths, University of London, in partnership with Microsoft, just 15% of UK leaders fail to recognise the financial and reputational risks associated with a lack of organisational sustainability strategy. And of the 1,707 leaders surveyed, 62% expect their organisation to be carbon-neutral by 2035.

Pressure to progress bubbles from within too. The study also reveals 48% of employees prefer to work for an organisation that has a sustainability plan while 72% believe that in the next five years environmental sustainability should be a top priority for UK organisations.

> "The UK is well placed to take a leading role in tackling climate change. However, making a pledge is the easy part. The next chapter requires wholescale business and sector transformation."
>
> CLARE BARCLAY,
> CEO, MICROSOFT UK

Action stations

The key now, of course, is for these commitments and targets to become actual deeds and achievements. For sluggish steps to become giant strides. As Microsoft UK CEO, Clare Barclay, explains, "The UK is well placed to take a leading role in tackling climate change. However, making a pledge is the easy part. The next chapter requires wholesale business and sector transformation."

Of course, governments should continue to lead the way here, using a combination of policy interventions and incentives. Individuals and communities too must do their bit by making everyday lifestyle improvements that reduce their climate footprint.

But, in truth, it is the nation's business community where the transformation will truly be brought to life. Through public-private partnerships, cross-industry collaborations and investment in tech-enabled innovation, UK organisations can place themselves at the forefront of a greener and more prosperous future. Sustainability may be our language. But for British organisations, this is an opportunity for actions to speak louder than words.

ASDA

SUSAN THOMAS,
SENIOR DIRECTOR, COMMERCIAL SUSTAINABILITY, ASDA

Asda is a British supermarket chain. It is headquartered in Leeds, England and has more than 140,000 dedicated Asda colleagues serving more than 18 million customers.

The negative outcomes of climate change are happening here and now and it needs a collective effort to address these issues.

At Asda, we are working with a number of different organisations, suppliers and brands on various initiatives to help make a real difference in reducing our carbon footprint whilst also making greener choices as accessible as possible for customers.

Part of that accessibility is 'Greener at Asda Price Promise' which aims to make it more affordable for customers to shop sustainably by pricing loose and unwrapped products the same price or less than packaged alternatives. We have implemented this promise in three stores with specialist 'refill zones' which stock an extensive range of branded and own-label products such as tea, coffee, rice, pasta available for customers to buy loose using their own refillable containers.

We are also working hard on carbon reduction, making progress on scope one and scope two emissions, investing in low-carbon technologies across our stores and depots as well as working with our suppliers on setting scope three supply emission targets. Tackling this requires an integrated approach that considers everything from commodity sourcing and deforestation to natural resource management, including water, soil and farming practices.

Chapter 2

On board but off track?

On board but off track?

From the operating practices of their suppliers and partners to the way in which they help customers limit waste, working with all stakeholders to enhance sustainability performance beyond their own four walls is a crucial part of every organisation's net zero mission.

Knowing a train's final destination is not the same as taking the best route to get there. So, while for the most part there is a strong sense of ambition and intent among British organisations when it comes to decarbonising, this is not always translating into the most efficient and tangible progress.

Our study of just over 1,700 senior UK business leaders reveals that the majority (64%) say cutting their carbon footprint is part of their organisation's environmental sustainability strategy. However, just 17% have implemented a detailed programme for mapping their emissions while fewer than half (47%) monitor them. This inability to measure their decarbonisation efforts makes managing and improving them nigh on impossible.

Likewise, just 37% of the leaders we surveyed monitor their supply chain to ensure it is environmentally sustainable. The same low number apply environmental standards outside their own business while only 36% are using new technologies to green their supply chain.

> "I see a lot of good intentions and nice words and objectives, but also a lot of objectives that have not really been thought through in regard to how they are actually going to be achieved."
>
> — **Corinne Le Quéré,** Professor of Climate Change Science, University of East Anglia

"I see a lot of good intentions and nice words and objectives, but also a lot of objectives that have not really been thought through in regard to how they are actually going to be achieved," says Corinne Le Quéré, Professor of Climate Change Science at University of East Anglia and a member of the Climate Change Committee.

Case study

wejo

BENOIT JOLY,
EVP AUTOMOTIVE & MOBILITY

Wejo is a global leader in connected vehicle data, revolutionising the way we live, work and travel. The company employs more than 200 people.

I have seen first-hand how the approach of automotive original equipment manufacturers (OEMs) to sustainability has evolved over the years. It has become a real business mission, which has required them to totally reorganise their operations.

There was always a business incentive to build more efficient cars and enable more efficient driving because this saves fuel and therefore lowers fleet running costs. But after emissions legislation came in and demand for electric vehicles started to rise, the sector began taking carbon management and operational sustainability very seriously indeed.

OEMs now have a range of metrics they must report on. And while they have physically retooled production capabilities, they do not yet necessarily have the digital tools they need to measure their overall carbon output at a fundamental level. This is where data experts can help by identifying the right measurement processes and platforms. However, there is also a big opportunity to go beyond just measuring and reporting to developing intelligent insights that will help manufacturers engineer and evolve their sustainability strategies long-term.

That said, while you do need the right technology, it all starts with culture. From the CEO down, you have to show sustainability is a real priority for everyone and central to the daily life of the organisation.

Mind the gap

Given this intention-action gap, it is perhaps unsurprising that the study finds only 41% of UK organisations are currently on track to meet the government's targets for net zero emissions by 2050 – a figure that drops to 30% when viewed through the lens of the government's 2035 goal. Similarly, just 20% of UK employees surveyed are confident their organisation will be net zero by 2050.

Among large organisations (those with 250+ employees), the outlook is brighter. Here, the number who can expect to achieve net zero by 2050 comes in at a far healthier 91%. Most (66%) will also be carbon neutral by 2035, in both cases likely due to the greater level of infrastructure and capital investment available to them.

Still there is no room for complacency. The researchers' analysis suggests that even these larger organisations could actually reach net zero goals much sooner were their implementation plans able to match the level of ambition in their sustainability strategies. Given the urgent need to address both the climate and biodiversity crises, being able to reach net zero and give natural species and ecosystems the chance to recover ahead of schedule could be of game-changing importance. As one member of the Dasgupta Review team put it, "The cost of not doing this is far greater than the cost of taking action. And the longer we delay, the greater that cost will be."

"Just 41% of UK organisations are currently on track to meet the government's net zero 2050 target"

Challenged but aligned

As for why so many UK organisations are currently off target, there are a host of contributing factors – both operational and economic. Indeed, when asked for their three most pressing challenges around environmental sustainability for the next five to 10 years, UK leaders cited a broad mix of factors they feel are holding them back.

Top of the list was the lack of an organisational sustainability strategy (43%), along with the need for clear government guidance for action (41%). However, this may be more indicative of a need for whole systems thinking, whereby government, commerce, academia and NGOs need to come together to collectively address barriers to net zero. Many also pointed to a shortage of in-house sustainability skills (40%) and funding (36%) as well as a failure to harness the potential of new technologies to support sustainability initiatives (33%). See Figure 1.

UK leaders' top 5 sustainability challenges

	Base	1707 UK leaders	%
	**Ability to action sustainability strategies** – having a clear organisational strategy on sustainability	740	43%
	**Guidance** – having clear government guidance for action	694	41%
	**Skills** – having in-house skills and expertise	681	40%
	**Funding** – having access to funding to implement sustainability plan	618	36%
	**Getting the most out of technology** – availability of technology to support sustainability initiatives	555	33%

Figure 1

While overcoming such significant issues may seem a daunting prospect, the fact UK business leaders are both aware of and largely aligned on the need to address them is encouraging. It provides a valuable platform from which to pressure policymakers and drive both individual and collective change.

Naturally, there is still some uncertainty on the path to net zero. No one yet has all the answers while new challenges and solutions will continue to appear as we go. Yet whether it is investing in renewable energy or employing carbon measurement technology, there are plenty of short-term actions organisations can take now while at the same time planning for the long-term.

As Susan Thomas, Senior Director, Commercial Sustainability at Asda, points out, "We remain focused on halving our direct carbon emissions by 2025 (2015 baseline) as we head towards our target of being carbon net zero by 2040. We have a number of major projects that will help us achieve our goals and make a real difference, such as moving our HGV delivery fleet from diesel to gas by 2024 and rolling out low-carbon refrigeration technology next year, which will reduce direct emissions by more than 90%."

Fast, not furious

Yet even amidst the justified demand for speed there is a need for prudence. Yes, it is critical that every organisation takes the necessary steps to decarbonise and help create a greener economy for the future. Yet equally, the push for quick, reputation-enhancing wins and short-term gains cannot come at the expense of lasting transformation and long-term success.

"Things are moving forward, it is just taking a little longer than expected. That shouldn't be a surprise," cautions Susanne Baker, Associate Director, Climate, Environment and Sustainability at trade association techUK, "This is complicated, detailed stuff that must be addressed in a coordinated, measured way. Moving too quickly could cause costly errors."

Progress and perceptiveness. That is the balance UK organisations – and the nation as a whole – have to strike on their journey towards net zero. In the next two sections of this report, we use a new model based around seven key dimensions of sustainability to assess in detail how they are doing so far and lay out a clear roadmap for going further, faster in future.

> "Things are moving forward but this is complicated, detailed stuff that must be addressed in a coordinated, measured way. Moving too quickly could cause costly errors."
>
> **SUSANNE BAKER,**
> ASSOCIATE DIRECTOR, CLIMATE, ENVIRONMENT AND SUSTAINABILITY, TECHUK

Chapter 3

The scorecard

The scorecard

Socrates once said, "The secret of change is to focus all of your energy not on fighting the old, but on building the new." And, true enough, for UK organisations the path to decarbonisation lies in finding fresh ways to put sustainability at the very heart of their future operations and relationships.

Yet one area where it is necessary to confront the old in order to progress is in the definition of sustainability itself. Traditional, scientific descriptions can often be abstract, hard to relate to and easy to ignore. They also tend to see things as either focused on sustainability or growth when the reality is the two should go hand-in-hand. This means that rather than inspiring and empowering individuals and organisations to act, they have the opposite effect, alienating those tasked with making changes and ultimately stymying progress.

For the purposes of this report, the research team therefore sought to view sustainability via a different, more accessible lens. Based on empirical evidence, data, interviews with subject matter experts and the lived experiences of companies and people, they identified seven key dimensions through which to evaluate an organisation's sustainability performance. See Figure 2.

While weighted differently between individual firms, the researchers found that these seven dimensions were near-omnipresent across UK organisations' strategic priorities. Using these dimensions, they then developed 14 key criteria by which to benchmark the maturity of each organisation's sustainability practices. The resulting 'scorecard' provides a valuable picture of where the British business community stands both individually and collectively on the road to net zero.

The 7 dimensions of sustainability

	1	**Connected sustainability** - Embed sustainability strategies in whole organisation thinking through a comprehensive organisational strategy with clear goals and milestones and an assessment of risks and benefits of implementation.
	2	**Decarbonisation** - Create a clear path towards becoming carbon neutral in line with the UK government's goal of achieving net zero through monitoring and measuring emissions.
	3	**Funding and skills** - Address the need for adequate funding, expertise and skills in-house to design and implement an environmental sustainability strategy.
	4	**Accounting for natural capital** - Maintain, monitor and mitigate risks and preserve natural capital assets in planning and operations.
	5	**Sustainability infrastructure** - Transition to a sustainable infrastructure at all levels of business through incremental changes in both operations and using adaptive measures in premises.
	6	**Supply chain resilience** - Mitigate the negative impact of supply chains through monitoring carbon emissions and following environmental standards.
	7	**Technological innovation** - Harness the power of technology to amplify and accelerate sustainability strategies and operationalise them through speed to impact.

Figure 2

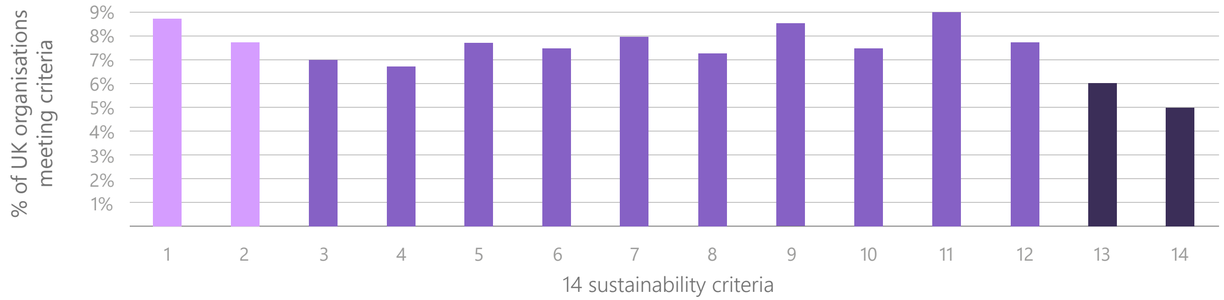
Sustainability categories

The findings are clear. Nearly three-quarters (74%) of companies fit the profile of what the researchers term 'aspirational' organisations. These are characterised as having 'one foot in and one foot out on sustainability', better at creating ambitions and designing strategies than actually executing and operationalising sustainability outcomes. They have the intent to achieve net zero and, crucially, the operational potential to do so. But they are not changing quickly enough.

Better placed are the 11% of organisations that meet the criteria of sustainability leaders. These firms score highly across the 14 criteria and are doing a good job of aligning their sustainability goals with the pursuit of economic growth. This includes spending on technology, training and in-house expertise and backing up their sustainability commitments with strong leadership. Sustainability leaders are also adept at ensuring stakeholders buy into their decarbonisation objectives, while 74% invest in technology to measure carbon emissions across their products, services and operations.

Meanwhile, at the other end of the scale are the 'stragglers': companies who have included sustainability in their overall strategy and aim to be net zero by 2050 but have as yet done little, if anything, to transfer those commitments into genuine action. For example, just 13% of stragglers have embedded environmental sustainability across all business functions and operations. See Figure 3.

UK organisations' current sustainability performance



Stragglers

- Scored positively in fewer than three of the 14 sustainability research criteria
- Have a sustainability strategy in place and a goal to be net zero by 2050 but have not fully embedded it
- Are missing many of the fundamental building blocks required to execute their sustainability ambitions, including funding, technology and stakeholder buy-in

Aspirational

- Scored positively in between three and 12 of the research criteria
- Are 'one foot in and one foot out' on sustainability, are driving some tangible outcomes but better at designing strategies than operationalising them
- Tend to be less effective at funding technological innovation and finding greener alternatives for products and processes

Leaders

- Scored positively in more than 12 of the research criteria
- Distinguished by their investment in technology R&D, training and in-house expertise in order to align sustainability goals with economic growth
- Are successful in gaining multi-stakeholder buy-in for their sustainability commitments

Figure 3

Highs and lows

Within the overall scorecard, there are some specific highs and lows. Take the 'Funding and Skills' dimension, where only 52% of leaders feel their organisation has the necessary financial resources to implement their environmental sustainability strategy. Even less (43%) believe they possess the required in-house expertise and skills to execute their sustainability strategy. Additionally, just 40% are offering sustainability training to staff and fewer than half (40%) employ professionals in job roles specifically related to environmental resources.

When it comes to 'Technological Innovation', there is better news. Of the leaders surveyed, 60% recognise the part this can play in powering the UK's decarbonisation. Asked about their plans to deploy more sophisticated technology to operationalise sustainability over the next five years, 51% say they aim to use Robot Process Automation (RPA) more intensively, 56% plan to use carbon emissions measurement technology, 53% cite machine learning and 55% point to digital twin technologies as a rapidly growing territory for virtualisation and simulation at scale without the real-world waste.

This demonstrates a clear and promising appetite among UK leaders for using new technologies to improve the environmental sustainability of their products, services and operations. If the number actually investing in technology R&D – currently 36% – were to match this level of forward-thinking, the impact on the UK's overall ability to reach net zero could be seismic. As Dr Eugenie Dugoua, Assistant Professor in Environmental Economics at London School of Economics, explains, "Technology can be the enabling factor that gets us out of trouble. The first stage of that is innovation: doing the R&D and trialling a first prototype for proof that the technology will work at the scale we require it to. Then it can be diffused and adopted more widely."

> 60% of UK leaders recognise the part technological innovation can play in powering the UK's decarbonisation, but only 36% currently invest in R&D for new technologies that will improve the environmental sustainability of their products, services and operations

Case study

Johnson Matthey
Inspiring science, enhancing life

PAUL COBY,
CIO, JOHNSON MATTHEY

Johnson Matthey is a global leader in sustainable technologies and our global team of 15,000 professionals collaborate with a network of customers and partners all over the world to enable a cleaner and healthier world.

Net zero is a critical priority for Johnson Matthey. We have a 200-year plus history of delivering cutting-edge science and innovation and are well positioned to help the world tread a more sustainable path. Through this strong history of science and innovation, we're enabling and accelerating the big transitions to decarbonise transport, energy and chemicals production.

Right now, over 80% of our products contribute to four UN Sustainable Development Goals (SDGs) and our target is to see over 95% of our product sales and 95% of our R&D spend aligned with the SDGs by 2030.

In IT, we have completed a significant improvement programme, which is all about better supporting our brilliant people in creating the technologies that will help society to decarbonise. The programme also involved setting out a three-year carbon footprint scorecard for our IT operations. The aim is to reduce our CO2 emissions output by over 4,000 tonnes, the equivalent of 374 million smartphones being charged. We have also invested in modernising our IT infrastructure estate, removing inefficient older equipment, bringing in new technology and supporting more efficient ways of working.

Positive too is the fact that 60% of the leaders we surveyed report a decrease in their company's carbon emissions as a result of remote working during the pandemic – although in many cases, this may not take into account the impact of those using energy resources while doing their job at home. Yet even so, with many organisations having raced to get the structures and culture in place to support flexible working, they now have the means by which to maintain and accelerate this improvement going forwards.

Meanwhile, other areas ripe for enhancement are the supply chain and the way in which firms account for natural capital. In the latter case, 60% of UK leaders admit they do not take into consideration the role and value of natural capital in their planning and operations – a key focus of the Dasgupta Review. Meanwhile, only 37% of organisations apply standards in their supply chain to ensure it is environmentally sustainable.

According to Sam Kimmins, Head of RE100 at The Climate Group, these figures can and must increase, with large organisations using their scale and influence to lead the way. "Companies need to really push their suppliers to make themselves more sustainable. If a large firm makes its supply chain greener and that supply chain is also supplying 30 other companies, you get a positive multiplier effect."

This notion of different organisations coming together to solve the UK's decarbonisation challenges, including those in both the public and private sectors, is especially pertinent – and something we explore further in the blueprint laid out during the next section of this report.

Of interest also is the fact that both the size and sector of an organisation appears to influence its current sustainability success. Large organisations (250+ employees), likely due to their larger budgets and more established infrastructure, tend to outperform smaller ones.

Likewise, certain sectors – such as transport and energy and utilities – appear to be blazing a faster trail than others, particularly in monitoring carbon emissions. It is, however, important to note though that these two sectors also emit the largest amount of greenhouse gases. In contrast, 24% of public sector organisations have not yet specified carbon emission reduction as part of their sustainability strategy. See Figure 4.

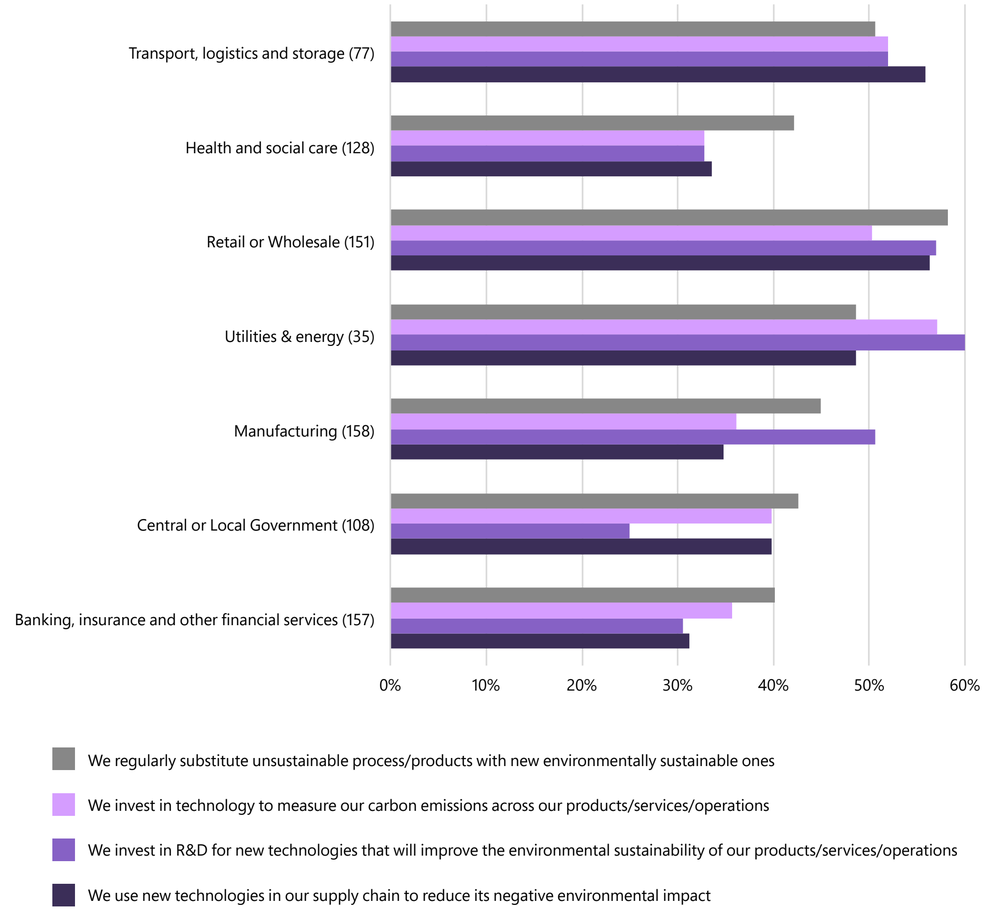


Figure 4

People power

In constructing this scorecard, researchers also found it is not simply the pressure of government and corporate targets or even the desire to 'do the right thing' that are driving British organisations towards net zero. The expectations of employees are rising too, with a firm's sustainability performance increasingly key to attracting and retaining top talent.

Among the UK employees who participated in our study, 67% say they expect their employer to take action to reduce its climate footprint and 64% would like to make as many green choices in work as in their personal life. Similarly, 72% believe environmental sustainability should be a top priority for UK organisations during the next five years and 75% say climate change needs to be taken more seriously as a threat to human life.

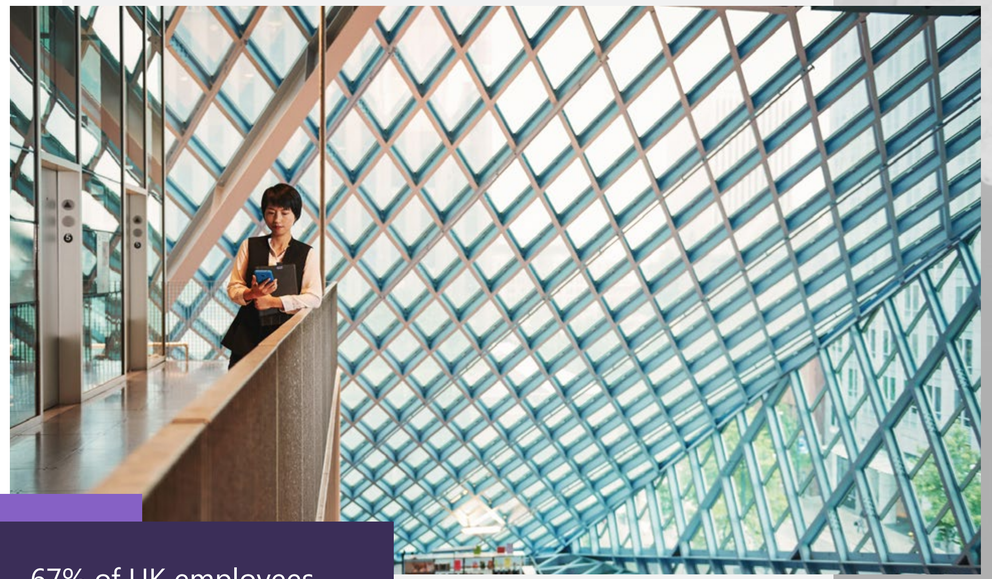
However, from a practical point of view, their employers have some catching up to do. Just 15% of the staff we surveyed have received training on sustainability, while only 12% claim to have a say in their organisation's green policies. Tellingly, only 17% believe their work premises are as environmentally friendly as their own home.

As Corinne Le Quéré, Professor of Climate Change Science at University of East Anglia and member of the Climate Change Committee, explains, "Expectations have changed. Today's young people want to work for companies that have serious sustainability internalised in their plans and programmes. Those that ignore this simply will not have the customers or talents of tomorrow."

Onwards and greenwards

Benchmarking organisations' sustainability performance like this provides a valuable way in which to understand the reality of the UK's progress towards a net zero economy. It also highlights the nature and scale of the threat we face. But to return to Socrates for a moment, solving the climate crisis is not simply about fighting the old (or even the present); it is about creating something new.

In the following section of this report, we therefore seek to build on the findings of this scorecard to set out a clear sustainability blueprint combining short-term actionable goals and long-term business mapping. One that British organisations across sectors, especially the 74% categorised as aspirational in our scorecard, can use to become sustainability leaders and help usher in a greener future for everyone.



67% of UK employees expect their employer to take action to reduce its climate footprint

Chapter 4

The blueprint

The blueprint

> "The world is changing dramatically, so you need to be ahead of the curve, not led by it. The question is: does innovation happen to you, or do you drive it?"
>
> – Adrian Furnham, Professor of Psychology, Academic and Author

The urgency of the climate crisis cannot be overstated. Nor, as our scorecard exposed, can there be any doubt that the vast majority of UK organisations have much work to do in backing up their sustainability ambitions with tangible actions to reduce their carbon footprint.

Yet as our study has found, there is much cause for hope. As a nation, the UK is widely agreed to be one of the most forward-thinking in the world in terms of decarbonisation while there is powerful desire among British organisations, even those who fell into the stragglers category of the scorecard, to embed sustainability into their operations.

The key now is to turn ambition into achievement. Intent into innovation. Not by simply reacting to the moves of others but by seizing the opportunity to be at the vanguard of a greener, more sustainable future. As Adrian Furnham, Professor of Psychology, Academic and Author, puts it, "The world is changing dramatically, so you need to be ahead of the curve, not led by it. The question is: does innovation happen to you, or do you drive it?"

Start fast, think big

Doing so requires a mix of short- and long-term thinking. Yes, organisations should obsess about making immediate changes to cut carbon emissions throughout their value chain. But at the same time, they should be getting started on implementing more lasting transformations that will ensure they reach (and even exceed) the government's revised target to slash carbon emissions by 78% by 2035.

Taking into account these imperatives, and based on the data from our study, we have created a blueprint of short- and long-term actions that UK business leaders should take to drive a net zero economy. And while its primary focus is on helping the huge number of aspirational organisations become sustainability leaders, it lays out an approach that can help any company start fast and think big when it comes to carbon emissions reduction.

Furthermore, to ensure the steps included are as useful and accessible as possible, we have rooted them in the seven sustainability dimensions identified by our researchers and introduced in Section 3 of this report.

Connected sustainability

When embedding sustainability strategies in their overall business plan, organisations must be completely clear about what their objectives are and, crucially, how teams can deliver on them. Incentives such as linking executive pay to meeting sustainability goals can be valuable here. Likewise, it is vital to assess the total costs/benefits of achieving green objectives, viewing sustainability not as a cost but as an investment in delivering lasting value for stakeholders.

Looking more long-term, organisations should also seek to collaborate across the public/private divide as well as with academic institutions, industry peers, NGOs, trade bodies, customers and local communities. This can help drive positive economic, environmental, social and technical outcomes and also makes for a more powerful collective voice when lobbying for policy changes and incentives that support the net zero transition.

"A sustainability strategy needs to very quickly translate into what it means for the individual business units, business areas, sites and geographies. That includes details of how you are incentivising, recognising and rewarding people for meeting the goals. You need a bankable plan that is owned by all the teams, leaders and layers within the organisation."

— **Nitesh Prakash,** Partner, Bain & Company

Decarbonisation

Rather than having top-line decarbonisation targets that can sometimes feel distant or unachievable, organisations should set milestones that contain explicit, quantitative commitments for the reduction and removal of carbon. This includes using digital carbon measurement tools to ensure any progress reported on net zero accounting statements is indeed genuine progress. In the long run, becoming net zero by 2035 should be considered a realistic goal and pursued vigorously.

"Having analysed our emissions levels, we feel it is feasible for us to hit net zero by 2030. Rather than putting our finger in the air and saying, 'let's hope we can get there', though, we have broken it down into what is achievable provided we get the right building blocks in place."

— **Paul Chavasse,** Associate Director, Office of the Chief Executive Officer, Met Office

Accounting for natural capital

The first step here is for firms to evaluate the role of natural capital assets in their operations – from mineral and timber resources to livestock, water and land. Once they have a clear understanding of what they use and in what quantities, they can then begin to make lasting modifications to the way they measure economic success, building in considerations of how they protect and replace natural capital assets. This should include agreeing common sustainability units and methods of measurement across carbon, water, waste, ecosystems and biodiversity.

"Society and business are wholly dependent on the environment and nature to survive. It is the basis of all life – including, of course, human life. Nature is a finite resource, and we are using up its resources faster than it can regenerate. We are eating the hand that feeds us, and there isn't a plan B. As an economy, we need to manage, measure and support a healthy natural environment."

— **Susan Njoroge,** Managing Director of Responsible Business Consulting

Funding and skills

Organisations rated as sustainability leaders are all highly adept at getting multi-stakeholder buy-in. Currently, 36% of UK organisations cite accessing funding to implement their sustainability strategy as a key challenge – and bringing stakeholders on board is a way to solve it. This is especially important when it comes to financing the creation of an in-house community of people with the expertise to implement sustainability plans – be that through training, recruitment or both.

As for longer-term actions, collaborating with government and being proactive in asking for guidance and progressive regulation will help organisations accelerate market reform and prioritise system management, network costs and storage, and to account for demand-side assets in value calculations.

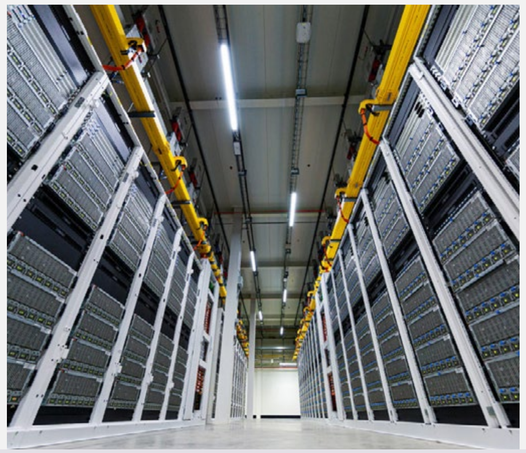
"Education linked to business needs is critically important. Not education that is not directly linked to business - for example, regarding how global warming occurs or how an ecosystem works - but instead on how your business can fully adopt net zero on carbon and a circular economy model on the use of natural resources. The more we move away from CSR and sustainability being a separate activity from the underlying business, the better, especially through training."

— **Professor Richard Barker,** Program Director, Oxford Leading Sustainable Corporations Program

Sustainability infrastructure

When it comes to infrastructure, there are some quick wins organisations can pursue that, when added together, deliver quantifiable transformation at scale. This includes being more energy efficient in their premises – from switching to renewable power and adding green space to installing improved window glazing, draught proofing, shutters and reflective surfaces.

However, sustainability infrastructure considerations should not be limited to what goes on inside an organisation's own four walls. If it has 10,000 employees working from home, consuming electricity, using their heating, etc., its overall climate impact is not zero. Long-term, companies need to figure out how they partner with flexible working employees to achieve their overall carbon reduction goals.



"Organisations need to ensure they are not narrowly focused on just the compliance and the costs of a single sustainability opportunity, but on how they can fully transform their businesses to achieve net zero and create value. For example, it is not just about switching to green energy but rethinking the products you make and how you make them to become more sustainable."

— **Tarik Moussa,** PwC UK, Innovation & Sustainability Consultant

Supply chain resilience

Monitoring the supply chain to ensure partners are taking steps to be environmentally sustainable is also paramount. Ideally, organisations should view their supply chain as a network in which participants collaborate to become collectively greener in both processes and outcomes.

In the short-term, that means updating supplier codes of conduct to ensure the entire supply chain is calculating and reporting on scope one, two and three emissions data. And beyond that, it can include seeking commitments on local sourcing and limiting the depletion of natural capital assets through replacement programmes.

In the long run, organisations need to be continuously looking for ways to substitute processes and/or products with more environmentally sustainable ones. And they should be driving the use of new, advanced carbon measurement and management technologies throughout the supply chain, such as AI, RPA and smart sensors.

"Supply chains need help with navigating what is a new world for many of them, especially the smaller ones. Give your supply chain the tools to take part in the net zero pathway and help them with advice. Yes, it is tough to make wholesale shifts, especially in the post-pandemic economic landscape, but small steps can be fiscally resolved and it is this collaborative shifting that will ultimately work."

— **Sumit Bose,** Founder, Futurenetzero.com

Technological innovation

Among UK leaders, 60% believe technological innovation is vital to improving environmental sustainability. From switching to less energy intensive digital infrastructure, such as sustainable cloud solutions and virtual collaboration tools, to using carbon calculation systems to understand and take charge of their emissions, digital technologies represent an increasingly important part of any organisation's ability to shrink its climate footprint.

Looking further down the line, there also needs to be a greater commitment to R&D into technologies that are both financially accessible and greener. Many leaders we spoke to during our research say they are planning to deploy more sophisticated solutions that help them advance their sustainability goals, such as RPA when applied to carbon emissions measurement, machine learning and digital twins. These plans must now be turned into actual investment.

"Whether it's Edge compute power and IoT for climate risk adaptation strategies or AI, cloud and data science for robust emissions measurement, technology has transformative potential to help us find solutions to some of our biggest climate challenges. If the public and private sectors work together to better understand and access digital technologies that help with end-to-end carbon reduction strategies, the UK has a huge opportunity to take a lead in the digitisation of the net zero transition."

— **Clare Barclay**, CEO, Microsoft UK

Walking the talk

Taking these steps will naturally require determination, investment and multi-stakeholder buy-in – all of which are characteristics of the sustainability leaders identified in this report. Similarly, organisations must be ever more willing to take calculated risks in pursuit of increasingly ambitious sustainability goals. So rather than fear failure, they should embrace it as part of the innovation process, treating it as an opportunity to learn, share and improve.

A renewed sense of partnership across sectors, industries and even competitors will also be vital. As Ian Meikle, Director, Clean Growth and Infrastructure at non-departmental public body, Innovate UK, describes, "Open innovation is going to be key, with businesses in and across sectors working in a 'we are doing it together' approach rather than everyone trying to move forward individually."

Indeed, among the lessons to be learned from the findings of this report, perhaps that is the most important. Yes, there is an environmental emergency on our doorstep. Yes, the challenge of solving it is considerable. And yes, despite the many uncertainties, we must make sweeping changes now if we are to prevent the worst effects of climate change.

But as a nation, as individuals and as organisations, no-one should ever be acting alone. The case for change is non-negotiable and the road to net zero is ahead. We must walk it together.

Blueprint at a glance

Dimension	Connected sustainability	Decarbonisation	Funding and skills	Accounting for natural capital	Sustainability infrastructure	Supply chain resilience	Technological innovation
Short-term action	Embed sustainability strategies in whole organisation thinking; assess total costs/benefits of achieving green objectives	Set milestones with explicit, quantitative commitments for the reduction and removal of carbon; use digital carbon measurement tools to accurately track progress	Gain multi-stakeholder buy-in to close funding gaps; build in-house expertise to implement sustainability strategies	Evaluate the role of natural capital assets in operations and consider how to guard against depletion	Pursue quick wins to incrementally transition to a more sustainable infrastructure, including making premises more energy and waste efficient	Mitigate the negative impact of supply chains by monitoring carbon emissions and updating supplier codes of conduct on scope one, two and three emissions	Switch to less energy intensive digital infrastructure; use carbon calculation systems to monitor, measure and manage emissions
Long-term action	Drive collective change through public/private partnerships and collaborations with academic institutions, industry, NGOs, trade bodies, customers and communities	Aim to be net zero by 2035 and execute a clear plan to get there	Collaborate with government on guidance and progressive regulation to accelerate market reform	Modify measurement of economic success to include the protection and replacement of natural capital assets	Extend infrastructure changes throughout all operations and premises while partnering with employees to boost sustainable practices when working at home	Substitute processes and/or products with more sustainable ones; deploy advanced carbon measurement and management technologies throughout the supply chain	Invest in R&D financially accessible and greener technologies; activate plans to deploy more sophisticated solutions, such as RPA, machine learning and digital twins

What next?

While it may be easy to dwell on the perilous nature of the climate emergency, it is important to remember there is cause for optimism too. From world leaders to environmental activists, there is near-unanimous agreement that the worst effects of climate change tomorrow can be prevented with swift, large-scale action today.

Equally positive is the intent UK organisations are showing when it comes to their own role in the net zero journey. Of the leaders we spoke to, 64% say cutting carbon emissions is part of their organisation's environmental sustainability strategy. Employees are also placing growing pressure on their employers to turn words into action. The result is a powerful platform for change.

Of course, there is no room for complacency. As we have seen, 59% of British organisations are currently set to miss the government's target to achieve net zero by 2050. But off track now does not have to mean off track always. In fact, there are numerous actions organisations across all sectors can take to accelerate their progress and meet the UK's ambitious sustainability goals.

> "The sustainability agenda is not just a nice series of goals that people talk about. It should be a series of concrete actions leading to results that should become visible within the next 10 years."
>
> – Dr Eugenie Dugoua, Assistant Professor, Environmental Economics, London School of Economics

That is why the blueprint set out in Section 4 of this report is so vital. Based on empirical evidence and the advice of subject matter experts, it helps answer the question 'what next?'. In particular, it provides a tangible roadmap to transform the 74% of organisations classified as aspirational into sustainability leaders.

Those that follow the blueprint's short- and long-term steps will be well-placed to close the intention-outcomes gap and place sustainability at the heart of their operations going forward. What is more, by taking these steps together, they can play an invaluable role in leading the UK – and indeed the world – into a brighter, greener future. The climate challenge we face is collective. So is the solution.

For more information and advice about accelerating your organisation's journey to net zero, visit aka.ms/UKSustainability

Chapter 5

Case studies

RICHARD MASON,
HEAD OF ENVIRONMENTAL SOCIAL AND GOVERNANCE, AO.COM

CASE STUDY

AO.com

Measuring carbon emissions in the supply chain

AO.com is the largest online-only white goods and electricals retailer in the UK. Founded in 2000 and headquartered in Bolton, the business now has nearly 4,000 employees. AO has its own logistics company and owns one of Europe's most sophisticated fridge recycling plants and sister plastics recycling facility - which help the company deliver on its sustainability promises.

Here, Richard Mason, AO.com's Head of ESG, discusses how energy ratings are impacting consumer decision-making, how tech could help track product usage emissions and why legislation is so important.

Having your own recycling centre sounds like a unique approach, tell us some more about that.

It is, in fact AO is the only UK retailer that has its own electrical recycling centre. It is a big part of our investment in circularity, so we can refurbish, repair and recycle e-waste in-house to the highest standards. Since it opened, we have focused on collecting as many old appliances as possible and ensuring they are properly disposed of. In July 2021, we were able to celebrate the milestone of having recycled over two million fridges.

Our decisions about this have been forward-looking, thinking about the standards that customers expect from AO which we were not confident third-party recyclers could fulfil. In turn, this approach means we are ahead of environmental regulations and the potential costs. Dealing with this kind of risk is as important a part of an environmental, social and governance (ESG) strategy as anything else. It also helps us make recycling confidently as easy as possible for our customers, whether they bought the appliance from us or not.

What evidence are you seeing about increasing consumer demand for more sustainable white goods?

We are seeing very clear, definitive data that shows customers do not mind paying more for a more sustainable product if you can show them coherently and robustly how that product will save them money through energy efficiency and being more durable. That said, people do not want more unnecessary information – they want concise information they can trust.

This explains why mandatory, standardised energy ratings have been such an effective piece of legislation. We can see customers are willing to invest more or trade between brands based on the energy efficiency. Interestingly, the impact does vary across product categories. Take fridges, for example, there is often not that much difference between them on the energy efficiency scale. However, washing machines have A to B performers across the standard ranges and it has an impact. So, there is a market here, with real revenue opportunities, which is why we want to be a customer destination for product sustainability information.

Thinking long-term, how could technology help crack supply chain sustainability in the future?

Our ultimate goal is to create new appliances from the recycled materials of old ones. We are collaborating with brands to make this goal a reality and reduce the demand for virgin raw materials to be mined at significant environmental cost. We have also partnered with award-winning online parts store eSpares to help customers find spare parts for their appliances, so that they do not need to buy an entire new product if they only need to replace a broken part.

In addition, we have analysed our scope one and two emissions and understood scope three at a top-line level. The next challenge is to go deeper. Most of our operations mainly run on renewable energy now, so about 5% of our remaining emissions come from logistics, and the rest (about 85%) comes from the usage of products we have sold and distributed but obviously not manufactured.

Looking ahead, I think it is fascinating how we might be able to have more data on these product usage phases, and the resulting emissions. Imagine smart products that can flag when they need repairing and what is wrong. Being able to track items made somewhere else, by someone else and still understand the carbon footprint throughout the product lifecycle will be brilliant. Right now, many suppliers do not know for sure the average lifecycle of their products, just because they are not responsible for the collection at the end.

How else can firms overcome inertia or lack of internal stakeholder buy-in around sustainability in the short-term?

Organisations like the Task Force on Climate-related Financial Disclosures (TCFD) have made a big difference by increasing the noise about sustainability from all angles. Anyone who's involved with audit, finance, and legal is being bombarded with webinars and practical educational support about these issues. But without a doubt, it always needs legislation to give it real teeth.

The British Retail Consortium (BRC) has also driven a significant step forward by sharing a template of what actions to take. Now we need the industry's largest organisations to engage and collaborate.

DIANA KENNEDY,
CHIEF TECHNOLOGY OFFICER,
BUPA

CASE STUDY

Bupa

Putting sustainability at the heart of the organisation's purpose

Bupa was founded as a UK health funding organisation in 1947. Today, it is an international healthcare company, directly employing around 85,000 people who provide health funding and treatment, care and other health services to over 31 million customers across the world.

Here, Diana Kennedy discusses how the organisation's purpose has evolved, why not having shareholders can help and the role tech can play in decarbonising healthcare.

How has sustainability authentically become part of Bupa's purpose, partly in response to or accelerated by COVID-19?

The sheer scale of disruption of the pandemic helped us realise it was an appropriate time to revisit our purpose, which was, and still is, about helping people live longer, healthier, happier lives. Sustainability was always a part of that but we saw an opportunity to make it clearer and embed it more deeply because of how apparent it became that there is an inextricable link between the health of our planet and the health of humans. Studies are revealing how the loss of wild, natural habitats and decreasing biodiversity are increasing the likelihood of more infectious diseases happening. Which is one example of why our purpose is also about making a better world, to help people live healthier lives.

Tell us about your sustainability ambitions and what elements are helping to enable it in particular?

Sustainability is at the heart of our strategy. Our role as both a funder and provider of healthcare is to mitigate the impact of healthcare on the environment, and build resilience into the system. We also have the opportunity and the responsibility to understand how our health is impacted by the health of the planet and to advocate for healthy people and a healthy planet.

To address this, we are currently developing our new sustainability strategy focused on the opportunity to act to safeguard the health of people and planet.

We have committed to the Science Based Targets initiative (SBTi) joining companies worldwide in following the science in framing action to reduce carbon emissions, and we're committed to reaching net zero. We will be announcing our science-based targets, across all three emissions scopes, in the next few weeks. Any remaining emissions until we get to net zero we will offset by investing in nature-based solutions as part of the UN's Climate Neutral Now initiative.

Responsibility for sustainability is being embedded throughout our organisation, across all our core projects, all our future work, and all our new products and services – and that means working as fast as possible to reach net zero across all three scopes of emissions.

We believe improved sustainability and business growth can and should go hand in hand, because sustainability needs to be linked to overall goals, which in our case include total customer centricity, continually improving patient experiences and ongoing innovation and transformation through digital. The fact that we do not have shareholders is a significant enabler, as profits can be reinvested to support our sustainability commitments.

How is technology helping Bupa make progress towards its climate commitments?

We are migrating key applications in our leading and core markets globally to Microsoft's Azure cloud platform and rolling out Dynamics 365 for Bupa teams in the UK and Australia. This will enable us to become a much more data-driven organisation, using cloud-native data services to develop more intelligent insights. This in turn enables us to make more intelligent decisions about how we offer personalised healthcare, create more sustainable policies and deliver on our business strategy of being the most customer-centric healthcare company in the world.

This migration also directly drives Microsoft and Bupa's joint sustainability goals by decreasing the carbon footprint involved with running on-premises data centres by around 30%.

How are customer expectations helping to drive delivery of sustainability blueprints?

Over the last 18 months, customers have got used to receiving elements of their healthcare digitally and engaging with insurance through digital channels. This has become embedded as something every customer now expects. We are seeing the same trend when speaking to local businesses about our plans for the next three years – the conversations focus on how our products or services will drive our sustainability agenda to become more customer-centric. There is no stepping back from this now.

We also now must advocate for the symbiotic relationship between health and sustainability more broadly, such as calling for green spaces to promote wellness services over critical care services, encouraging people to walk and cycle instead of being driven somewhere. These are the kinds of new expectations that Bupa wants to deliver on – and we will.

PROFESSOR SAM TURNER,
CHIEF TECHNOLOGY OFFICER,
HVM (HIGH VALUE MANUFACTURING) CATAPULT

CASE STUDY

High Value Manufacturing (HVM) Catapult

The importance of sustainability incentivisation

HVM Catapult is a publicly funded organisation that helps bridge the gap between business and academia, turning great ideas into reality by providing access to world-class research and development facilities and expertise that would otherwise be out of reach for many businesses in the UK. Working through seven world-class technology centres of industrial innovation, it helps accelerate new concepts to become commercial realities.

Here, Sam Turner, HVM Catapult's Chief Technology Officer, discusses how the organisation is delivering deployable new innovations, cites the need for a legislative environment that creates commercial decarbonisation incentives and explains why the supply chain is the thorniest problem to solve.

CATAPULT
High Value Manufacturing

Why is the manufacturing sector such an important part of the UK's net zero efforts?

Our research, which we were carrying out earlier this year, indicates that up to 43% of carbon emissions associated with goods and services consumed in the UK are related to manufacturing. So, there is that straightforward level of responsibility. But with that comes a huge opportunity to make a difference – especially if we can tackle supply chain emissions that manufacturing is naturally connected to.

We need a bold strategy to address this and it is important we do not just seek to offshore our manufacturing industries as a way of hitting UK reduction targets because that just passes the buck. This production could well end up moving to a country that does it cheaper at the cost of emitting even more CO2, so it makes the global problem worse while destroying UK economic value too.

Instead, we have got to keep strengthening the UK's manufacturing base, while reducing emissions. It is important socially, environmentally and economically.

How is HVM Catapult helping the manufacturing sector to decarbonise?

We have got about 4,000 engineering staff across the network and a physical and digital asset base that is worth over one billion pounds - and it is all working to bridge the gap between research and industry. This means developing, testing, demonstrating, de-risking and scaling technology solutions in our facilities that can then be deployed in factories across a range of industries. A huge – and increasing – amount of this work is focused on innovations that decarbonise the UK manufacturing lifecycle, and we are getting more involved in government policy too, sharing our discoveries and progress with political decision-makers.

At a macro level, we are trying to understand the landscape of UK manufacturing carbon emissions – where do they sit, what are the obstacles, what are the opportunities, etc. This involves working with government and trade bodies in well-organised sectors like aerospace and automotive.

What can be done to incentivise the acceleration of manufacturers' sustainability blueprints?

Having the right policies and enforced standards is essential because the number one challenge is still that there is not an immediate return on investment for decarbonising, so there is not as much market push or pull for non-consumer-facing businesses.

The number two challenge is upstream supply chain emissions, where it is so hard to get good carbon data. This makes informed decision-making difficult. So, you need the right digital tools for measurement, which will help manage and optimise factories' ultimate carbon footprint.

Right now, we are seeing increased but not universal uptake of solutions ranging from AI and machine learning to predictive analytics, virtual reality and augmented reality. But these are often focused on increasing commercial outputs. As these tools become more effective at tracking materials through the supply chain and finding new efficiencies there, they will become increasingly valuable for reducing resource consumption, which will significantly accelerate manufacturing's journey towards net zero.

PAUL CHAVASSE,
ASSOCIATE DIRECTOR, OFFICE OF THE CHIEF EXECUTIVE OFFICER, MET OFFICE

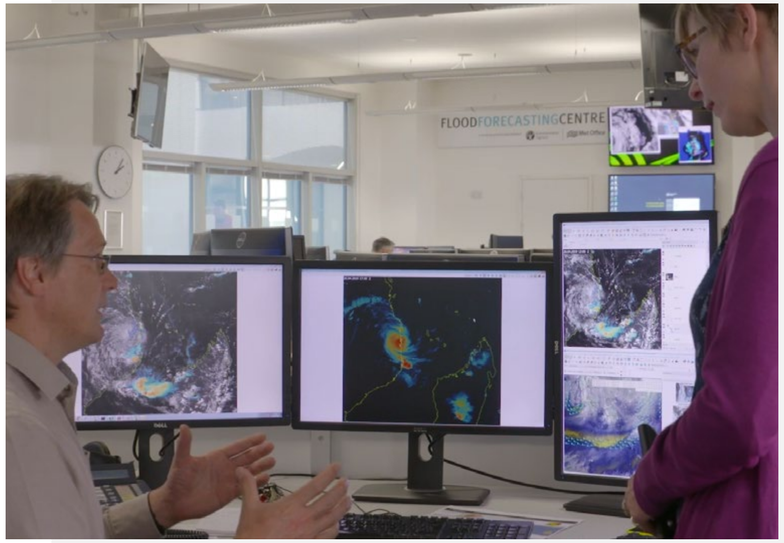
CASE STUDY

Met Office

Creating value through technology innovation

The Met Office, founded in 1854, is the national meteorological service for the UK. It provides critical weather services and world-leading climate science, helping people make better decisions, stay safe and thrive. Here, Paul Chavasse discusses the organisation's own progress towards net zero, investing in supercomputers and how tech innovation creates value through improved climate preparedness.

Met Office



How has the Met Office been doing on its own journey to net zero?

Like many organisations we have been making progress in lots of smaller areas, but it is in the last couple of years we have put together a more coherent overall strategy, which included a full baseline analysis of our emission sources and what needed to change to reach net zero. It takes time to get there, as these are not changes you can make overnight – but we think it is achievable with a proportion of offsetting by 2030 through a rigorous science-based approach.

Tell us about how you are partnering with Microsoft on supercomputer technology?

Together, we are building a new supercomputer that will provide even more accurate weather forecasting and a deeper understanding of climate change. We expect it to be up and running by the summer of 2022, when it will become one of the top 25 most powerful computers in the world. I am also pleased to say it will run on 100% renewable energy, which is forecast to save 7,415 tonnes of CO2 in the first year of operational service alone.

This has been a critically important area for us to address because the single biggest element – about 45% – of our emissions is energy consumption through the electricity that powers our supercomputers. The good news is that it is addressable. because the supplies of renewable energy are now out there, ready for investment.

Why are tech investments like this so important for the future of climate science and responding to climate change?

Firstly, we cannot afford to abandon our net zero targets for a single moment, just this year we have seen so many different, extreme weather events impacting Europe, Australia and North America, including fires and floods.

Secondly, we need new, powerful supercomputers that make it possible to do the research that will provide greater help and certainty to people about what the likely impact of climate change is going to be and therefore how we need to plan for it.

This research relies on massive computer simulations of the Earth System and these need to account for increasing levels of detail and complexity. To assess the risk associated with different pathways to net zero, and to understand the uncertainty in our predictions we are increasingly relying on ensemble predictions, where near-identical simulations are run many times over in order to assess the likelihood of different outcomes, and to allow us to predict extreme events.

The required deeper level of scientific understanding and more powerful predictive capabilities are going to be equally important for informing public behaviour and UK government policy as part of our efforts adapting to and mitigating climate change.

This extra supercomputing resource is also valuable for specific industries, for example by helping the aviation industry work out how to make flights more efficient and therefore helping them on their journey to net zero too.

What advice do you have for other organisations working on their sustainability strategies?

We appreciate there are a lot of organisations still trying to pin down their sustainability strategies and the way forward does rely heavily on continued technical innovation and increases in computing capabilities. That said, we simply must set clear, practical targets – and commit to them. We must turn talk into meaningful action. This is the biggest challenge we face but with the right weather and climate data, we will be able to work it out. Where there is a will, there will always be a way.

JAMES CLOSE,
HEAD OF CLIMATE CHANGE,
NATWEST GROUP

CASE STUDY

NatWest

Building a sustainability blueprint

NatWest Group is the largest business and commercial bank in the UK, supporting around one in four businesses across the UK and Ireland. Here, James Close, NatWest Group's Head of Climate Change, discusses how the bank's purpose-led strategy and its partnership with Microsoft is helping UK businesses better understand their carbon footprint and create tailored action plans to reduce their carbon emissions.

Tell us about the sustainability commitments NatWest is making on the journey to net zero...

In 2020 we announced our ambition of being the leading bank in the UK and Republic of Ireland, helping to address the challenge of climate change. What this means in practical terms is a continuous commitment to championing climate solutions in our own business and our customers' organisations. As well as investing £20 billion by the end of 2022, specifically for financing sustainable, climate-focused initiatives.

What is your collaboration with Microsoft focused on?

Without the right data, it is impossible to understand the carbon on your balance sheet today and in the future. Microsoft is helping us measure and understand our commercial customers' carbon footprints – with a focus on manufacturing customers to begin with.

Together, we are developing a proposition that gives our customers access to user-friendly, accurate and reliable analytics that helps them make the right decisions about where to spend their money to cut carbon output and consumption most effectively. This, in turn, enables NatWest to understand, at the level of individual businesses, how much our lending is contributing to their carbon footprint. We then use a range of appropriate methodologies to apportion the right share of carbon onto our own balance sheet.

Why is this higher level of measurement and data-driven understanding of carbon emissions so transformative?

This kind of progress is helping drive towards a future convergence where banking organisations can aggregate a single view of the total amount of carbon being financed and produced. Achieving this is an immense challenge – one company's scope one emissions are another's scope three - so you need to be able to reconcile that level of complexity for a start.

Better data also enables us to assess credit risk associated with renewables much more effectively, this means we can offer finance at lower rates, which in turn further reduces the cost of renewables. Long-term, in a carbon constrained world, those businesses producing less carbon will earn better terms – all other things being equal – on both lending and financing from capital markets.

We are also supporting renewables by making discounted electric vehicle charging available to our customers, so they can adopt this new technology with more confidence. This could go a long way to reducing the transport emissions that make up a big chunk of the economy's overall carbon output.

What advice do you have for other banks about their short- and long-term sustainability blueprints?

Finance has a vital role in driving the transition to net zero. As an industry, we have got to end what Mark Carney called "the tragedy of the horizon", where we have been too focused on short-term revenue goals, rather than aligning with our purpose as organisations and engaging with government policy that reflects our long-term goals.

It is also important that financial organisations' work in this space is anchored in authenticity and integrity, which is why accurate carbon measurement is so important for hitting targets and communicating about them.

Ultimately, there is no vaccine for climate change and our window of opportunity is closing rapidly. So, we have a responsibility to act.

For those financial organisations that do commit to delivering a sustainability blueprint, I am sure they will be – as I have been – almost overwhelmed by the interest, participation, and commitment of staff to this agenda, and to helping customers progress this journey themselves.

Chapter 6

Microsoft: Sustainability actions and lessons

Microsoft: Sustainability actions and lessons

Like every organisation, Microsoft has a duty to help stop the climate emergency. The blueprint in Section 4 is one part of that; collective progress and collaboration are vital if the UK is to reach its net zero goals. But to coin a phrase from earlier in this report, we ourselves must walk the talk.

What we are doing

By 2030, Microsoft will be carbon negative and by 2050, we will remove from the atmosphere all the carbon dioxide we have emitted (either directly or through electricity consumption) since being founded in 1975. By the end of this decade, we will also be zero waste and water positive. See Figure 5 for details of how we are improving our short- and long-term environmental performance in the UK.

Microsoft UK's key initiatives to improve environmental performance

EMISSIONS

- We calculate and report our scope one, two and three carbon emissions at a global level
- Our recently updated Supplier Code of Conduct requires all our partners to do the same
- We apply an internal tax of $15 per tonne to our scope one, two and three emissions, with the aim of funding innovation and driving carbon reduction across our business

ENERGY

- 100% of the electricity purchased for our UK facilities is derived from renewable sources, primarily wind power
- We have worked to reduce electricity use by 75% through LED lighting with projects at Paddington and Cambridge taking place
- We expanded our existing energy management system BMS Metering Infrastructure at our Reading Campus in 2019, optimising the controls to ensure we take advantage of lower demand times for energy, and adjusting controls on boilers and vending machines
- We installed a refrigerant enhancer to the HVAC systems at Paddington, Cambridge and Reading to improve its operational efficiency, reducing electricity consumption by up to 15%

WASTE

- We have launched centralised waste stations, creating a consistent approach to recycling across our UK operations, and making it easier to separate waste. To further improve the quality of our recycling, we launched a 'Waste Animation' educational video for our employees, accessed via a QR code on our bins, and viewable directly on internal digital screens
- We have achieved zero waste landfill from all our major UK operations. Any non-recyclable waste is converted into energy
- We reuse 4,000kg of coffee grounds annually as fertiliser for our grounds, and offer it to employees for use at home too

WATER

- To lower our water consumption, we're adding small aerators to washroom taps, reducing the flow. We've also installed Automate Meter Reading devices for water usage, with access to real-time data informing targeted initiatives to improve efficiency

AIR QUALITY

- To improve indoor air quality, which is particularly important in our city-based buildings such as Paddington, we have use nano carbon filters and airflow engineering to create each building as a near pollution-free zones

As you might expect, we are laser-focused on the role of technology in accelerating the journey to net zero – for our own business as well as our partners and customers. So, while cloud-based digital services are changing the way people work and connect, we recognise they are also causing greater demand for datacentres. This, in turn, consumes more energy. We are therefore driving down the direct and indirect emissions of Microsoft datacentres by eliminating their dependency on diesel fuel and improving their energy efficiency.

Our recent experimental project, Project Natick, also saw us submerge a research datacentre on the seafloor off the coast of the Orkney Islands. The objective is to improve overall sustainability through cold sea water cooling and 100% renewable energy supply.

Among various other steps we are taking, we are also working to get Microsoft cloud and AI technology into the hands of those trying to solve the world's biggest climate challenges. Through our AI for Earth programme, we have supported 701 grants in 107 countries for game-changing environmental innovations. Meanwhile, to address the current lack of environmental data, we are building a Planetary Computer that will provide universal access to critical datasets to help improve the world's biodiversity.

What we have learned

We are proud of our progress but know we have to go further, faster. We are also learning all the time. Here are five lessons from our journey so far that, together with our blueprint, can help shape the road ahead.

1. Stakeholder buy-in is crucial

We have learned that to drive true, companywide change we need everyone on board, especially leadership. So, we now link executives' compensation to environmental, social and governance measures.

2. We need to raise the bar on carbon reporting

Current methods of carbon accounting are ambiguous and too discretionary. We must develop clear protocols to ensure progress reported on an accounting statement is truly progress in the real world.

3. We are only as good as our supply chain

As well as asking our suppliers for a greenhouse gas emissions disclosure, we must make their scope one, two and three data an explicit part of our procurement processes and buying decisions.

4. Carbon reduction must be supported by carbon removal

Reducing our emissions is half the story; for impact at scale, we must also remove carbon from the value chain. To do it, we require long-term technology-based solutions, not just short-term nature-based ones.

5. Knowledge is progress

We do our best work when we share learnings and collaborate with other organisations. Public-private, within industries and across them, the more we learn and improve together, the quicker we will solve the climate crisis.

Chapter 7

Appendix

Methodology

The research in this report was conducted by Microsoft in partnership with Dr Chris Brauer, Director of Innovation, Goldsmiths, University of London in summer and autumn of 2021. Dr Brauer was supported by a core team of economists, psychologists, data scientists and social scientists at Smoothmedia Consulting Ltd. including Research Director Dr Jennifer Barth, Dr Eurydice Fotopoulou and researchers Areej Ahsan and Emily Naylor.

The research explored sustainability among UK business leaders and employees and was based around understanding the answers to five fundamental questions:

1. How advanced are UK companies in achieving sustainability goals and carbon reduction?
2. What are the key challenges?
3. How can technology drive sustainability goals?
4. Are there any key differences between sectors in pursuing sustainability goals?
5. What sustainability expectations do employees have for companies?

The research used a mixed-method approach, including:

Literature review - A detailed review of academic, industry and media data sources to inform initial thinking, expand the core research hypothesis and uncover the seven key dimensions of sustainability and decarbonisation in the UK.

Qualitative exploration - In-depth interviews with subject matter experts including industry experts, sustainability consultants, academics, a member of the Commission for Climate Change and a member of the Dasgupta Review on the Economics of Biodiversity and Innovate UK. Quotes were analysed and coded.

Survey – Insights from this initial phase were verified quantitatively through a barometer survey among 1,707 business leaders and decision-makers and 2,153 full-time UK employees. Respondents were based in a range of small (up to 49 employees), medium (50 to 249 employees) and large enterprises (250+ employees). The surveys were conducted online by YouGov between 30th July and 18th August 2021.

Note: Energy and utilities sector findings are based on n=35. The relatively small number of companies surveyed are representative of the high market concentration in the sector. At the time of the survey in the field, according to Ofgem as per July 2021, there were 49 active registered energy providers in the UK. According to government data, there are 9 utilities companies in the UK. This means that the sample surveyed is 63% of the total energy and utilities sector in the UK at the time of surveying, making it significant to report.

The researchers then developed a scorecard to differentiate companies and indicate how close they are to achieving their decarbonisation objectives. The criteria for this scorecard were grouped in two categories – sustainability and innovation – and enabled an in-depth sustainability mapping exercise, using the results of the survey, to place organisations on a scale between varying levels of adoption. To be able to extrapolate results from the scorecard to the economy, results were weighted by the share of organisations in the total economy, assuming a standard normal distribution of the population, and veracity of responses. The results are within statistical confidence and the numbers presented were rounded for simplicity.

Finally, the research team used the scorecard and research findings to create a blueprint of short- and long-term actions that UK organisations can take to accelerate their carbon reduction performance and achieve their net zero goals.

Subject matter experts

- Adrian Furnham, Professor of Psychology, Author and Academic
- Corinne Le Quéré, Research Professor of Climate Change Science, University of East Anglia
- Dan Dowling, PwC UK Partner, Net Zero Leader
- Dr Eugenie Dugoua, Assistant Professor in Environmental Economics, London School of Economics
- Ian Meikle, Director, Clean Growth and Infrastructure, Innovate UK
- Nitesh Prakash, Partner, Bain & Company
- Richard Barker, Program Director, Oxford Leading Sustainable Corporations Program
- Sam Kimmins, Head of RE100, Climate Group, The Climate Group
- Susanne Baker, Associate Director, Climate, Environment and Sustainability, techUK
- Susan Njoroge, Managing Director of Responsible Business Consulting
- Team member of the Dasgupta Review on the Economics of Biodiversity
- Tarik Moussa, PwC UK, Innovation & Sustainability Consultant
- Sumit Bose, Founder, Futurenetzero.com

Case studies

- Diana Kennedy, Chief Technology Officer, Bupa
- Glyn Richards, Group Director of Sustainability, Bupa
- Prof Sam Turner, Chief Technology Officer, HVM Catapult
- Paul Chavasse, Associate Director, Office of the Chief Executive Officer, Met Office
- James Close, Head of Climate Change, NatWest
- Susan Thomas, Senior Director, Commercial Sustainability, Asda
- Benoit Joly, EVP Automotive & Mobility, Wejo
- Richard Mason, Head of ESG, AO.com
- Paul Coby, Chief Information Officer, Johnson Matthey

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