



CLOUD AND NET ZERO

Taking decarbonisation
to the next level

A survey conducted by
Coleman Parkes Research

Foreword by AWS

Environmental sustainability is an issue that needs little introduction or justification. Clearly, the private sector must fundamentally transform how it operates. Businesses have a huge contribution to make towards the critical and urgent objective of keeping global warming below 1.5 degrees Celsius.

We prepared this report with Atos to understand the motivations of the decision-makers facing the challenge of achieving net zero; and see how the cloud is accelerating their efforts.

Do business leaders see the cloud as accelerating their business transformation towards lower carbon operations?

The results show that across Western Europe, and in three key sectors, the answer is a resounding yes. I'm encouraged that three in four business leaders believe cloud solutions will accelerate their journey to net zero carbon by two years or more.

They're right to be optimistic about the impact of the cloud. It's a powerful lever for business change and decarbonisation. And it's transforming businesses every day, helping them to grow, and reduce emissions at the same time.

At AWS, we're committed to helping organisations build more sustainable businesses. Our customers expect us to deliver cloud services that are world class, low-carbon, sustainable and relevant to their needs. And we're focussed on meeting their demands: building the services they ask for and inventing entirely new ones.

In 2019, Amazon co-founded The Climate Pledge: a commitment to reach net zero by 2040, ten years earlier than the Paris Agreement. As part of this promise, we're on a path to power our operations with 100% renewable sources by 2025, five years ahead of our original 2030 target. Today, Amazon is the world's largest corporate purchaser of renewable energy, with 379 renewables projects worldwide representing 18.5GW of clean-energy capacity.

Well into the decisive decade of climate action declared by the United Nations, the decisions we make now will determine life as we know it for humanity. This is the decade of sustainability transformation.



TANUJA RANDERY

**Managing Director, AWS Europe,
Middle East and Africa**



Foreword by Atos

The good news is that businesses have sustainability and carbon reduction firmly on their agenda. Our survey results show that reducing emissions is among their top five priorities, now and for the next three years.

However, it's important to understand the obstacles that stand in their way - and how we can work together to overcome them.

Across all sectors and countries, digital technology has a central role to play in the journey to net zero. At Atos, our ambition is to act as a trusted partner to organisations and their stakeholders, now and in the long term. To enable them to meet the sustainability challenges facing society and industry today. And to help them harness technology's potential to make a sustainable, net-zero future a reality.

Atos has committed to achieving net-zero carbon emissions by 2039 at the latest, setting one of the highest decarbonisation standards for our industry. As part of this commitment, we plan to halve our global greenhouse gas emissions by 2025. With our specialist climate change consultancy, EcoAct, we're supporting companies as they set robust, science-based, net-zero strategies and achieve their climate targets - by leveraging the right digital tools and solutions.



DIANE GALBE

**Senior Executive Vice President,
Atos**

Atos

Introduction

The 21st Century finds the global economy facing its biggest transition since the industrial revolution. Organisations must tackle the twin challenges of unlocking the vast potential of digitalisation and moving to a low-carbon society.

To meet the ambitions laid down in the Paris Agreement, most industries will need to achieve net-zero operations by 2050.

Putting decarbonisation targets in place is just the first step on this journey. Now companies must understand how to make the transition happen; and how to properly track their carbon footprint along the way. Business transformation through digital technology will be crucial to finding, and delivering, the necessary solutions.

To find out how organisations are managing the transition, Atos and AWS worked with Coleman Parkes Research to examine business leaders' decarbonisation efforts. We surveyed 4,000 firms from three sectors (energy and utilities, financial services and manufacturing), in four European countries (France, Germany, Spain and the UK).

We asked business leaders a range of questions, such as: how far have you come? How are you cutting greenhouse gas (GHG) emissions? What are you struggling with? Where are you targeting your investments as you seek solutions? And how do you see the role of digital technology - and the cloud in particular - in decarbonisation?

We found a small minority making excellent progress and getting a real handle on the transition to net zero. Most, however, are being held back by a number of difficulties.

On the plus side, most leaders recognise the potential for technology to enhance their decarbonisation efforts. And the great majority are embracing the cloud to that end.

This report looks at their progress and challenges, and the role technology is playing in their carbon reduction journeys: Europe-wide, country by country, and in the three sectors studied.

Index

Foreword by AWS	2
Foreword by ATOS	3
Introduction	4
1. Barriers to progress: <i>misplaced confidence</i>	5
2. Overcoming the obstacles: <i>the role of technology</i>	6
3. Accelerating the transition: <i>the case for cloud</i>	7
France	10
Germany	14
Spain	18
UK	22
Energy & Utilities	26
Financial Services	30
Manufacturing	34
About the research	39

1. Barriers to progress: *misplaced confidence*

As we might expect, businesses have carbon reduction firmly on their agenda.

Four in five (80%) of firms surveyed are routinely measuring their carbon footprint in some way. Of course, the larger enterprises will be obliged to do so by regulation. Almost all business leaders polled (96%) have set emissions reduction targets, while nearly four fifths (78%) say these are science-based.

However, their efforts to understand, measure, report and reduce emissions remain in their infancy.

Approaching two thirds of organisations (60%) have only been working on carbon reduction for four years or less. And only 14% have targets validated by the Science Based Targets initiative.

What's more, little over a third (37%) list decarbonisation among their top five priorities for the next three years. In turbulent times, businesses' focus is - understandably -

FIG. 1:

Biggest obstacles to carbon reduction plans and efforts



elsewhere. Gaining customers and cutting costs are their most pressing objectives.

Today, companies are struggling with a whole range of issues when it comes to getting a grip on their carbon footprint.

We asked leaders what their top barriers are to carbon reduction (*see fig 1*).

Again, costs are top of mind in a difficult economic climate. But companies' second biggest challenge - fragmented data, cited by 49% of respondents - is a concern. Without robust data and advanced analytics, firms won't be able to accurately measure their carbon footprint or monitor their progress in reducing it.

Organisations' decarbonisation efforts are in their infancy - most have been working on them for **less than five years**. And in uncertain times, their most pressing priorities lie elsewhere.

With that in mind, it's concerning that less than half (46%) of organisations involve their CIOs or other senior technical roles in their decarbonisation plans.

In this light, business leaders express astonishing levels of confidence in their ability to properly control GHG emissions. The data suggests a misplaced over-confidence in their ability to meet carbon reduction targets.

Some three quarters (75%) say they're confident of achieving their carbon reduction targets. This seems oddly misplaced, given that only 14% are setting targets validated by the Science Based Targets initiative for all three emissions scopes. And **only 38% rate their decarbonisation efforts so far as very successful** (i.e. by scoring them at eight out of ten or above).



2. Overcoming the obstacles: *the role of technology*

The latest technology and data capabilities will be crucial to firms' ability to accurately measure and track emissions across all three scopes. And gathering and analysing carbon data will require powerful digital solutions.

Indeed, our survey highlights the positive impact technology is having on organisations' decarbonisation initiatives. There's a clear link between digitalisation and decarbonisation success.

Of those businesses that rate the success of their decarbonisation strategies 8 out of 10 or higher, **most (58%) have digitalised all or most of their sustainability initiatives**. Just 17% have digitalised none of them (*see fig. 2*). (The remainder fall somewhere between the two, having digitalised some of their sustainability projects).

FIG. 2:

Impact of digitalisation on decarbonisation success

58% of **successful decarbonisers** have managed to digitalise all or most of their sustainability initiatives

17% have digitalised none

FIG. 3:
Organisations' technology needs

75%
Three quarters feel their environmental impact reporting would be improved by an **emissions measurement tool**.



Among the three carbon reduction tools they'd find most helpful:

56%
Over half rank **accurate and reliable information**.

55%
rank **real-time, centralised emissions data**.

Given this correlation, it's encouraging to see that leaders recognise technology's role in decarbonisation. Three quarters (75%) feel their environmental impact reporting would be improved by an emissions measurement tool.

Meanwhile, over half rank accurate and reliable information (56%), and real-time, centralised emissions data (55%), among the three carbon reduction tools they'd find most helpful (see fig. 3).

The cloud is also high on the list of technologies that leaders consider key to carbon reduction.

Close to four in five (77%) believe that cloud technology would accelerate their transition to net zero. And more than half (53%) say they need more help to migrate their IT systems to the cloud, as part of their decarbonisation plans.

3. Accelerating the transition: *the case for cloud*

Cloud service providers (CSPs) are ideally placed to support businesses' net-zero ambitions, in two respects:

1. Moving physical technology infrastructure to shared cloud platforms will reduce the carbon footprint of organisations' IT operations.
2. CSPs offer advanced data and measurement technologies, which enable accurate, real-time monitoring and reporting of emissions.

That's why Atos and AWS are helping many businesses to understand and control their GHG output.

As such, it's no surprise that CSPs are the most common third party that organisations turn to for help with decarbonisation. Seven in ten (70%) business leaders told us that they're working with a cloud provider (see fig. 4).

A similar proportion (69%) have invested in migrating their legacy datacentres to the cloud - close to half of which are seeing measurable carbon reduction as a consequence.

Encouraged by this success, the same number are moving more IT services to the cloud; and again, almost half are seeing results. More still (71%) have embraced cloud technology for advanced analytics, with close to half saying they've seen the benefits (see fig. 5).



FIG. 4:
Third parties used for decarbonisation support

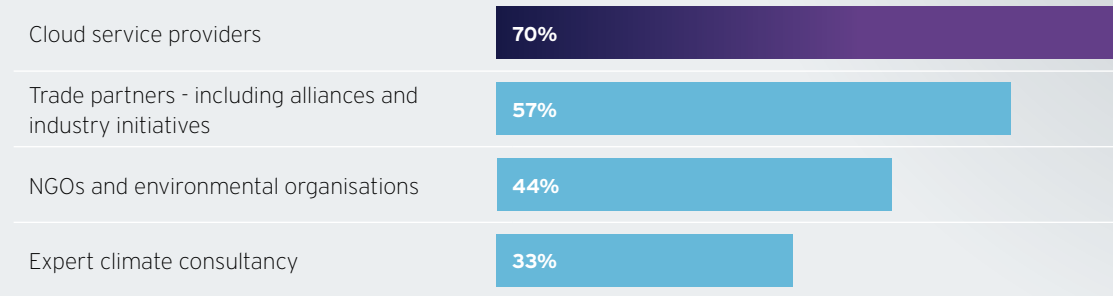
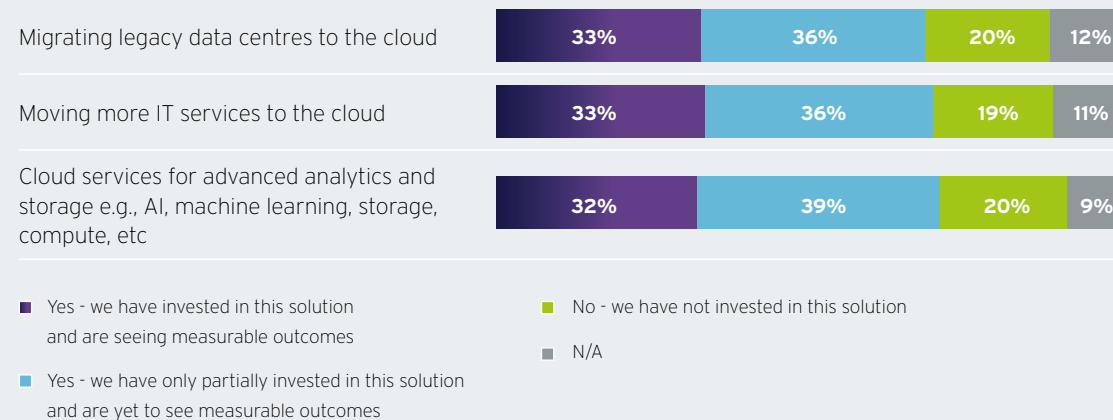


FIG. 5:
Cloud adoption and impact



The cloud is clearly delivering results for companies' carbon reduction initiatives. That may explain why three quarters (76%) of firms that feel they've been successful in decarbonising collaborate with CSPs - compared to only 59% who are unsuccessful. (see fig. 6).

It's also why leaders believe that embracing the latest cloud technologies will accelerate their journey to net zero by two years or more (see fig 7).

Cloud technology is delivering decarbonisation results. Business leaders believe it will accelerate their journey to net zero by two years or more.

Yet despite the obvious impact of the cloud, around a fifth of organisations are yet to use it, and to benefit from a reduced carbon footprint. Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

CASE STUDY

DSM's - transforming farming into a sustainable business

DSM Animal Nutrition & Health develops bioscience solutions to improve human and animal health. Operating on AWS, the firm's Sustell solution categorises data measurements such as carbon emissions, climate effects, water consumption and air pollution.

Built in collaboration with Oblivion Cloud Control (an AWS Premier Partner) Sustell, enables farmers to monitor their farms' agri-footprints.

Users can generate a highly accurate and comprehensive measure of their farm's environmental impact. They can also simulate scenarios to get a deeper understanding of their sustainability challenges - and how to tackle them.

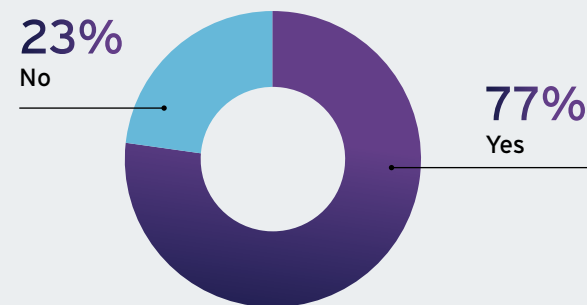
FIG. 6:

Impact of collaboration with CSPs on decarbonisation success



FIG. 7:

Sustainability leads confident cloud will accelerate net zero by 2 years or more



France

The overall picture

French businesses are eager to progress towards their decarbonisation targets and are keen to put measures in place in order to achieve them. But are they overly reliant on their own expertise or the assistance of non-technical partners? They show slightly lower appreciation for the role of cloud solutions in the process compared with those in the other European markets surveyed (UK, Germany and Spain).

Decarbonisation is essential to French companies, but they are under-utilising cloud in this process.

French companies' investment in the cloud represents an important tool in achieving carbon measurement and reduction, but they may need further help with understanding the real value it can bring in the long term.

We can also see a gap between their level of confidence in their decarbonisation measures on one hand, and their target-setting, measurement, and target validation on the other. This is not unique to France and is prevalent across Europe.

1. Barriers to progress

As in most countries, French businesses have carbon reduction firmly on their agenda, though not quite at the top.

Some are undoubtedly embracing it. They recognise its long-term benefits for society, and for themselves in terms of cost reduction and process efficiency once integrated into everyday operations. Others, meanwhile, may be doing the minimum required to satisfy regulatory obligations and public pressure.

Either way, **80% of French businesses are measuring their carbon footprint in some way (with larger enterprises being required to do so)**. Almost all (96%) have set emissions reduction targets; and 76% have ensured that these are science-based.

However, their efforts to understand, measure, report and reduce carbon emissions remain at an early stage - something common to all markets surveyed.

Six out of ten firms in France have been working on carbon reduction for four years or less. Furthermore, only 13% have science-based targets covering all three defined emissions scopes and significantly more needs to be done to bridge the gap between having a target and measuring

performance against it. There is some way to go to achieve 100% measurement and accountability for all emissions.

Right now, French companies' focus is - understandably - elsewhere. Just over one third list decarbonisation among their top five priorities for the next three years. In uncertain times, customer acquisition and cost-cutting are more urgent.

As a result, businesses are facing a range of challenges when it comes to reducing their carbon footprint, but like elsewhere, fragmented data (cited by 46%) is among the top five obstacles to carbon reduction in France.

This has to be a concern. Without robust data and advanced analytics, French firms will find themselves unable to accurately measure their carbon footprint or monitor their progress in reducing it. Although 53% would find access to accurate, reliable, centralised and real-time emissions data among the top 3 most helpful tools for carbon reduction, the potential value of this information may not be fully appreciated currently.

Given the challenges at hand, France's business leaders express surprising levels of confidence in the prospects for their carbon reduction programmes.

Seven out of ten (72%) say they're confident of achieving their emissions targets. This seems at odds with the fact that the majority aren't yet measuring all three emissions scopes and that only 36% describe their decarbonisation initiatives as very successful by giving them a rating of at least eight out of ten.

80%

of French businesses are **measuring their carbon footprint in some way**

96%

have set **emissions reduction targets**

76%

have ensured that these are **science-based**.

Our observation is an apparent overconfidence among most business leaders in France who think they will hit carbon reduction targets. With only 13% who have a comprehensive level of understanding of their full carbon footprint, it looks like it would take a radical change for many of these firms to really be on track for net-zero carbon.

2. Overcoming the obstacles

Technology and data strategies are crucial to success in decarbonisation and will be essential to French businesses' ability to measure and track emissions. What's more, gathering and analysing carbon data will require powerful digital solutions.

So, as we might expect, digital technology is having a significant impact on decarbonisation in France. Of those French businesses rating the success of their decarbonisation strategies 8 out of 10 or higher, over half (54%) have digitalised all or most of their sustainability initiatives and only 19% have not digitised any. (The remainder fall somewhere between the two, having digitalised only some of their sustainability projects). This difference is lower in France compared to the average across all markets measured, suggesting that French businesses are leveraging digitalisation in this area to a lesser extent than those in other countries .

Encouragingly, in this context, French business leaders acknowledge the role technology has to play in carbon reduction.

Around seven in ten (71%) agree that cloud solutions are key to accelerating carbon reduction and three quarters (74%) feel that their environmental impact reporting would be improved by an emissions measurement tool.

The cloud also features prominently on the list of technologies French business leaders consider key to carbon reduction. But over half (53%) say they need more help migrating their IT systems to the cloud as part of their decarbonisation plans.



54% of successful decarbonisers have managed to digitalise all or most of their sustainability initiatives

19% have digitalised none

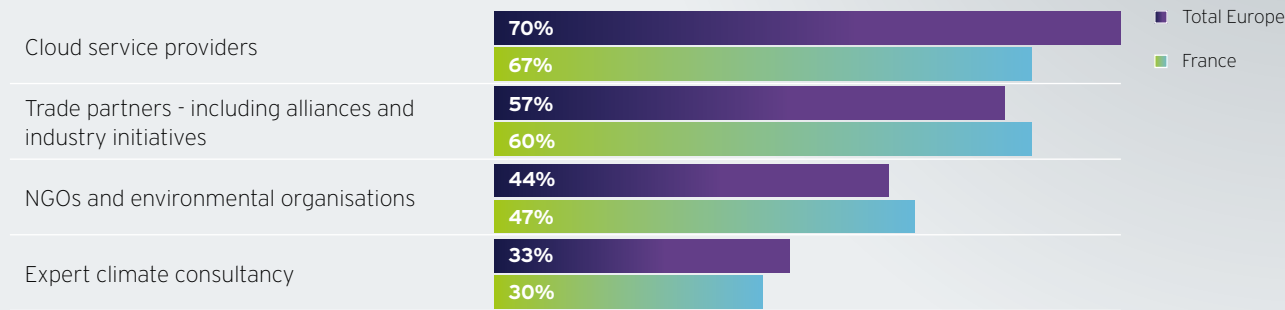
3. Accelerating the transition

Given the emerging acceptance of the role cloud can play, it follows that cloud service providers (CSPs) are the most used provider of third-party support with decarbonisation. Two thirds (67%) are already working with a CSP (see fig. 1).

A similar proportion (66%) have invested in migrating their legacy data centres to the cloud - and half of them have recorded measurable carbon reduction following this move. A comparable number (67%) have embraced cloud technology for advanced analytics, with slightly less than half of this group already seeing carbon reduction benefits. Lastly, 69% are moving *more* IT services to the cloud, with again just under half of them already seeing results. These figures are lower for France compared to the average across all four markets in the study, suggesting scope for French businesses to make greater use of these approaches.

Those who collaborate with CSPs are already reaping the benefits cloud technology delivers for carbon reduction: around three quarters (73%) of those that believe they've been successful in decarbonising are collaborating with cloud providers compared to less than half (47%) who don't claim this success.

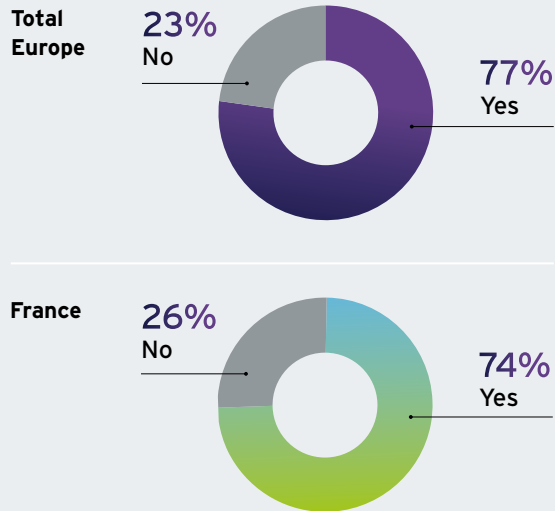
FIG. 1:
Third parties used for decarbonisation support



Little wonder, then, that embracing the latest cloud technologies will accelerate French companies' net-zero journeys by two years or more, according to 74% of French business leaders (see fig. 2).

Yet, despite its impact, a fifth of French businesses are yet to embrace the cloud, and benefit from a reduced carbon footprint. Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

FIG. 2:
Sustainability leads confident cloud will accelerate net zero by 2 years or more



CASE STUDY

ENGIE: A shared data hub to accelerate the transition

ENGIE is a global utility company based in France. To deliver the data analytics needed to power its net-zero drive, the firm asked AWS to create a Common Data Hub.

Built using a globally distributed data lake and AWS' analytics solutions, the hub is a single repository where

ENGIE's business units store, share and generate value from data. Two years in, the organisation has collected 200TB of data across 1,000 projects on the hub.

The hub gives the company access to simplified data, comprehensive analytics tools and automated energy predictions. This allows it to develop and prove use cases; allocate resources based on user data; maximise energy production from wind farms; and improve the productivity of all business units.

Germany

The overall picture

German businesses appear to have a lukewarm approach to decarbonisation. They are doing what is required and use carbon offsetting, favour low carbon products and services and have sustainable procurement policies. And yet, there is a long way to go before most companies reach best practice in GHG emission controls and measurements.

This may be due to lower commitment from board-level management, with no universal carbon reduction KPIs or sufficient incentives. Or, has a lack of involvement from the IT function caused lower investment into cloud technology and gaps in understanding the positive roles cloud service providers can play in improving sustainability?

German companies are yet to be persuaded of the full benefits of investment in cloud solutions for decarbonisation.

For a proportion of German companies, investment in the cloud does represent an important tool for achieving carbon measurement and reduction but the market overall may need further help with understanding the real value this can bring in the long term.

We can also see a gap between their level of confidence in their decarbonisation measures on one hand and their target-setting, measurement, and target validation on the other. This is not unique to Germany and is prevalent across Europe.

1. Barriers to progress

As in most countries, German businesses have carbon reduction firmly on their agenda, though not quite at the top.

Some are undoubtedly embracing it. They recognise its long-term benefits for society, and for themselves in terms of cost reduction and process efficiency once integrated into everyday operations. Others, meanwhile, may be doing the minimum required to satisfy regulatory obligations and public pressure.

Either way, **77% of German businesses are measuring their carbon footprint in some way** (with larger enterprises being required to do so). Almost all (94%) have set emissions reduction targets; and for 79% these are science-based.

However, their efforts to understand, measure, report and reduce carbon emissions remain at an early stage - something common to all markets surveyed.

Around six out of ten firms in Germany have been working on carbon reduction for four years or less. Furthermore, only 13% have science-based SBTi-validated targets covering all three defined emissions scopes, so significantly more needs to be done to bridge the gap between having a target and measuring performance



77%

of German businesses are **measuring their carbon footprint in some way**

94%

have set **emissions reduction targets**

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have ensured that these are **science-based**

against it. There is some way to go to achieve 100% measurement and accountability for all emissions.

Right now, German companies' focus is - understandably - elsewhere. Just over one third list decarbonisation among their top five priorities for the next three years. In uncertain times, customer acquisition and cost-cutting are more urgent.

As a result, businesses are facing a range of challenges when it comes to reducing their carbon footprint. Like elsewhere, fragmented data (cited by 47%) is among the top five obstacles to carbon reduction in Germany.

This has to be a concern. Without robust data and advanced analytics, German firms will find themselves unable to accurately measure their carbon footprint or monitor their progress in reducing it. 58% would

find access to accurate and reliable data, and 55% to centralised and real-time emissions data among the top 3 most helpful tools for carbon reduction. However, German sustainability leads may not fully realise that cloud providers are well positioned to provide these solutions.

Given the challenges at hand, Germany's business leaders express surprising levels of confidence in the prospects for their carbon reduction programmes.

Three quarters (74%) say they're confident of achieving their emissions targets. This seems at odds with the fact that the majority aren't yet measuring all three emissions scopes and that only 36% describe their decarbonisation initiatives as very successful by giving them a rating of at least eight out of ten.

2. Overcoming the obstacles

Technology and data strategies are crucial to success in decarbonisation and will be essential to German businesses' ability to measure and track emissions. What's more, gathering and analysing carbon data will require powerful digital solutions.

So, as we might expect, digital technology is having a significant impact on decarbonisation in Germany. Of those German businesses rating the success of their decarbonisation strategies 8 out of 10 or higher, over half (55%) have digitalised all or most of their sustainability initiatives and only 19% have not digitised any. (The remainder fall somewhere between the two, having digitalised only some of their sustainability projects). This difference is lower in Germany compared to the average across all markets measured, suggesting that German businesses are leveraging digitalisation in this area to a lesser extent than those in other countries.

Encouragingly in this context, German business leaders acknowledge the role technology has to play in carbon reduction.

Around seven in ten (70%) agree that cloud solutions are key to accelerating carbon reduction and over two thirds (68%) feel that their environmental impact reporting would be improved by an emissions measurement tool. This second figure is lower in Germany, suggesting that awareness of the value of measurement tools may be lower than in other markets.

Cloud providers have an important role to play in helping companies reduce emissions - half (50%) say they need more help migrating their IT systems to the cloud as part of their decarbonisation plans.

Our observation is an apparent overconfidence among most business leaders in Germany who think they will hit carbon reduction targets. With only 13% who have a comprehensive level of understanding of their full carbon footprint, it looks like it would take a radical change for many of these firms to really be on track for net-zero carbon.

55%

of successful decarbonisers have managed to digitalise all or most of their sustainability initiatives

19%

have digitalised none



3. Accelerating the transition

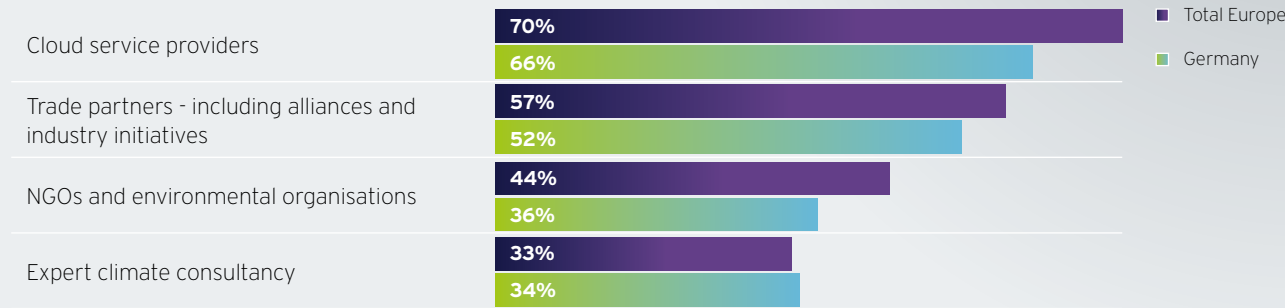
Given the emerging acceptance of the role cloud can play, it follows that cloud service providers (CSPs) are the most used provider of third party support with decarbonisation. Two thirds (66%) are already working with a CSP (see fig. 1).

Just under two thirds (63%) have invested in migrating their legacy data centres to the cloud - but less than half of this group have recorded measurable carbon reduction benefits so far. A similar proportion (67%) have embraced cloud technology for advanced analytics, but again less than half have seen sustainability benefits yet. Lastly, 65% are moving *more* IT services to the cloud, with again under half seeing results in this area. This raises the question of whether these solutions are as embedded or effective in Germany as in other markets where more measurable benefits can be seen.

Some companies who collaborate with CSPs are reaping the benefits cloud technology delivers for carbon reduction: around three quarters (72%) of those that believe they've been successful in decarbonising are collaborating with cloud providers compared to less than half (59%) who don't claim this success although the gap here is narrower than in some other markets.

FIG. 1:

Third parties used for decarbonisation support



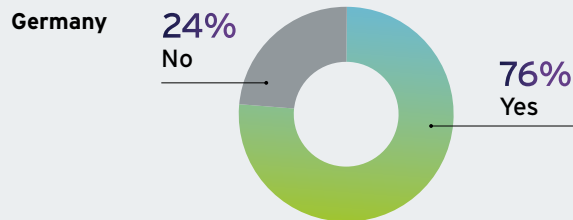
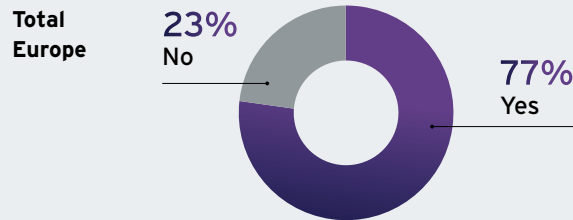
And even though there is more work to do, 76% of German business leaders believe that, ultimately, embracing the latest cloud technologies will accelerate German companies' net-zero journeys by two years or more (see fig. 2).

Yet, despite its potential impact, a quarter of German businesses are yet to embrace the cloud. It seems some business leaders still under-appreciate the potential cloud technology offers them as they continue their journeys to net zero.

Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

FIG. 2:

Sustainability leads confident cloud will accelerate net zero by 2 years or more



CASE STUDY

Trinseo - delivering superior product carbon footprint data

Trinseo is a global materials manufacturer, producing plastics and latex binders. The firm uses a solution from Atos and BASF to calculate and monitor the carbon footprint of its entire product portfolio.

BASF provides its digital methodology for calculating the Product Carbon Footprint (PCF) of chemical assets. Atos has developed a software platform to make this approach to PCF calculation available to the chemical industry.

The solution enables Trinseo to give superior data on the carbon footprint of its products to its customers. And it is accelerating the company's drive to achieve its own carbon transparency commitments and net-zero ambitions.

Spain

The overall picture

Spanish businesses are slightly ahead of the average (similarly to the UK) for all countries surveyed (UK, France, Germany, Spain) in their decarbonisation initiatives, such as calculation of their carbon footprint and measurement of Scope 2 emissions. They also have greater confidence in achieving climate and sustainability targets with current tools and higher levels of collaboration with cloud service providers. Perhaps these are related?

Spanish companies register exceptionally high levels of confidence in achieving climate and sustainability targets with current tools.

Spanish companies' investment in the cloud is a key tool in achieving carbon measurement and reduction.

However, there's a gap between the level of confidence in their decarbonisation measures on one hand and their target-setting, measurement, and target validation on the other. This is not unique to Spain but is prevalent across Europe.

1. Barriers to progress

As in most countries, Spanish businesses have carbon reduction firmly on their agenda, though not quite at the top.

Some are undoubtedly embracing it. They recognise its long-term benefits for society, and for themselves in terms of cost reduction and process efficiency once integrated into everyday operations. Others, meanwhile, may be doing the minimum required, to satisfy regulatory obligations and public pressure.

Either way, **82% of Spanish businesses are measuring their carbon footprint in some way** (larger enterprises being required to do so). Almost all (96%) have set emissions reduction targets; and 80% have ensured that these are science-based.

However, their efforts to understand, measure, report and reduce carbon emissions remain at an early stage - something common to all markets surveyed.

Six out of ten firms in Spain have been working on carbon reduction for four years or less. Furthermore, only 14% have science-based targets covering all three defined emissions scopes and significantly more needs to be done to bridge the gap between having a target and measuring performance against it. There is some way to go to achieve 100% measurement and accountability for all emissions.

Right now, Spanish companies' focus is - understandably - elsewhere. Just a third (32%) list decarbonisation among their top five priorities for the next three years. In uncertain times, customer acquisition and cost-cutting are more urgent.

As a result, businesses are facing a range of challenges when it comes to reducing their carbon footprint, but like elsewhere, fragmented data (cited by 50%) is among the top five obstacles to carbon reduction in Spain.

This has to be a concern. Without robust data and advanced analytics, Spanish firms will find themselves unable to accurately measure their carbon footprint or monitor their progress in reducing it. Indeed, 57% would find access to accurate, reliable, centralised, and real-time emissions data among the top 3 most helpful tools for carbon reduction.

Given the challenges at hand, Spain's business leaders express surprising levels of confidence in the prospects for their carbon reduction programmes.

Almost four fifths (79%) say they're confident of achieving their emissions targets. This seems at odds with the fact that the majority aren't yet measuring all three emissions scopes and only 4 in 10 describe their decarbonisation initiatives as very successful by giving them a rating of at least eight out of ten.

Our observation is an apparent overconfidence among most business leaders in Spain who think they will hit carbon reduction targets. With only 14% who have a comprehensive level of understanding of their full carbon footprint, it looks like it would take a radical change for many of these firms to really be on track for net-zero carbon.

2. Overcoming the obstacles

Technology and data strategies are crucial to success in decarbonisation and will be essential to Spanish businesses' ability to measure and track emissions. What's more, gathering and analysing carbon data will require powerful digital solutions.

So, as we might expect, digital technology is having a significant impact on decarbonisation in Spain. Of those Spanish businesses rating the success of their decarbonisation strategies 8 out of 10 or higher, six in ten (62%) have digitalised all or most of their sustainability initiatives and only 14% have not. (The remainder fall somewhere between the two, having digitalised only some of their sustainability projects).

Encouragingly in this context, Spanish business leaders acknowledge the role technology has to play in carbon reduction.

82%

of Spanish businesses are **measuring their carbon footprint in some way**

96%

have set **emissions reduction targets**

80%

have ensured that these are **science-based**



Around three quarters agree that cloud solutions are key to accelerating carbon reduction and feel that their environmental impact reporting would be improved by an emissions measurement tool (both cited by (77%).

The cloud also features prominently on the list of technologies Spanish business leaders consider key to carbon reduction and over half (55%) say they need more help migrating their IT systems to the cloud as part of their decarbonisation plans.

62%

of successful decarbonisers have managed to digitalise all or most of their sustainability initiatives

14%

have digitalised none

3. Accelerating the transition

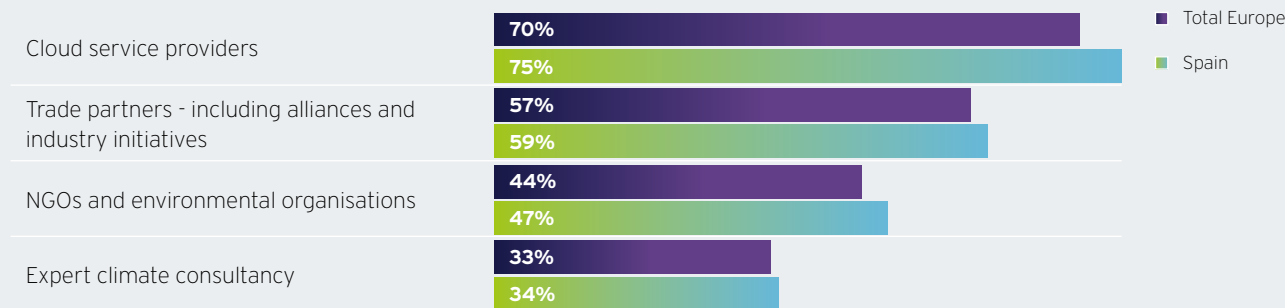
Given the confidence in the cloud, it follows that cloud service providers (CSPs) are the most used provider of third-party support with decarbonisation. Three quarters (75%) are already working with a CSP (*see fig. 1*).

Three quarters (75%) have invested in migrating their legacy data centres to the cloud - and half of them have recorded measurable carbon reduction following this move. A similar proportion (76%) have embraced cloud technology for advanced analytics, with half of this group already seeing carbon-reduction benefits. Lastly, 74% are moving *more* IT services to the cloud, with over half already seeing results.

Clearly, cloud technology is delivering results for Spanish businesses' carbon reduction initiatives. Accordingly, almost four fifths (79%) of those that believe they've been successful in decarbonising are collaborating with cloud providers. This compares to 68% of those that don't claim this success.

FIG. 1:

Third parties used for decarbonisation support



Little wonder, then, that embracing the latest cloud technologies will accelerate Spanish companies' net-zero journeys by two years or more, according to 80% of Spanish business leaders (see fig. 2).

Yet, despite its impact, up to a fifth of Spanish businesses are yet to embrace the cloud...

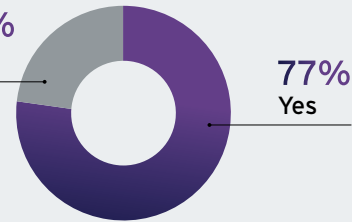
It seems some business leaders still under-appreciate the potential cloud technology offers them as they continue their journeys to net zero. Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

FIG. 2:

Sustainability leads confident cloud will accelerate net zero by 2 years or more

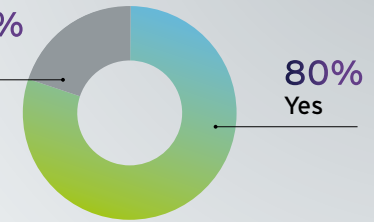
Total Europe

23%
No



Spain

20%
No



The overall picture

UK businesses are slightly ahead of the average (similarly to Spain) for all countries surveyed (UK, France, Germany, Spain) in their decarbonisation initiatives, such as calculation of their carbon footprint and incentivisation of board members through KPIs and financial targets. They are also more likely to involve CIOs and other C-Suite technical managers in the carbon reduction agenda, which has led to above average levels of collaboration with cloud providers in efforts to get to net zero.

UK companies have embraced climate change initiatives at the highest levels of management and IT plays a vital role in these decisions.

UK companies' investment in the cloud is one of the key solutions in achieving carbon measurement and reduction, and confidence in the success of decarbonisation efforts is high.

However, there's a gap between the level of confidence in their decarbonisation measures on one hand and their target-setting, measurement, and target validation on the other. This is not unique to the UK but is prevalent across Europe.

1. Barriers to progress

As in most countries, UK businesses have carbon reduction firmly on their agenda, though not quite at the top.

Some are undoubtedly embracing it. They recognise its long-term benefits for society, and for themselves in terms of cost reduction and process efficiency once integrated into everyday operations. Others, meanwhile, may be doing the minimum required to satisfy regulatory obligations and public pressure.

Either way, **83% of UK businesses are measuring their carbon footprint in some way** (with larger enterprises being required to do so). Almost all (97%) have set emissions reduction targets; and 78% have ensured that these are science-based.

However, their efforts to understand, measure, report and reduce carbon emissions remain at an early stage - something common to all markets surveyed.

Six out of ten UK firms have been working on carbon reduction for four years or less. Furthermore, only 14% have science-based targets covering all three defined emissions scopes and significantly more needs to be done to bridge the gap between having a target and measuring performance against it. There is some way to go to achieve 100% measurement and accountability for all emissions.

Right now, UK companies' focus is - understandably - elsewhere. Almost four in ten (38%) list decarbonisation among their top five priorities for the next three years. In uncertain times, customer acquisition and cost-cutting are more urgent.

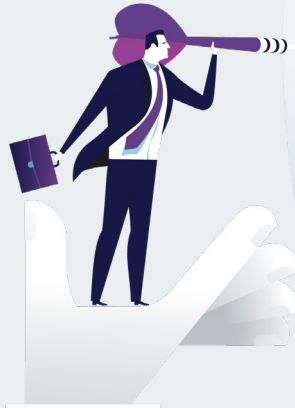
As a result, businesses are facing a range of challenges when it comes to reducing their carbon footprint, but like elsewhere, fragmented data (cited by 53%) is among the top five obstacles to carbon reduction in the UK.

This has to be a concern. Without robust data and advanced analytics, UK firms will find themselves unable to accurately measure their carbon footprint, or monitor their progress in reducing it. Indeed, 56% would find access to accurate, reliable, centralised, and real-time emissions data among the top 3 most helpful tools for carbon reduction.

Given the challenges at hand, UK business leaders express surprising levels of confidence in the prospects for their carbon reduction programmes.

More than three quarters (76%) say they're confident of achieving their emissions targets. This seems at odds with the fact that the majority aren't yet measuring all three emissions scopes and that only 4 in 10 describe their decarbonisation initiatives as very successful by giving them a rating of at least eight out of ten.

Our observation is an apparent overconfidence among most business leaders in the UK who think they will hit carbon reduction targets. With only 14% who have a comprehensive level of understanding of their full carbon footprint, it looks like it would take a radical change for many of these firms to really be on track for net-zero carbon.



83%

of UK businesses are **measuring their carbon footprint in some way**

97%

have set **emissions reduction targets**

78%

have ensured that these are **science-based**

2. Overcoming the obstacles

Technology and data strategies are crucial to success in decarbonisation and will be essential to UK businesses' ability to measure and track emissions. What's more, gathering and analysing carbon data will require powerful digital solutions.

So, as we might expect, digital technology is having a significant impact on decarbonisation in the UK. Of those UK businesses rating the success of their decarbonisation strategies 8 out of 10 or higher, six in ten (60%) have digitalised all or most of their sustainability initiatives and only 16% have not. (The remainder fall somewhere between the two, having digitalised some of their sustainability projects).

Encouragingly in this context, UK business leaders acknowledge the role technology has to play in carbon reduction.



UK

Around three quarters agree that cloud solutions are key to accelerating carbon reduction (cited by 74%) and feel that their environmental impact reporting would be improved by an emissions measurement tool (77%).

The cloud also features prominently on the list of technologies UK business leaders consider key to carbon reduction and over half (55%) say they need more help migrating their IT systems to the cloud as part of their decarbonisation plans.

3. Accelerating the transition

Given the confidence in the cloud, it follows that cloud service providers (CSPs) are the third party of choice (used by the highest percentage of companies surveyed), when it comes to supporting on decarbonisation. Nearly three quarters (74%) are already working with a CSP (see Fig. 1).

A significant proportion (68%) have invested in migrating their legacy data centres to the cloud - and almost half of them have recorded measurable carbon reduction following this move.

An even higher proportion are moving *more* IT services to the cloud (72%), with over half of this group already seeing carbon reduction results. Even more - three quarters (74%) have embraced cloud technology for advanced analytics, with half of them again already reaping benefits of this kind.

Clearly, cloud technology is delivering results for UK firms' carbon reduction initiatives. Accordingly, over three quarters (78%) of those that believe they've been

60%

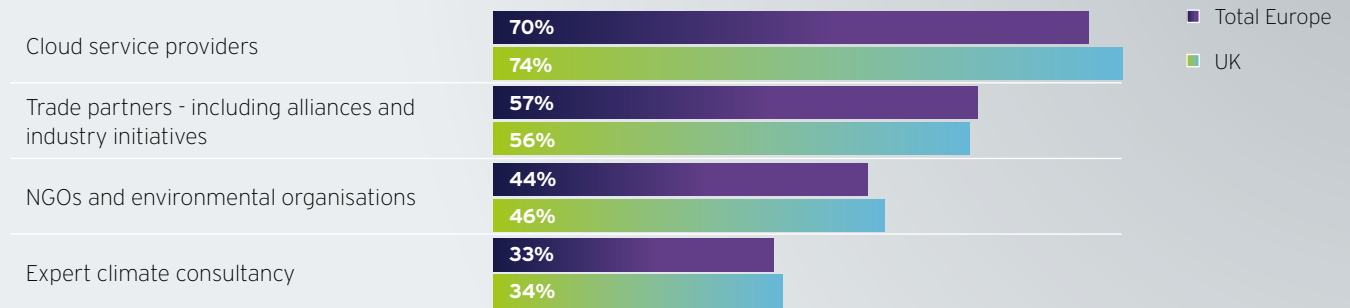
of successful decarbonisers have managed to digitalise all or most of their sustainability initiatives

16%

have digitalised none

FIG. 1:

Third parties used for decarbonisation support



successful in decarbonising are collaborating with cloud providers. This compares to two thirds (66%) of those who don't claim this success.

Little wonder, then, that embracing the latest cloud technologies will accelerate UK companies' net-zero journeys by two years or more, according to 77% of UK business leaders (see fig. 2).

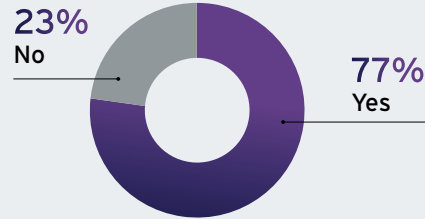
Yet, despite its impact, up to a fifth of UK businesses are yet to embrace the cloud...

It seems some business leaders still under-appreciate the potential cloud technology offers them as they continue their journeys to net zero. Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

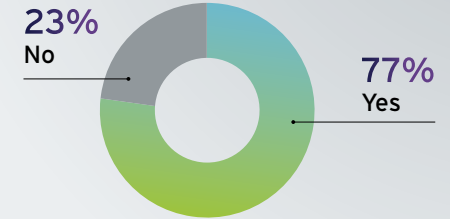
FIG. 2:

Sustainability leads confident cloud will accelerate net zero by 2 years or more

Total Europe



UK



CASE STUDY

Scottish Water: Powering the drive to net zero and beyond

In 2020, Scottish Water announced 'Net Zero and Beyond' as one of its three key strategic ambitions. Atos is working in close partnership with the firm to achieve this goal.

Atos and Scottish Water ran a joint 'Zero Carbon Strathack'. The objective was to validate the company's decarbonisation road map, and identify more ways to accelerate its carbon reduction drive.

The strathack led to a portfolio of AI-led projects. These aim to improve energy efficiency at pumping stations; enhance intelligence on leakage reduction; optimise per-capita water consumption; and ultimately reduce Scottish Water's carbon footprint. So far, energy efficiency savings of 6-8% have been generated across roughly 1,700 pumping stations.

Energy & Utilities

The overall picture

Energy and utilities providers are slightly more advanced in their commitment to sustainability than the other sectors we surveyed. With business models that remain heavily reliant on fossil fuels, they're likely to feel more pressure to transition to net zero than businesses in many other industries. And they're likely to be more aware of the risks to their long-term viability of not doing so. These drivers can be seen in the climate pledges they've made, and the emissions targets they've set.

Energy and utilities is the most advanced sector surveyed in terms of its commitment to sustainability.

Their faith in cloud services doesn't stand out to quite the same extent - though it's broadly in line with the overall average.

Like in other sectors, there's a gap between respondents' confidence in their decarbonisation measures on one hand; and their target-setting, measurement and target validation on the other.

Energy and utilities leaders also highlight skills gaps that need to be filled. Collaboration with external partners will therefore be essential.

In particular, cloud service providers can help businesses migrate their legacy IT infrastructure and data to modern systems; and access real-time carbon measurement and management tools. But this is something that sustainability leads in the energy and utilities sector admit they need help to make happen.

1. Barriers to progress

Like all businesses, energy and utilities providers have carbon reduction firmly on their agenda.

More than four in five (84%) are measuring their carbon footprint (the larger enterprises being obliged to do so by regulation). Almost all of them (97%) have set emissions reduction targets; and four fifths (81%) have made these science-based.

However, their efforts to understand, measure, report and reduce carbon emissions are still at an early stage - as they are in all sectors.

Six out of ten energy and utilities firms (60%) have been working on carbon reduction for four years or less. Only 14% have targets validated by the Science Based Targets initiative.

Right now, their focus is elsewhere - understandably in difficult economic conditions. Less than two in five (39%) list decarbonisation among their top five priorities for the next three years - though that's ahead of the overall average (35%).

84%

of energy and utilities providers are **measuring their carbon footprint in some way**

97%

have set **emissions reduction targets**

81%

have ensured that these are **science-based**



2. Overcoming the obstacles

Technology and data strategies are crucial to success in a highly technical sector like energy and utilities. And they will be essential to the industry's ability to measure and track emissions. What's more, gathering and analysing carbon data will demand powerful digital solutions.

So as we might expect, digital technology is having a significant impact on decarbonisation in the sector. Among businesses that rate their decarbonisation success at 8 out of 10 or higher, over half (57%) have digitalised all or most of their sustainability initiatives. This compares to just 15% that have digitalised none of them. (The rest sit between the two extremes, having digitalised some sustainability programmes.)

Encouragingly in that context, sector leaders acknowledge the role technology and data have to play in carbon reduction.

Approaching three quarters (72%) feel their environmental impact reporting would be improved by an emissions measurement tool. Meanwhile,

Gaining customers and cutting costs are more urgent to them just at the moment. But their underlying commitment to net zero remains. When asked about their priorities for the next three years, respondents ranked carbon reduction an equal priority with customer acquisition, and ahead of cost reduction.

Nevertheless, energy and utilities companies are facing a range of challenges when it comes to reducing their carbon footprint. Fragmented data - cited by 47% - is the industry's second biggest difficulty (as it is in the other sectors surveyed). This has to be a concern. Without robust data and advanced analytics, organisations can't accurately measure their carbon footprint, or monitor their progress in reducing it.

As such, it's equally worrying that under half (46%) of energy and utilities providers involve their CIO or other technical C-suite roles in their decarbonisation plans.

Given these challenges, the sector's leaders express surprising levels of confidence in the prospects for their carbon reduction programmes.

Nearly three quarters (74%) say they're confident of achieving their emissions targets. This may appear misplaced, when only half are measuring emissions scopes 1 and 2. And only 38% describe their decarbonisation initiatives as very successful, by giving them at least eight out of ten.

around half rank accurate and reliable information (53%), and real-time, centralised emissions data (52%), among the three carbon reduction tools they'd find most helpful.

The cloud is also high on the list of technologies that energy and utilities leaders consider key to carbon reduction.

Seven in ten (71%) agree that cloud solutions are key to reducing emissions. More still (73%) believe that cloud technology would accelerate their transition to net zero. And approaching half (48%) say they need more help migrating their IT systems to the cloud as part of their decarbonisation plans.

3. Accelerating the transition

Given energy and utilities firms' confidence in the cloud, it follows that cloud service providers (CSPs) are the third party they turn to most for support with decarbonisation. Seven in ten (70%) are already working with a CSP (see fig. 1).

A similar proportion (68%) have invested in migrating their legacy datacentres to the cloud - around half of which have recorded measurable carbon reduction following the move.

Three quarters (75%) are moving *more* IT services to the cloud, with again, about half seeing results. And seven in ten (71%) have embraced cloud technology for advanced analytics, with just under half reaping the benefits.

Clearly, cloud technology is delivering results for carbon reduction initiatives in energy and utilities organisations. More than three quarters (76%) of those that believe they've been successful in decarbonising are collaborating with cloud providers.

57%

of successful decarbonisers have managed to digitalise all or most of their sustainability initiatives

15%

have digitalised none

FIG. 1:

Third parties used for decarbonisation support

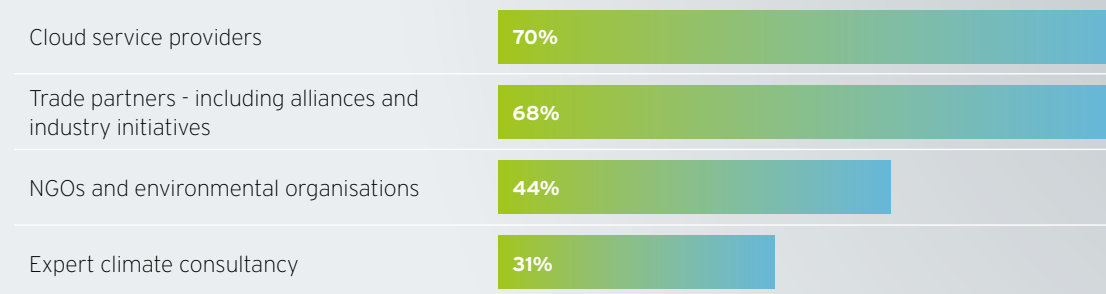
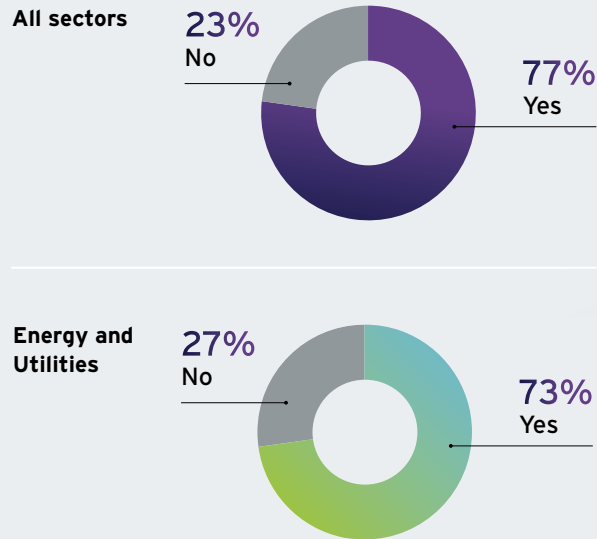


FIG. 2: Sustainability leads confident cloud will accelerate net zero by 2 years or more



Little wonder, then, that embracing the latest cloud technologies will accelerate net-zero journeys by two years or more, according to 73% of energy and utilities leaders (see fig 2).

Yet despite its impact, around a fifth of firms in the industry are yet to embrace the cloud. Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

CASE STUDY

Renom: Better asset management through digital twin technology

As an independent service provider to the global renewable energy market, Renom develops and operates wind farms. To enable Renom to manage wind turbines from a wide range of manufacturers, Atos developed and verticalized a digital-twin platform, and enhanced it with live data and expertise.

The digital twin is built on AWS infrastructure, and integrates Renom’s SAP system so as to converge its IT and OT estate. It gives the firm access to AWS’s IoT technology and Atos’ asset management capabilities.

The platform generates a 360° view of the firm’s wind-turbines’ performance, helping to predict failures before they happen. The result is improved reliability, performance and viability - at less cost. Asset uptime has increased, mean time to response is down 20%, and operational costs have fallen by 12%.

Financial services

The overall picture

On the surface, the financial services sector faces fewer decarbonisation challenges than the other industries we surveyed. Financial institutions rely less on physical machinery, plant and hardware than manufacturers or energy and utilities providers.

But with that comes the risk of a loss of focus, or a lack of continued investment in sustainability. Financial services companies may be ahead of the curve in the short term. But going forward, they'll need to work hard to drive behaviour change among their staff and suppliers - which they rank among the most effective carbon reduction tactics available to them.

They'll also need reliable tools to manage their carbon footprint. So it's encouraging that finance leaders have a particularly strong belief in the potential for cloud services providers to accelerate their net-zero journeys.

Clearly, they recognise that migrating their datacentres to the cloud will help to reduce emissions, and give them access to advanced, real-time carbon measurement and management tools. At the same time, however, they admit that they need help migrating their IT infrastructure to the cloud - more so than their counterparts in other sectors.

1. Barriers to progress

Like all businesses, financial services companies have carbon reduction firmly on their agenda.

Almost four in five (77%) are measuring their carbon footprint - though this is lower than the overall average. The majority (95%) have set emissions reduction targets; three quarters (75%) have ensured that these are science-based.

However, their efforts to understand, measure, report and reduce carbon emissions are still at an early stage - as they are in all sectors.

Six out of ten financial services providers (61%) have been working on carbon reduction for four years or less. Only 15% have targets validated by the Science Based Targets initiative.

Right now, their focus is elsewhere - understandably given the uncertain economic outlook. Only a third (32%) list decarbonisation among their top five priorities for the next three years. Gaining customers and cutting costs are more pressing objectives just at the moment.

As a result, financial services companies face a range of difficulties when it comes to reducing their carbon footprint.

Perhaps counterintuitively, fragmented data is the industry's second biggest difficulty. More than half 54% identify this as a challenge - comfortably more than the average across sectors (49%). That may be a surprise, given the importance of data to financial operations - firms in this sector are accustomed to gathering and exploiting data.

It's also a worry where decarbonisation is concerned. Without robust data and advanced analytics, organisations can't accurately measure their carbon footprint, or monitor their progress in reducing it.

As such, it's equally worrying that only 48% of financial services companies involve their CIO or other technical C-suite roles in their decarbonisation plans.

Given these challenges, industry leaders express surprising levels of confidence in the prospects for their carbon reduction programmes.

Three quarters (76%) say they're confident of achieving their emissions targets. This may appear misplaced, when only half are measuring emissions scopes 1 and 2. And only 40% describe their decarbonisation initiatives as very successful, by scoring them at least eight out of ten.

2. Overcoming the obstacles

Financial services firms live and breathe data and the technology that powers it. And data and technology will be essential to their ability to measure and track emissions. Gathering and analysing carbon data will demand powerful digital solutions.

So as we might expect, digital technology is having a significant impact on decarbonisation in the sector. Among businesses that rate their decarbonisation success at 8 out of 10 or higher, most (56%) have digitalised all or most of their sustainability initiatives. This compares to just 20% that have digitalised none of them. (The rest sit between the two extremes, having digitalised some sustainability programmes.)

Encouragingly in that context, sector leaders acknowledge the role technology and data have to play in carbon reduction. Three quarters (75%) feel their environmental impact reporting would be improved by an emissions measurement tool.

Meanwhile, around two thirds (63%) rank accurate and reliable information, and real-time, centralised emissions data, among the three carbon reduction tools they'd find most helpful.

77%

of financial services providers are **measuring their carbon footprint in some way**

95%

have set **emissions reduction targets**

75%

have ensured that these are **science-based**



This is discernibly higher than the average (56% and 55% respectively). Despite the sector's advanced use of data and data tools, fewer financial institutions seem to be making use of these in their decarbonisation programmes.

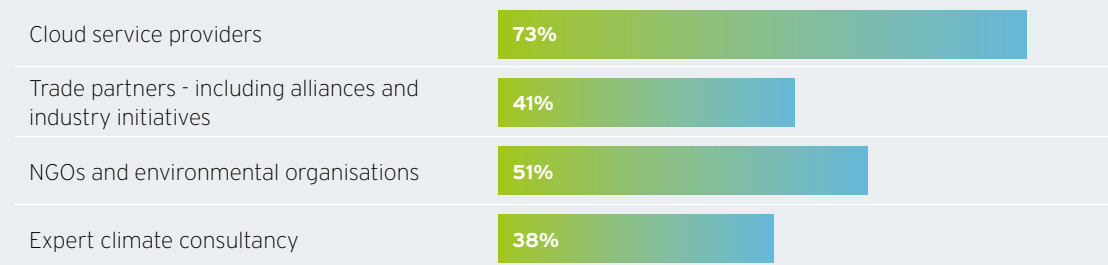
The cloud is high on the list of technologies that financial services leaders consider key to carbon reduction.

Three quarters (75%) agree that cloud solutions are key. More still (86%) believe that cloud technology accelerate their transition to net zero (compared to 77% overall). And two thirds (65%) say they need more help migrating their IT systems to the cloud as part of their decarbonisation plans. This is much higher than the average (53%).

56%
of successful decarbonisers have managed to digitalise all or most of their sustainability initiatives

20%
have digitalised none

FIG. 1:
Third parties used for decarbonisation support



3. Accelerating the transition

Given financial services firms' confidence in the cloud, it follows that cloud service providers (CSPs) are the third party they turn to most for support with decarbonisation. More than seven in ten (73%) are already working with a CSP (see fig. 1).

A similar proportion (72%) have invested in migrating their legacy datacentres to the cloud - more than half of which have recorded measurable carbon reduction following the move.

The same number are moving *more* IT services to the cloud, with around half seeing results. Slightly more (73%) have embraced cloud technology for advanced analytics, with just under half reaping the benefits.

Clearly, cloud technology is delivering results for carbon reduction initiatives in financial organisations. More than three quarters (78%) of those that believe they've been successful in decarbonising are collaborating with cloud providers.

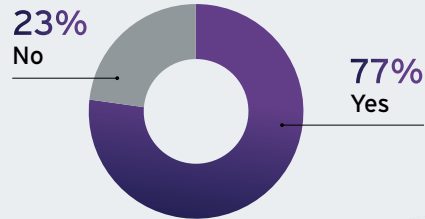
Little wonder, then, that embracing the latest cloud technologies will accelerate net-zero journeys by two years or more, according to 86% of financial services leaders (see fig 2).

Yet despite its impact, almost a fifth are yet to embrace the cloud. Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

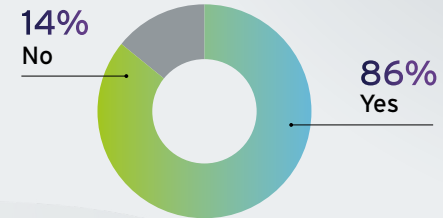
FIG. 2:

Sustainability leads confident cloud will accelerate net zero by 2 years or more

All sectors



Financial services



CASE STUDY

Helvetia: Innovation and carbon reduction through cloud migration

Global insurance group Helvetia has been working with AWS to standardise its IT landscape, and give the company access to innovative technology platforms.

AWS helped Helvetia to evaluate the case for its first public cloud, and then build cloud centres of excellence. The group's journey began with simple applications, which provided the experience required to accelerate its journey to the cloud. Today, more than 40% of Helvetia's applications sit in the cloud, and the firm continues to migrate its systems.

It's a shift that supports two of the three pillars of Helvetia's ESG agenda. The 'E', as moving to the cloud reduces resource and energy use. And the 'S', as using cloud services upsills employees, who can gain new skills and progress their careers as a result.



Manufacturing

The overall picture

In some ways, the manufacturing industry's decarbonisation efforts are behind those of other sectors. For good reason: the sector faces greater carbon reduction challenges than most, given its extensive use of legacy machinery, plant and hardware.

The manufacturing sector faces a greater decarbonisation challenge than most others, reflecting its extensive use of legacy machinery, plant and hardware.

The adoption of cloud solutions to power carbon measurement and reduction is one area where manufacturing lags behind. While open to the cloud's benefits, sustainability leads in the sector admit they need help migrating IT infrastructure to the cloud.

In part at least, this is down to a lack of involvement from the IT senior leaders in sustainability programmes. That's despite the function's capacity to integrate sustainability data across the organisation, and provide a holistic view.

There's a gap between manufacturers' confidence in their carbon reduction measures on one hand; and their target-setting and validation, measurement, and reporting tools on the other. Leaders are optimistic about their sustainability programmes' chances of success. Yet few have a clear comprehensive overview of their carbon footprint, as they are not tracking and measuring all three emissions scopes.

The strategic focus needs to change in manufacturing, in line with an evolving IT landscape. The traditional emphasis on operations needs to shift to data - because data shows you how to optimise operations, and how to make them sustainable. Manufacturers need to design and implement data modernisation strategies, aimed at connecting, integrating and automating their data and analytics, so as to give them the bigger picture.

1. Barriers to progress

Like all businesses, manufacturers have carbon reduction firmly on their agenda.

Some are undoubtedly embracing it. They recognise its long-term benefits for society, and in terms of cost reduction and process efficiency once integrated into everyday operations - at a time when operating costs are skyrocketing. Others may not yet see the strategic advantages, or they may simply be doing what regulation requires them to.

Either way, **four in five (81%) manufacturing businesses are measuring their carbon footprint** (larger enterprises being obliged to do so).

Almost all (96%) have set emissions reduction targets; and four fifths (80%) have ensured that these are science-based.

However, their efforts to understand, measure, report and reduce carbon emissions remain at an early stage - something common to all sectors.

Nearly six out of ten (59%) manufacturing firms have been working on carbon reduction for four years or less. Only 13% have targets validated by the Science Based Targets initiative.

Right now, the industry's focus is - understandably - elsewhere. Just over a third (36%) of manufacturers list decarbonisation among their top five priorities for the next three years.

In uncertain times, customer acquisition and cost-cutting are top of mind. But it's also worth noting manufacturing organisations look at sustainability not just in terms of decarbonisation. They're focused on cutting energy consumption via efficient running of equipment; reducing waste through better use of materials; driving sustainability throughout their supply chains; and improving productivity by training staff and supporting them with technology.

Still, when it comes to reducing their carbon, manufacturers face a range of difficulties.

Fragmented data (cited by 45%) is their second biggest challenge. This has to be a concern. Without robust data and advanced analytics, manufacturing firms will find themselves unable to accurately measure their carbon footprint, or monitor their progress in reducing it.



In manufacturing businesses, sustainability data usually sits in the various lines of business (LoBs), and is often siloed as a result. IT is rarely called on to connect these data sources - indeed, only 43% of manufacturers involve technical C-suite roles in their decarbonisation plans. LoBs tend not to view the IT function as a strategic partner that can solve business problems. And they may fear operational disruption from a data modernisation project.

Sustainability data tends to sit in silos in manufacturing organisations - with IT rarely called on to integrate it.

Given these issues, manufacturing leaders express surprising levels of confidence in the prospects for their carbon reduction programmes.

More than three quarters (76%) say they're confident of achieving their emissions targets. This seems at odds with the fact that just over half (53%) of companies are measuring emissions scopes 1 and 2 with a tiny minority doing so for scope 3. And only 37% describe their decarbonisation initiatives as very successful, by giving them at least eight out of ten.

2. Overcoming the obstacles

Modern technology and data strategies are increasingly crucial to success in manufacturing, and to the industry's ability to measure and track emissions. What's more, gathering and analysing carbon data will demand powerful digital solutions.

So as we might expect, digital technology is having a significant impact on emissions reduction in the sector. Out of manufacturing businesses that rate their decarbonisation success at 8 out of 10 or higher, six in ten (60%) have digitalised all or most of their sustainability initiatives. This compares to just 15% that have digitalised none of them. (The rest sit between the two extremes, having digitalised some sustainability programmes.)

As a result, manufacturing leaders acknowledge the role that technology and data have to play in carbon reduction.

More than seven in ten (74%) feel their environmental impact reporting would be improved by an emissions measurement tool. Meanwhile, around half rank accurate and reliable information (52%), and real-time, centralised emissions data (48%), among the three carbon reduction tools they'd find most helpful.

This latter finding is discernibly lower than for businesses overall (55%); fewer manufacturers seem to feel they need real-time emissions data. That may seem surprising, given the siloed nature of their sustainability data. Leaders appear happy with the information they receive, but could certainly be accessing a more integrated data pool. And they could be doing more with it to support the transition to net zero.

Encouragingly, though, the cloud is high on the list of technologies manufacturing leaders consider key to carbon reduction.

Three quarters (73%) agree that cloud solutions are key to reducing emission. A similar number (71%) believe that cloud technology would accelerate their transition to net zero. And approaching half (45%) say they need more help migrating their IT systems to the cloud as part of their decarbonisation plans (compared to 53% overall).



3. Accelerating the transition

Given manufacturers' confidence in the cloud, it follows that cloud service providers (CSPs) are the third party they turn to most for support with decarbonisation. Nearly seven in ten (68%) are already working with a CSP (see fig. 1).

A similar proportion (64%) have invested in migrating their legacy datacentres to the cloud and the same number are moving *more* IT services to the cloud - though less than half of them have already recorded measurable carbon reduction following the move.

More than two thirds (68%) have embraced cloud technology for advanced analytics, with again under half of them reaping the benefits.

Clearly, cloud technology is delivering some results for manufacturers' carbon reduction initiatives. Accordingly, almost three quarters (73%) of those that believe they've been successful in decarbonising are collaborating with cloud providers. This compares to less than half (46%) of those that don't claim success.

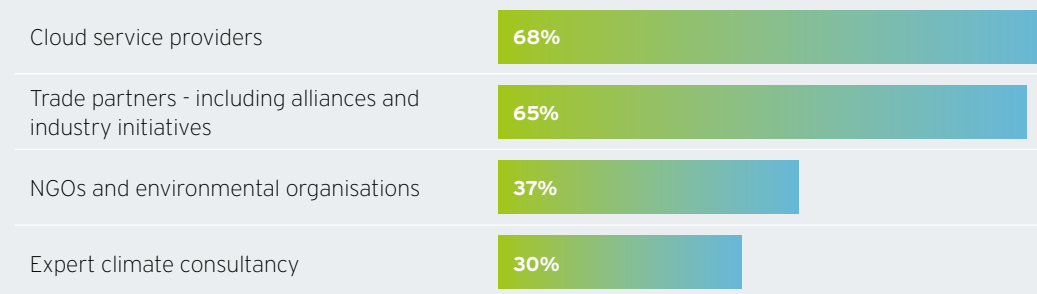
Little wonder, then, that embracing the latest cloud technologies will accelerate manufacturers' net-zero journeys by two years or more, according to seven in ten manufacturing leaders.

Seven in ten manufacturing leaders believe the latest cloud technologies will accelerate their transition to net zero by two years or more.



FIG. 1:

Third parties used for decarbonisation support



This is, however, appreciably lower than the overall proportion of 77% (see fig. 2). And around a fifth of manufacturing businesses are yet to embrace the cloud.

It seems some manufacturing leaders still under-appreciate the potential cloud technology offers them as they continue their journeys to net zero.

Cloud technology as a service remains a relatively new phenomenon; its full power is still only being realised by a minority of businesses. Yet its potential to drive business transformation is enormous, and it will unleash more effective and efficient transitions to lower carbon operations.

CASE STUDY

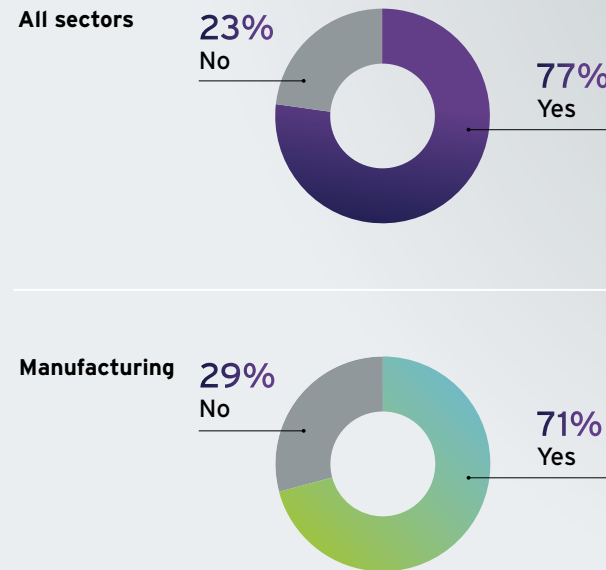
DataProphet: reducing scrap rates and waste footprint

DataProphet specialises in AI/ML solutions, which optimise production by preventing faults and reducing scrap rates. The firm's PRESCRIBE software constantly receives and analyses data from machines in manufacturing plants, and generates insights to improve decision-making on the factory floor.

Amazon ECS clusters run PRESCRIBE's machine-learning models. And Amazon CloudFront delivers the DataProphet web app, offering an excellent user experience whatever the processing loads elsewhere in the environment.

Powered by AWS, PRESCRIBE removes the need for physical datacentres to collect data from multiple sites, making the task more efficient and less resource-intensive. And it delivers results, cutting scrap rates to zero in some cases.

FIG. 2: Sustainability leads confident cloud will accelerate net zero by 2 years or more



About the research

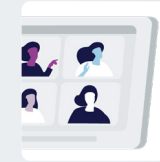
Coleman Parkes, a UK based business to business market research company, designed and executed the survey targeting 4000 business decision makers accountable for sustainability practices in SMB, mid-market and enterprise level companies. The study focused on the manufacturing, financial services and energy and utilises sectors across the UK, France, Germany, and Spain. The survey was conducted using a mixed methodology (phone to web and online surveys) and the fieldwork took place in September and October 2022.

Audience profile



METHODOLOGY

Online/Phone to Web



AUDIENCE PROFILE

Key decision makers responsible for sustainability practices in Energy and Utilities, Manufacturing and Financial Services companies (SMB, mid-market and enterprise)



SAMPLE SIZE

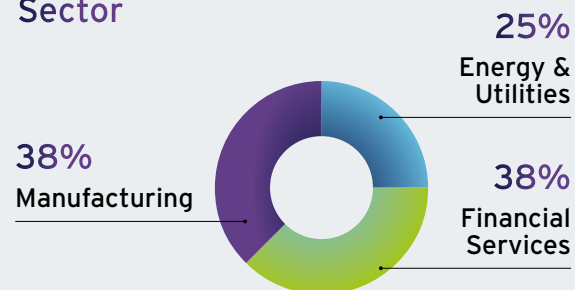
Sample size 4000:
UK = 1000, France = 1000,
Germany = 1000, Spain = 1000



FIELDWORK DATES

September-October 2022

Sector

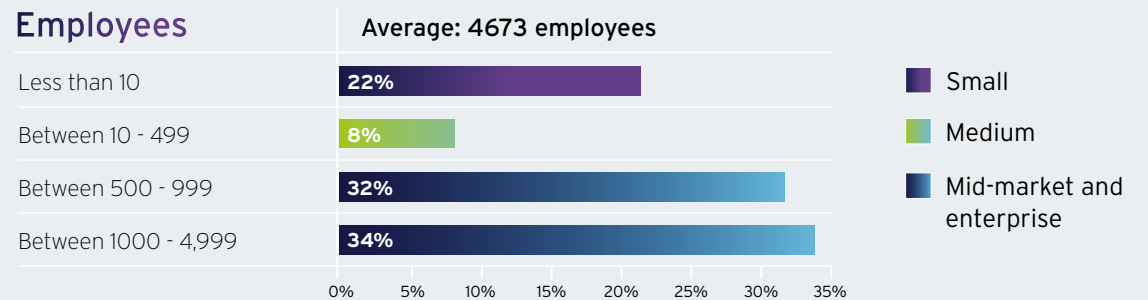
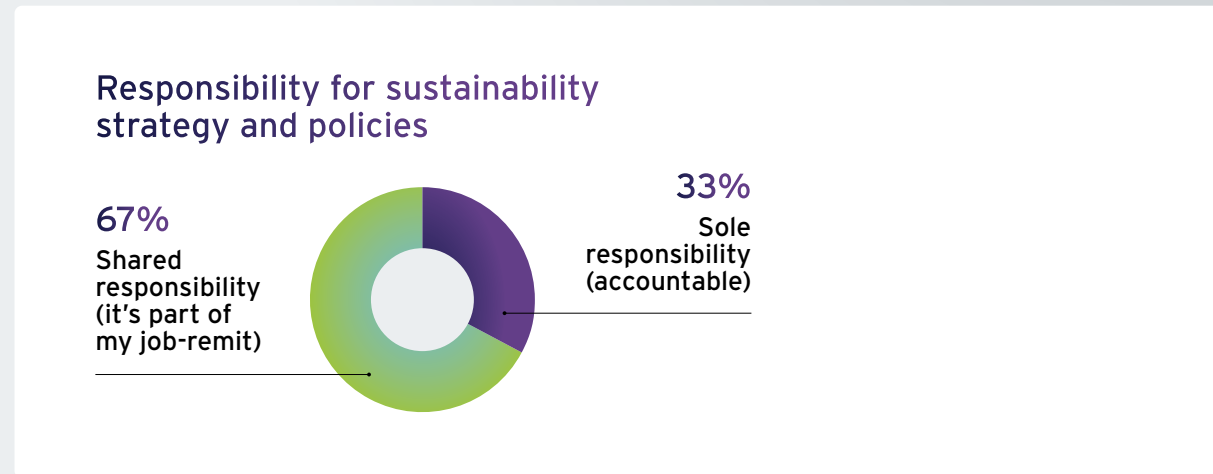
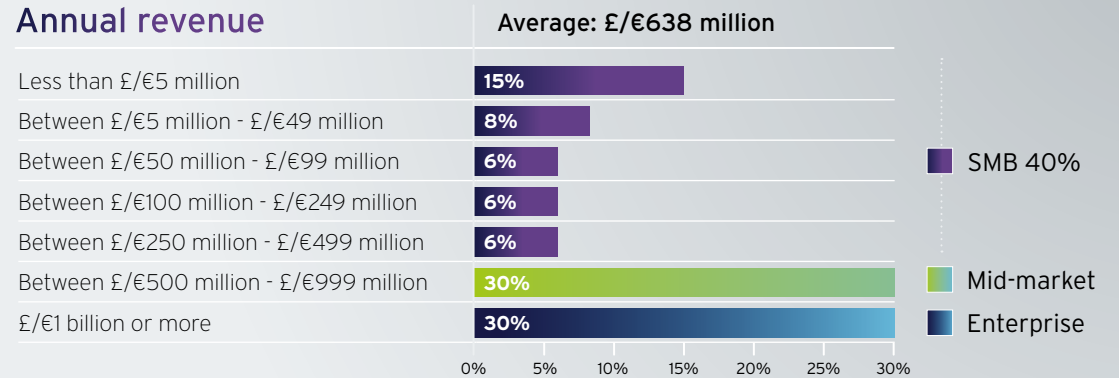


Geography





Base: All respondents (4000)



CLOUD AND NET ZERO

Taking decarbonisation
to the next level

