

TQ Sustainability & Technology

by Accenture

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-Hi, it's Paul here, and I'd like to welcome you to a very special TQ topic on sustainability, and for this topic I brought the best person possible, my good friend, Peter Lacy, who's our chief responsibility officer and also our global sustainability services lead. So Peter, welcome to TQ, and thanks for being here. -Hi, Paul. Happy to be here, indeed. Really fantastic to see TQ adopting and driving sustainability. -Now, Peter, in the short intro, we usually talk about the topic and why it's important for Accenture. So give us a little bit more context on sustainability. -Absolutely. And you know, Paul, that this is a topic that I'm passionate about, that I could probably speak for several hours, but I'm going to try and condense it down into 30 seconds. Sustainability has been already called the new digital. Julie said that back in Davos, and I think she got it spot on. At the very least, we see the twin engines of growth and competitiveness for Accenture and for our clients over the next decade, being digital and sustainability, not as separate topics, but how you combine and interweave the opportunities for transformation. I think what's really interesting about sustainability is, on the one hand it's about shareholder value, it's about creating traditional value, revenue growth, cost, risk, some tangible assets. On the other hand, it's about managing and measuring environmental things like carbon, social things like business and human rights and supply chain, or governance issues like bribery and corruption, and responsible consumption and production, green IT, ways that matter for business. Sustainability matters for us. It's here to stay. It's here to stay for our clients; it's here to stay for the global economy. -Thanks, Peter. But for years now when I thought about

sustainability, I've thought about you and learned about the circular supply chain, the twin engines that you just talked about. We're going to learn so much in this particular TQ. And as everyone knows, our purpose is to deliver on the promise of technology and human ingenuity, and the twin engines point you just made are going to make that clear to people as we go through TQ. Nothing shows greater promise overall than sustainability. It unlocks new opportunities for our clients, our partners, all of us as people, and for the places, the communities, societies, and countries where we do business. -Yeah that's absolutely right, Paul. Look, we are facing, without doubt---you look at the science, you look at the economics, we face unprecedented challenges, whether it's climate change, also biodiversity, social challenges, ensuring quality and justice, equality and justice for everyone. Those challenges contain within them an incredible opportunity to reimagine and rebuild responsibly and sustainably and, in turn, transform our global economy into one that works for the benefit of the many, not the few. And business leaders everywhere that I speak to, I know that you do, Julie, others are increasingly talking about these things. It's hard to go into a C-level conversation these days without an environmental, social, governance theme being part of the discussion. And that's not just about the short-term interests of shareholders. Actually, what clients are saying to us is they need to take a longer view, and they understand they have broader responsibilities. And technology's often at the heart of how they deliver against those, hence, our excitement about this TQ module. Sustainability matters to us at Accenture because we are uniquely positioned to be the industry leader for sustainability in our own performance, being our own best case study, but also to help others on their transitions, their industry transitions, and disrupting the way different sectors work today. We've made the critical decision to embed sustainability into everything we do at Accenture. That's not small. It's not just about a sustainability practice; it's about weaving sustainability into everything that we do for our clients in our core and, hence, the relevance and importance of TQ. -Yeah, it's a great tee-up, Peter, and it's so much at the heart of everything we're doing, the commitments we're making for sustainability, what we do for clients, what we do for our communities. And we're talking about sustainability here on TQ because, as we've said, sustainability and technology are closely linked. The physical, digital, and scientific advances that make up the fourth industrial revolution will play a key role in achieving all the world's sustainability goals. But to achieve the benefits from these advances, technology must be deployed with intent, with the proper intent, and must be managed properly to minimize unintended consequences, including negative environmental impacts, displacement of workers, risk of cyber threats or other adverse consequences, and also ethical concerns. In short, technology has a large role to play in order to help us reach our collective sustainability goals, and that's why Accenture's investing heavily and more sustainable approaches and proprietary tools for ourselves and for our clients. One example you've heard me talk a lot about before is the Green Cloud Advisor in myNav. Remember myNav? It's the platform that we built to streamline getting our clients to the cloud faster. We have an entire module in myNav that not only is focused on how to help clients get to the cloud faster, but in the most sustainably efficient way possible. And this is just one of many examples of what we're doing to help our clients be more responsible. -I agree, Paul. And technology is critical to meeting and exceeding our sustainability goals and the sustainability goals of the world. You see if you look at the Sustainable Development Goals, technology both does and needs to appear everywhere. We've got a large goal at Accenture. Accenture pledged to be net

zero ourselves by 2025 across scope 1, 2, and 3, so what we emit, the electricity we buy, all of the supply chain where we have embedded emissions, and we need technology to help us achieve that goal. And I'm very proud to say in areas like renewable energy 100, we're already doing that. We're already going 100% renewable in many of the material places we do business. But it's a journey, and we've got more to do. -Yeah, it's a journey, but we're off to a great start, and thanks for your leadership, Peter. We're going to have a lot more work to do together on all of this. And there's a lot more to share on sustainability, and I'm really eager for our people to hear about it because it's such an important topic. There's so much going on. We have COP26 coming up, as you talked about. There's sustainability, there's ESGs, there's the UN Sustainable Development Goals. There're so many different facets of this to understand, and we're on top of them all with the work that we're doing an Accenture, which is why it's so important for our people to learn more about this. So we'll close for now, but up next in our TQ sustainability journey, you'll hear Simon explained more about sustainability and technology. -That's right, Paul. And then, shamelessly, and with no apologies made, I've taken over your job on the TQ HQ as the cohost. I'm sure they regard it as a downgrade, but for one, at least, they'll have to put up with me. -I think you're the right guy for the job, and I'll allow for this show only, but I still get to do the tagline. TQ and you, just one of the ways we're powering change. Happy learning.

Sustainability & Technology: Executive Briefing

Introduction

Okay, stop that. Yes, this is a course about sustainability, but I don't have to begin by just throwing all the clichés at you. Think of the earth. Think of the forests. What's next? A flowing stream, a hand holding a delicate budding plant? Enough. Let's step away from the clichés. Well, okay, we are going to come back to trees in a few minutes, but first let's get clear on what this course is about. Because I could even do some word association here. When I say sustainability, what other words and ideas come to mind? Probably things like renewable energy, recycling, ethical business, environmentally friendly. If you're enthusiastic about these issues, you might say things like climate change, net zero, reforestation, being carbon neutral. And if you're cynical or skeptical about this, you might say hype, buzzword. And we'll deal with many of these perceptions. But it is true that this word can be applied in many different ways in many different areas. There's sustainability in agriculture, sustainability in transportation, sustainability in tourism. So, our focus here is sustainability in business, and particularly about how technologies like artificial intelligence, cloud computing, and data science can help in sustainability efforts, and in a few cases where they don't help. But I'm going to begin here by talking about several phrases with the word carbon, like carbon footprint, carbon offsets, carbon budget, decarbonization. And if you currently spend a lot of time actively involved in sustainability work, you may already be comfortable with those terms. You can

either skip ahead or just sit back and sing along for a few minutes, because we need some of that vocabulary to make sense of what's happening right now, how most businesses are even talking about this and what the priorities are. We're then going to look at the kinds of sustainability goals and indicators that most organizations are starting to concentrate on and how those goals are being pushed by broader regulations, even by global movements. They're being driven by employees from the inside and from customers and investors from the outside. And then we'll look at technologies like cloud computing and AI with real-world examples of how they're being successfully used in sustainability efforts. And I'm going to try and keep this as pragmatic and practical as possible, with the kinds of things you can do at the personal level, things that affect you at the team or the projects are on, and even the organizations you work for. I'm Simon Allardice, and welcome to the executive briefing on sustainability.

Challenges, benefits and approaches

Now, this isn't of course about climate change, but we can't remove that from the bigger picture here. It is the single most significant driving force behind the shift to more sustainable practices in business. And many of us know climate skeptics, and there's kinds of different levels of skepticism about climate change, everything from people who say, "I don't believe any of it. Temperatures aren't changing. There's no upward trend." Others who will say, "Okay, maybe temperatures are going up, but it's totally natural and nothing to do with humans."

Sometimes the commentary is "Okay, humans do have an impact on the ecosystem, but it's not significant, and it will self correct." And some will say, "Okay, things are changing, but now it's too late and none of these new guidelines would make any difference." Or even, "Well, they could help, but it's too difficult, too complicated, there's too many countries involved, and there's no way we can get everybody in the world to agree."

Sometimes you'll even hear these arguments from the same person, even though they're completely contradictory to each other. The one thing that always seems to be strangely consistent with any of the skeptical viewpoints is the advice on what to do about it, which is always, "So nobody should do anything." And that's where we're going to take a different viewpoint, that there are things we can do to make a difference. But here's the thing: even if you are skeptical or critical or you just have skeptical or critical moments, that's okay. We don't need to be in perfect agreement on all the best ways to deal with this, because what we're going to focus on here, building and growing more sustainable projects, more sustainable businesses and the sustainable use of technology, it still makes sense. We're talking about ways to reduce expenses, recognize efficiencies, identify new business models, avoid pollution. You can be as skeptical as you like and still want all of that. And from a practical sense, just as we've always had to deal with new regulations around topics like workplace and occupational health or new regulations around data capture and data storage, we can already recognize we're going to have more environmental and sustainability regulations, and we'll need to engage with them. And beyond that, we have ever-growing expectations from customers, from employees, from shareholders, from investors, all demanding to know what companies are doing here and how they're making progress. So unlike even 5 or 10 years ago, these days, most large organizations, along with publishing their annual reports and their

financial statements, now also provide some kind of public sustainability or environmental progress report. And these reports can actually be a very useful way to begin, because they let us see how businesses are approaching this. And usually within the first one or two pages, they need to be very clear on what they're measuring, how they talk about progress, and how they talk about goals. So I could use these reports to quickly find the main sustainability goals for, well, let's begin with a few of the bigger technology companies. Apple, their goal is to be carbon neutral as an organization by 2030, Amazon say their goal is to reach net-zero carbon by 2040, Microsoft are aiming to be carbon negative by 2030, and Google say carbon neutral since 2007, carbon free by 2030. Facebook are committed to reaching net-zero emissions across our value chain in 2030. And if we move away from tech companies and look instead at, say, the large international consulting firms, McKinsey say "We will reach net-zero climate impact by 2030." KPMG aim to get to net-zero carbon by 2030. Accenture go further, with a goal to get to net zero by 2025. So we see these terms again and again, carbon neutral, carbon free, carbon negative, net-zero carbon, net-zero emissions. And okay, you may have a good idea about these terms, but there are some subtle differences here, so let's make sure we're clear about a few of these before we go further.

Carbon

So let's talk about this word carbon, which we see again and again in any discussion of or any document about sustainability. Usually somewhere on the first page in a phrase like carbon neutral or carbon free or net-zero carbon. Just to make sure we are all clear the word carbon here doesn't mean the solid form of carbon like you might use in water filters and fish tanks. No, in this context we are talking about carbon dioxide CO₂, the colorless, odorless, greenhouse gas. And as any 10-year-old school child could tell you, we get CO₂ from many entirely natural processes, like breathing. But the amount of CO₂ I exhale is insignificant compared to the amount generated when I drive a gasoline-powered car or take a flight, or if I'm using electricity from a coal-burning power station. And we talk about large levels of CO₂ emissions as being in metric tons. And a quick sidebar, when you think of something that weighs a ton, we usually think of something solid, a ton of bricks, a ton of concrete. So it may not be intuitive to think of an amount of gas as weighing a ton, but, yes, gases have weight; they just take up more space. So if I had a box that was 12" per side, just one cubic foot, and this box was filled with pure carbon dioxide gas, then the gas inside this box would weigh about 50 g, or 1.8 oz. If I could scale this box up to be about 27 ft on each side, then a cube that size could contain 1 metric ton of CO₂ gas. And as just one example, 1 metric ton of CO₂ gas is roughly the amount you generate by driving 2500 miles in an average gasoline-powered car. And when we talk about global emissions, the recent estimates are that worldwide we are now generating between 33 to 36 billion metric tons of CO₂ every year, 36 thousand million metric tons, or 36 gigatons. That's a very big box. But back to that 10-year-old school child who could also tell you that, yes, there are other greenhouse gases, methane, nitrous oxide, ozone, even water vapor. But we focus on carbon dioxide over the others most of the time because it's the most significant. It persists for a long, long time in the atmosphere, for centuries, even, so it has been slowly building up. And that increase in atmospheric

CO₂ is measurable, it's detectable using things like ice core studies, and it's ongoing. So these days, even when we are talking about the other greenhouse gases, we'll talk about them as equivalent to carbon dioxide emissions and measure them in metric tons of equivalent CO₂, or CO₂e. Now, this is not going to be a course where I now talk about the process of how greenhouse gases contribute to a rise in temperature. Find that 10-year-old school child, and they can do that if you need it. But if we just take it as a given that reducing CO₂ emissions is a good thing, either as an individual or as a business, we need to consider what the main sources of CO₂ are. And for our purposes, let's look at three of them: power generation, particularly coal and gas power stations; there's transportation, planes, trains, cars, trucks, boats; and industrial production and manufacturing. Now the ratio between these depends a little bit on the country. Some countries generate more CO₂ from power stations, while in others transportation creates more, but these are the main three. But it leads to an important idea for you or for your business, because if we are trying to figure out where we can reduce CO₂ emissions, we realize quite quickly that some emissions are directly or significantly within our control, but others not so much, and that leads us to the idea of emissions scope.

Emissions scope

So if we're expecting to have countless different companies, private companies, public companies, governmental departments, all trying to measure, manage, and improve their own emissions, then we really want to have some kind of common standardized method to even talk about this. And about 20 years ago the GHG Protocol, Greenhouse Gas Protocol, was developed to provide guidance and standards for doing this, so we could have a common framework for how a company or even a country could work on calculating, understanding, and managing their emissions. And one of the main ideas in this GHG protocol is, it's helpful to think about three different types, or three different scopes of emissions. First, Scope 1 emissions. These are the ones you directly generate. So as a personal example, if at home you have a gas boiler, you have a diesel-fueled vehicle, you run a propane barbecue or even have a bonfire, these are all specific activities that will directly generate CO₂ or other greenhouse gases when you do those things. Then Scope 2. These are the indirect emissions from the electricity or energy you use. For example, you may have an electric car that by itself does not generate any CO₂ emissions when you drive it, but if the electricity you use to charge that car is coming from a coal-fired power station, then you're still causing emissions to be generated; they're just one level removed. But it's still something you could calculate and estimate and account for. So if your car consumes, let's say, 5000 kW of power over a year, you can estimate what amount of emissions that power generation cost. And Scope 3. Now this is the difficult one, because Scope 3 is all the other indirect emissions from all the activities you perform or are performed on your behalf. The emissions from the products that you buy, the packaging that's used to ship those, the business travel you ask people to do. And if you purchase raw materials from a vendor, what are the emissions they generated on your behalf to manufacture or extract those materials? So it's sometimes easy to think that all you need to do is follow the steps. You figure out Scope 1 emissions, then Scope 2, then Scope 3. But while figuring out Scope 1, direct emissions, is relatively simple, and Scope 2 emissions is more complex but

certainly achievable, calculating Scope 3 emissions is extremely difficult and shouldn't be underestimated. It's difficult for even an individual to figure out the equivalent of their Scope 3 emissions. So think about how complex it would be for an organization to account for all the indirect emissions across a complex manufacturing supply chain or with a workforce of tens of thousands of people. But the complexity of Scope 3 emissions shouldn't dissuade you from engaging more directly with the first two. In fact, some organizations will admit that they aren't going to even try and calculate their Scope 3 emissions until they have policies and procedures in place for Scope 1 and Scope 2. But we can use these ideas to estimate a carbon footprint for an organization or even for yourself as an individual. And this is very useful when you're trying to engage with these ideas. On a personal level, there are various websites to help you estimate your own carbon footprint. Just search the web for carbon footprint calculator. I'm not going to recommend one in particular because the best one for you depends on the country that you're in, because just the baseline average CO₂ emission per person is very different whether you're in the US or the UK or Australia or India or Iceland versus Dubai, just from things like what renewable energy sources are there or what public transportation networks exist. As an organization, calculating your carbon footprint is more difficult, but the GHG Protocol website is a good place to begin. A little later I'll talk about some of the available services that can help with calculating your environmental impact. But generally speaking, any focus on improving emissions, either from the personal or the corporate perspective, still looks at three things. One, reducing the amount of energy we use. Very simple to understand. 2, changing where that energy comes from, and if it's possible to move from oil and gas-fired power stations to using power from renewable sources like solar or wind that don't generate Scope 1 emissions. And 3, offsetting any activities that generate CO₂ and put more of it into the atmosphere with other activities that mitigate it and take it out, like planting trees. Because when a company talks about being carbon neutral, they typically mean that they have estimated their carbon footprint and that the amount of greenhouse gases they generate are then balance out or offset by funding other activities. So they buy carbon offsets, which often fund renewable energy projects or reforestation projects. And this is something you can even do as an individual. There are companies like Wren and TerraPass and Carbonfund.org, and there are plenty of others. They allow you to do everything from just purchasing a single carbon offset to make up for the CO₂ generated by a flight you've taken, all the way to offsetting an entire business carbon footprint. Now, technically, a company who buys enough carbon offsets wouldn't even have to reduce any emissions in order to be carbon neutral. But many organizations do have this reduction of emissions as a measurable goal and something that they're aiming for, and other organizations are moving to a goal of carbon free, meaning that their goal for power generation isn't just to offset the carbon emissions they're making but to switch entirely to renewable sources that don't directly generate them. But most corporate sustainability initiatives around carbon will include reducing travel, reducing waste, and shifting power generation to renewable sources. And if you look again at those environmental and sustainability reports, one aspect that's very noticeable in the carbon footprint of an organization is any emissions from manufacturing of physical products. So a company like Apple has most of its emissions from that product manufacturing lifecycle, whereas a company that is software focused can concentrate on the emissions from their corporate

operations. And one of the things you will see in a lot of these reports are goals that are oriented around specific years, like 2025, 2030, and 2050, and there's a reason for these dates.

Dates, numbers and agreements

It's easy to go a little bit numb to all the various guidelines, suggestions, recommendations, measurements, goals, and opinions that exist around sustainability. So I'm going to try and simplify these next discussions to just a few pieces of information that you'll see again and again. Three dates, two numbers, and three agreements. First, the important dates are simply the years 2030, 2050, and 2100. Okay, for most of us, thinking about the year 2100 in any meaningful way is challenging, but any kind of long-term climate model needs to work on that level of timeframe. But along with those dates, the two numbers you'll often see are 2.0 and 1.5. These are degrees Celsius, and they represent two different scenarios, with an increase of either 1.5° or 2° above average pre-industrial temperatures. And okay, there are climate models that predict temperature increases higher than 2°, but let's focus on these right now. And it's because many of the conversations about sustainability are what needs to be done now over the next few years and then over the next couple of decades, so by 2030 and then by 2050, to try and limit the global temperature increase by the end of this century to just 1.5°, as opposed to 2°. And while a difference of half a degree may not sound like much, it's incredibly significant. But you know what number isn't here is 0, because while there is debate about which of the various climate prediction models is the most accurate, there's simply no model that predicts no change. So the consensus is that further warming is unavoidable. But it's these years and these numbers that you'll see many of the corporate strategies and goals around sustainability. And if you want to know where these numbers came from and why they've been adopted by so many different organizations and businesses, it's down to these three agreements or initiatives, the Paris Agreement of 2015, the United Nations Sustainable Development Goals, or SDGs, and the United Nations Global Compact, which is the business-focused call to action around those Sustainable Development Goals. Now when I first started hearing about the Paris Agreement, so it's an international treaty on climate change and adopted by 196 countries, I assumed that must be some massive 1500-page binder, but it's only actually about 25 pages, and most of that 25 pages are policies and procedures about how this agreement is managed. But in the first part of this, particularly Article 2, it's very specific that the aim of this is to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit that temperature increase to 1.5°C. It's important to understand that most of the companies I've been talking about aren't just reluctantly going along with the Paris Agreement; they are aiming for more. They're hitting their goals sooner and sooner, they're being more aggressive, they're aiming for carbon neutral, then carbon free, or even carbon negative, far in advance of what is legally required. For example, Microsoft have made the commitment not just to be carbon neutral but carbon negative by 2030, meaning they'll start investing in projects that will offset and remove more carbon emissions than the company emits. And their goal is that by 2050 they will have removed so much CO₂ to be the equivalent of all the emissions the company has ever generated since it was first founded in 1975. But

with these three dates, these two numbers, and these three agreements in mind, we can now focus on three areas of technology, cloud computing, artificial intelligence, and data science and how they can support all this.

Sustainability in cloud computing

Most of the time when we talk about the benefits of cloud computing, we focus on things like reduced cost of ownership, speed of implementation, general agility, and having access to new features. But we can also consider the sustainability impact, though we do need to be careful we're looking at the complete picture here. Because if I just take one perspective, looking at the cloud computing facilities themselves, the actual data centers, and particularly the huge hyperscale class data centers, it's easy to become conscious of what must be massive power consumption and the incredible amounts of computing hardware to be manufactured, used, and eventually disposed. But what we need to keep in mind is that a single cloud computing data center can, and let's face it, is designed to replace thousands or even tens of thousands of individual separate on-premises machines or replace many smaller data centers. And that consolidation can significantly reduce overall IT consumption of energy and reduce carbon emissions. But even though just consolidating by itself would lead to an overall reduction in power consumption from just having multiple efficiencies in the data center, we need to go deeper than that. And there is some useful information here that surprises a lot of people. You see, when you look at data centers over the last decade, and you look at the demand for cloud computing, the demand for internet services, well, it's no surprise the demand and usage has risen incredibly over the past decade. But, and here's the surprising part, the overall energy consumption of data centers around the world has not grown significantly. It's stayed almost flat. Data centers consumed around 200 TWh hours in 2019. That's up slightly from around 194 TWh hours in 2010. It's not important that you memorize those exact numbers, but just recognize that the use of cloud computing and internet services and the amount of work that these data centers are doing has risen dramatically, but the power consumption has not. And this is for three main reasons. One, the hardware itself, the energy efficiency of servers and storage drives and networking infrastructure keeps getting better and better. Second, using server virtualization technologies like virtual machines and containers means we can run more and more applications on a single physical server. And third, increased use of the newer and larger, often called hyperscale data centers, which have incredibly efficient power and cooling systems. The sustainability benefits of moving to the cloud isn't just a reduction in overall energy consumption, because one of the ways the major cloud providers compete with each other is in their commitment to energy and emissions, including moving those data centers to use renewable energy. So we use less energy, and where the energy we do use is from a source that isn't contributing directly to carbon emissions. So if I take the main 3 commercial cloud providers, Microsoft is committed to 100% renewable energy for their electricity consumed by their data centers by 2025. Amazon, similar. It has a company-wide goal of using 100% renewable energy by 2025. Google say their goal is to run on carbon-free energy, 24/7 at all data centers by 2030. And even the geographic location of many data centers is chosen to minimize the power requirements. You can find data centers in Iceland and other Nordic countries entirely powered by geothermal or hydroelectric energy. Some even have open walls so

the servers are cooled by the wind. Now, I will admit, it's difficult to just show a direct contrast between the sustainability impact of running an application on premises versus the impact of running that exact application in the cloud, because there are so many moving pieces to this, including are your on-premises servers powered by renewable energy or using grid electricity from a coal power station? What capacity is the hardware running at? What happens to the hardware of those on-premises servers when you stop using them? But this is another place where the economies of scale of cloud computing data centers means we can expect those companies to all have policies and procedures around the entire hardware lifecycle of purchasing, use, end of life, and recycling the equipment. But there have been many serious studies and whitepapers to try and dig into all the different aspects of this, including those complex Scope 3 emissions. Most studies estimate pretty significant sustainability improvements over the entire lifecycle. This could be anything from 20% to 95%, depending on what you're doing. And if you'd like to know more about the exact comparisons and contrasts, there are multiple whitepapers available where these comparisons are done in more detail than we could cover here. However, we should recognize we often aren't just doing a straight lift and shift, where an old application we were running on premises is now just running in the cloud but is identical in all other respects. Because we are often doing new development, because one of the benefits of cloud computing is to start using other kinds of functionality we weren't using before, perhaps like artificial intelligence and machine learning, and we should look at the impacts of those.

AI applications and issues

When it comes to the sustainability impact of artificial intelligence and machine learning, there are two very different aspects we need to think about. First is just the application of AI, what is it being used to do? But secondly is the power consumption of that AI or machine learning application, because some uses of AI require huge amounts of power. So first, the applications of this, because, yes, AI by itself is a tool. It could be used for good, bad, or neutral ends. There's nothing to actually stop anyone from using artificial intelligence to find a more efficient way to cut down an entire forest. But if we take the tasks that artificial intelligence is very good at, like analyzing massive amounts of data, to classify it and categorize it, to make predictions, to detect anomalies, we can find endless ways this could help. As just a few examples, in energy management it's currently being used to make much better predictions about supply and demand. This could be done for an entire energy grid, but it can be done for a factory or an office. Even in a home we can use smart monitoring and thermostats that will automatically adjust based on learned usage patterns. And in transportation, beyond the usual examples of autonomous vehicles, AI is being used in traffic optimization. It's being used in logistics planning. It's being used in delivery management to reduce consumption, reduce waste. In areas like agriculture it's being used for better predictions of water usage, better predictions and estimates on land usage, often incorporating more sensors for better monitoring. But one thing we need to take into account is that some applications of AI require huge amounts of computing power and huge amounts of energy. And one example is when you're training complex deep learning models, they're often extremely computationally intensive because they have to process

tremendous amounts of data in order to understand it. As just one extreme example of this, in 2020 GPT-3 from OpenAI was released. This is an AI functionality that can create written content like reports, essays, poems, questions, and answers. It can be used for chatbots or translation tools or better search engines. It could simplify complex documents or even generate computer code. Okay, there have been plenty of AIs that generate written language before, but GPT-3, by no means perfect, a lot of the content it generates feels like it's written by a human. It reads very naturally. The first version of GPT was released in 2018, and it was trained on what at the time was an impressive number of text documents. The model had 100 million parameters. And GPT-2 was in 2019, and it went from being trained with 100 million pieces of information to 1.5 billion parameters, which, again, was very impressive at the time. But with GPT-3 in 2020, it went to 175 billion parameters. So it's just been leaping up year over year in both the training data and in the quality of the results. The problem with the amount of data here is this means it's an incredibly computationally intensive deep learning model to train, and it's been estimated that to fully train that 175 billion parameter GPT-3 model cost somewhere between \$5 and \$10 million in computing power alone. Nothing to do with staffing or development cost, just the computing resources to run and train the model and the associated energy requirements from all that computing power. Now, this model can now be reused across thousands of situations. But although it is an extreme example, it's a useful indicator of just how resource intensive an advanced AI can get and how the cutting edge of AI can require huge amounts of energy.

Sources of data

Most organizations are now implementing strategies to capture and store more and more data, even if they don't immediately know what they're going to do with all of it. And there's an increasing amount of ways in which that data and the analysis of it can be used to help with real-world issues in sustainability, and not just as data as fuel for artificial intelligence and machine learning models, but in more straightforward basic analysis. For example, if you're trying to determine the carbon footprint of an organization, then just having more data about your day-to-day operations from one end of the value chain to the other, everything from data about employee travel and waste management or sourcing materials for production, that can allow you to make better decisions about your direct or Scope 1 emissions, but also have better insight into the parts of it that are outside your direct control. And this kind of data is even leading to new business models. For example, the Salesforce Sustainability Cloud service. This is a commercial service that helps businesses first measure and estimate their carbon footprint and then create an action plan around this with real data and real analytics on energy usage patterns and carbon emissions. There's also a move across many industries to have more and more physical devices, particularly sensors for temperature, vibration, motion detection. Whether that's to monitor the machinery in a large factory or keep track of resource usage in an office building, just having that data allows you to gain real-time information about the state of your business and respond quickly to that, building in automated systems, once again, being able to reduce power consumption, reduce waste, and recognize inefficiencies. But we shouldn't forget that over the next few years we can expect more and more environmental and sustainability

regulations and governance guidelines. Some will be voluntary, others imposed. But gathering more data now about your own operations is going to help in being able to comply with those requirements. But there's also the idea of using some sustainability data that may not be from your company directly but could still affect its operations. So, most financial and investment firms are now building in a range of climate predictions and environmental risks when they're making strategic forecasts for the future. And there is now much better availability of this kind of data. So if you wanted to do your own analysis of the data gathered by meteorological and climate institutes around the world, you can do that. There're now options like the Amazon Sustainability Data Initiative that works with organizations like NASA and the UK Met Office to make it easier to obtain these large climate-related datasets, everything from satellite imagery, to weather observations, climate projections, data about air quality. And Microsoft have their planetary computer platform, where they have huge amounts of earth data available with an API so that it's easily searchable and even a cloud-based development environment to make it easier to perform sustainability data analysis. And being able to have all this data can let us objectively recognize where some of the best opportunities for improvements are. But it can also let us see which aspects of technology are not helping.

Technology challenges

So while there is a great amount of ways that technology can help, it's also worth mentioning a few aspects that aren't helping, or in some cases are both solving old problems and creating new ones. First, blockchain technologies. Blockchain does have several potential benefits with sustainability. It could be used to provide visibility into an organization's entire supply chain and track materials and goods between suppliers, vendors, and even customers, allowing everyone to have access to trusted real-time information. It could help with auditing. It's even being used in management of carbon emissions. But blockchain's also used for cryptocurrencies like Bitcoin and Ethereum, which currently require a huge amount of computing power because they need powerful computers continually churning away at solving very energy-intensive complex calculations. We say those computers are mining for Bitcoin or mining for Ethereum. However, unlike the complex calculations done for artificial intelligence and machine learning, which can lead to having a useful trained model at the end of it, here, we don't actually get a useful result from doing all that intensive work. The calculations are just part of the security mechanism. So we have countless mining computers around the world competing with each other, as the first computer that can prove that it's completed a chunk of that complicated work gets a reward of some amount of cryptocurrency. And right now, cryptocurrency mining generates millions of tons of carbon dioxide emissions. Some estimates are that the international Bitcoin and Ethereum mining consumes more energy than entire countries. Now there is some hope on the horizon. The cryptocurrency Ethereum has been working for the last several years on moving to a different model. They're moving from their current proof-of-work mechanism, which requires all those complex calculations, to a different mechanism called proof-of-stake, and that can reduce the energy consumption almost to a trivial level. Some estimates are a reduction of 99.95%. Now, more recently, NFTs, or non-fungible tokens, have been in the news as a way for

someone to buy and sell a specific digital item like an image or a song or a video and keep track of the ownership of that. But these NFTs use blockchain to keep track of who owns a specific file. And by themselves they are extremely inefficient and energy demanding. Again, there are people working on improving this by encouraging the adoption of other methods than that huge amounts of mining. But right now, NFTs are still an incredibly inefficient way to do anything, and if it became a popular way to make these transactions, this would have a significant impact. And one of the things I haven't talked about here is the environmental impact of technology devices themselves, the manufacturing process, the mining for raw materials and battery technology and the social impacts of constant consumerism, like the amount of devices discarded and thrown into landfills. But that is a subject for a different course.

Closing thoughts

When you read about sustainability and climate change and you see headlines on rising temperatures, extreme weather events, shifts in the ecosystem, it's easy to be pessimistic about, well, everything because we often only hear about the negative aspects. And, sure, there's plenty of them. But we also need to understand that the negative stories are far more newsworthy, and they will be pushed at us far more than any positive news. Because improvements in renewable energy will never become a headline on the evening news in the way that wildfires or record-breaking temperatures will. But there have been and continue to be significant progress in multiple areas here. As just a few examples, while global emissions are still increasing, they are now decreasing in many first-world countries, meaning we're figuring out how to make these changes. Some people think the recent drop has just been from COVID in 2020, but they've been consistently decreasing in many countries for years. For example, the UK's greenhouse gas emissions in 2020 were 51% below 1990 levels. And as we've seen, many companies are now decarbonizing far more rapidly and far more aggressively than any regulations or policies demand. As we've seen in a lot of cases, they're actively competing with each other to do more and do it faster. And we see how this can lead to positive feedback loops, that if a company aims to electrify their entire vehicle fleet, that can help contribute to most major automobile manufacturers who've already committed to moving away from gasoline-powered cars. We also see the push for buying renewable energy has led to a lot more innovation in that space. And the cost of renewables like solar and wind continues to get cheaper and cheaper, and it's far outpacing even the most optimistic predictions about it from a decade ago. Even when you think about the challenges of getting the entire world to reach carbon neutral or carbon negative, realize that if you're watching this course using a computer or a mobile device, that kind of suggests you're probably already in a position where you could make more of an impact and do more than many people in the world. And beginning by just being aware of our own carbon footprint, focusing first on the equivalent of the things that fall into those Scope 1 and 2 emissions, whether or not you calculate the exact number isn't important, just the kinds of activities you do and where your energy comes from and recognizing that, particularly for a business, Scope 3 emissions are very difficult to calculate in an exact way, but it doesn't stop us from being conscious of the indirect impact of the choices we make, the services we use, and the products we buy. And there are

choices we can make as individuals to move towards carbon neutral. We can have a voice in the companies we work for. We can affect the companies we choose to do business with, and to know that if we're in the position where we can afford to do a little more and do it a little bit faster than others, then we can and should make a difference. I hope you found this useful. See you next time.

Sustainability & Technology Aftershow

Sustainability & technology intro

Air pollution, carbon emissions, saving the planet, and hugging trees. These are all things I would associate with sustainability. But isn't this the TQ Aftershow? Why are we talking about sustainability on the TQ HQ? Well, we're about to find out. Hello everyone. Today we're talking sustainability, and Peter and I are going to be your cohosts today. Hey Peter, welcome to the TQ HQ. -Great to see you, Sarah. Thank you for the invite. -Yeah, thanks for doing the hosting duties with me. Paul's usually here, but he decided to take a step back, and I think it was a good call. He's going to let you, our chief responsibility officer, and the global lead for sustainability services, take the reins for this one. -Well, it's definitely not an upgrade; it's the other way around. I'm sure you'd rather have Paul, but I'll do my best. -Okay, and luckily we have a great group of guests that are going to help us through this, so let's meet them now. First up, we have Sanjay Podder, the global lead for Accenture technology sustainability innovation. We have a returning guest, Rachel Bartels, who just finished as global enterprise functions and ecosystems lead, and she not only drives our sustainability agenda in the functions, but she lives it every day in her new role as a DCAL Diamond Client Account Lead. Now, new to the TQ HQ, we have Caspar Borggreve, our global lead for the SAP Business Group. Also new to the headquarters, we have Stephanie Jamison, who is our utilities industry sector lead, industry sustainability lead, and is now the European S&C lead. And lastly, two of our frequent guests here in the headquarters Kishore Durg, who I expect is going to talk about the Green Cloud Advisor in myNav, but we'll see, and Emma McGuigan, who is, of course, our IPS lead. So welcome, everyone. Thanks for being here. I can already tell it's going to be a great show. Okay, well, this is not your typical technology topic, so I'm looking forward to seeing why we're talking about sustainability in the TQ HQ. So Peter, maybe we'll just start there. -Yeah, let's start there indeed with the Aftershow crew. Sustainability is the new digital. Just as the digital revolution has transformed how we live, work, and play, so too will sustainability, permeating everything we do and driving new value and growth along the way. We are seeing a world awaken to an incredible opportunity to reimagine, to rebuild responsibly and sustainably and in turn transform our global economy into one that works for the many, not just the few. Now, for me, and I think for many of us, that shared success will depend on the ability to understand all stakeholders, to be able to connect the power of technology, human ingenuity, and business value, and also to leverage the acceleration in technology-led

transformation. To realize this future, business, government, and society must embrace this moment of change and work in new ways to address the unprecedented challenges the world is facing. We need to think differently. We need our clients to think differently. We need our partners to think differently. We need our people to think differently. We need to act boldly and reach new levels of collaboration. Over the next decade, sustainability is going to be the most important theme in business and probably society, alongside technology-driven transformation and competitiveness. -Wow, okay, this is bold and huge, and I love it. So it sounds like sustainability is going to be the focus of the future and not just in terms of environmentalism. -True, sustainability does include environmental issues, but it goes beyond that, environmental, social, and governance issues. Sustainability is about preserving our natural resources, but we also need to preserve our social and economic resources too, or what some people call stakeholder capitalism or the social contract. So yes, it's a big part---a big part of sustainability is transitioning to and even beyond a zero-carbon economy, but it's also about strengthening issues like human rights, boosting inclusion and diversity in supply chains, bribery and corruption, human rights in the context of child labor and avoiding forced labor. And the United Nations has identified 17 Sustainable Development Goals, or SDGs, that we need to reach, and the estimate, and I heard this last year from the CEO of Bank of America, Brian Moynihan, is that \$9 trillion a year is going to need to be spent every year to deliver, between \$6 and \$9 trillion. So no wonder that 75% of CEOs tell us that they're investing not just in sustainability, but also in the digital technologies that help us to solve sustainability. Now, Accenture has made sustainability one of its greatest responsibilities, not just because we think it's the right thing to do in our own business, in our supply chains, but because we believe that with our partners and through our clients, we have the ability to create and support the most powerful force for change in our generation. -It's huge. I mean, it's huge, and I think that is a great way to highlight it. So this must mean that Accenture views sustainability as the key to our future. And when we say sustainability is the new digital, I think we really mean it.

The problem

Sanjay, maybe you can help us illustrate a little bit more. What is the problem we need to solve here? -Thanks, Sarah. And let me introduce you to a concept called One Planet Living. This was introduced by World Wildlife Fund. And what it really means is that our consumption rate of resources should be matching the only one planet that we have. Otherwise, the planet will not get time to heal. But what is really happening is, currently our consumption rate is 1.6 planet. And if we continue the way we are doing now, by 2050, we will be consuming at the rate of 3 planets. But we don't have 3 planets; we have only 1 Earth. And when we do this kind of consumption, what is going to happen is, we are going to emit a lot of greenhouse gas emissions, greenhouse gas emissions that are leading to climate change. This century alone, in the first decade, our CO₂ emissions have increased by 48% compared to preindustrial levels. And businesses are contributing a lot of carbon emissions, 70%, some of the top 100 companies, for example. Now, if we do not take control of this, the temperatures are going to rise. We all know about the Paris Agreement, what organizations, governments, countries, have come together to take steps to limit the rise of temperature to below 1.5°C by the end of the century. Now if we are

not able to do this, there will be catastrophic consequences. We're already seeing this all around the world, hurricanes, floods, forest fires, wildfires. They're disrupting our lives. These events are only going to be more frequent. These are going to disrupt the way we live, work, and therefore, this is the problem we all have to collectively solve for.

The solution

Well, I think we all knew climate change is a problem, but this picture that you're drawing for us, it does sound so bleak and depressing, almost like, where do we go from here? So I'm really hoping you can tell me there might be something that's hopeful for us in the future. -Well, we are in the right place. We are in Accenture. As one of the world's largest technology services companies, we can really make a big difference. Because technology will be a big enabler to accelerate the attainment of the Sustainable Development Goals, the 17 goals that United Nations has so well articulated, articulating some of the toughest problems that the environment and the society will face. And Peter kind of spoke in detail about it. So technology, we are already working towards creating a better world, in terms of preventive health care, in terms of education to the underprivileged, biodiversity protection, across all important SDG areas. This is what we call as sustainability by technology, creating a much smarter and more sustainable planet. But the other area where we are playing a big role as thought leaders is sustainability in technology. What we do not realize, that sustainability also has a carbon footprint, and that carbon footprint is growing. In fact, our data centers today already consume 2% of electricity, and that's going to become 8% by 2030 and 14% by 2040. And most of the electricity in the world gets generated from fossil fuels, which means carbon emissions. So there is an opportunity here for us to guide our clients and the community at large on the right way to engineer technology solutions and use technology solutions. But all this needs new kind of skills, training, a new mindset, and this cannot be done alone. We need a collective effort. And then I'm very happy to say that Accenture created the world's first Green Software Foundation, along with our partners like GitHub, Microsoft, and others, and many of our clients are joining this foundation. Some of the top businesses in different industries are joining this, along with technology companies, and collectively we are trying to figure out what's the right way to create sustainable technology solutions. And the third element that we are doing is sustainability at scale. We are partnering, and you're going to hear probably more from the other speakers on areas like how we scale sustainability with our partners like SAP, SAP C, Microsoft, and many others. So that's how we are trying to approach this problem, and I think we are uniquely placed to make a big difference. -I love that, and I love the simplicity of thinking about sustainability by technology, sustainability in technology. So as we're using our own technology for sustainability, we have to make sure that our technology that we're using is sustainable. So there's a lot to unpack there.

Sustainability IN and BY technology

Casper and Stephanie, I'd love to bring you in here, because I bet in your roles you probably see both of those aspects, sustainability in technology, sustainability by technology. So Casper, maybe you can give us an example

of how we might see both of these play out in real life. -Sure. Sarah, and I'll start with sustainability by technology. As you heard Peter and Sanjay just mention, we've been working with the UN and SAP and others on sustainability development goals, or SDG Ambition, for quite some time now. And Accenture has proven that we're committed to sustainability with bold ambitions like zero waste, zero carbon, 100% sustainable material inputs. But we also believe that business transformation to address sustainability at scale is required, in that organizations need to consider sustainable practices and weave them into the design of their processes that are then technology enabled. That's sustainability by design. So more and more businesses, say, for example, supply chain, finance, procurement, they're considering sustainability upfront as they design their processes, for example, to determine what percent of recyclable materials are going into their products or understanding carbon impact of every component within a new product. So this level of visibility, this level of insight, it's not possible without technology. Technology's really essential. And to accelerate the innovation, industrialization, really, the adoption of new sustainability technologies, we are partnering with two of our most established and leading platform partners in Salesforce and SAP. You're going to hear Emma talk about that a little bit later. We're also working to expand the sustainability technology ecosystem environment that we work in. In SAP, for example, we've screened more than 200 startups and incubated 13 of them so far. And in FY '22, we're going to be looking to launch 4 more. -Wow, that's cool. I love that. Okay, so now what about sustainability in technology? Do you have a good example of that? -Yeah, absolutely. So for sustainability in technology, we know that unless managed properly, technology can be wasteful in and of itself. For example, as consumers, we're all fascinated by the latest gadgets, but that can promote a throwaway culture. To combat this, Accenture, our own CIO organization, who manages literally hundreds of thousands of devices around the world, they ensure that 99% of our hardware, laptops, desktops, they're responsibly disposed of through an e-Steward program. So that's one example. Another example of sustainability in technology is one of our other strategic partners, Microsoft. Microsoft really, they have an extraordinary sustainability commitment and story, and that is, they've committed to being net-carbon neutral. Since 2012, they have been. And what's even more remarkable is that all of their data centers, 100% renewable energy by 2025, which is quite an ambition. And they're going to do that by going to clean sources of power like wind and solar. The other really remarkable thing about Microsoft, to stay there just for a moment, is their commitment to this carbon-neutral ambition. It's not only going forward, but they're going to retroactively pay for an offset going back to when Bill Gates founded the company. So if you think about that, this is going to cost them billions, but they're willing to do that to erase their carbon footprint all the way back to the point where Microsoft was founded. So finally, we jointly founded with Microsoft and a group of others the Green Software Foundation to help grow the field of software engineering, contribute to standards for the industry, and to work to reduce the carbon emissions of software as a whole. -Wow, I love that commitment by Microsoft. That is commitment to sustainability on a tremendous scale. And I think, we think about every day the little things we can do as individuals like shutting down your laptop over the weekend. The amount of carbon emissions like that, it makes a huge impact alone. But when you see these big companies stepping up and taking those tremendous steps, that is really impressive. So I love those examples of sustainability in technology. So Stephanie, can you provide us an example of sustainability by technology? -Yes, I

definitely can, Sarah. Technology can be used to improve sustainability, which enables more responsible businesses, and I will use Accenture as a credential to kind of bring this to life. So energy consumption in Accenture-leased offices, it's our second highest source of greenhouse gas emissions. While 95% of our Accenture applications and services are in the cloud, we have small-scale data centers running 24 hours a day, and those are still operated within a few Accenture offices. But to improve energy measurement and cooling efficiency across our offices, our CIO supports a vast number of smart meters measuring real-time energy consumption and developing insights to further reduce energy consumption. The meters help us gain insights into our energy use and how to reduce it. -And I will say, I love these examples of CIO. Being part of CIO, I promise I didn't pay anyone to use those as examples, but I do think we have a tremendous internal credential when we think about the way we're doing and thinking about sustainability. So thanks for bringing those CIO examples in.

myNav Green Cloud Advisor

Okay, Kishore, let's bring you into the conversation. So we've talked a lot about myNav and the TQ HQ. We love myNav. And the Green Cloud Advisor we've talked about before, but I'm going to imagine that this is a big part of our sustainability agenda and how we help our clients operate in a more efficient and environmentally conscious manner. So can you talk to us a little bit about that? -Yes, Sarah. MyNav Green Cloud helps companies design cloud solutions that reduce carbon emissions and also lays a foundation for responsible innovation. Firstly, Green Cloud Advisor establishes a baseline of the existing data center and energy consumption. It does the computing of the requirements that are needed and the sustainability goals of the organization. And then we have a bunch of proprietary algorithms that quantify the greenness of the potential cloud solution and options and based on the range of information---we look at cloud service providers, carbon emissions, we look at location, we look at energy sources, and the readiness to transition to a cleaner energy source. Now, research from Accenture has found that shifting from on-premises data centers, and Sanjay just talked about it as well, to the public cloud can reduce an enterprise's energy usage by 65% and cut carbon emissions by more than 84%. Migrating existing workloads to a public cloud reduces global CO₂ emissions by nearly 60 million tons annually. You'll ask me, so what is 60 million tons? I'll tell you. It's equal into taking 22 million gasoline-powered cars off the road. Now, how does it help our clients? I'll give you an example. Canada Mortgage and Housing Corporation, it's Canada's national housing agency, and has dramatically reduced the carbon footprint of its IT operations. Now, CMHC, which is the Canada Mortgage and Housing Corporation, has undertaken, with Accenture, a major IT transformation, including transition to the cloud, and that has resulted in reduction of its IT-related CO₂ emissions by more than 80%. That is myNav Green Cloud Advisor for you. -That's amazing. Obviously we've talked a lot on the TQ HQ about what it means to go to the cloud and the business transformation and value you can get out of it, but the sustainability, that is amazing. I don't feel like we've talked about that a lot. So to hear the sustainability targets that you can reach, and those are great numbers that you're giving as an example there.

Sustainability not just for IT!

Look, it's great to be back, Sarah, and especially on a topic that's so near and dear to my heart. So as most everybody knows, I'm putting in a green source heat pump, and I was thinking of doing this straight from my greenhouse, but I thought that was probably going to be too much because I don't have a hardwire in there. It's Wi-Fi. Anyway, look, before we get into the example around myNav green advisor, I just want to talk about this more broadly because as a DCAL and talking to clients day in, day out, this is actually top of mind. And it's top of mind regardless of who you are talking to. So if you're with the CFOs, then they're sitting there going, oh, my God, I'm moving from being the bean counter to now also needing to be the carbon counter, and I'll let you guys I'll make a joke of that. The fact of the matter is that this is really important because now they are being judged on their ESG performances. And so that ties into all the work we're doing around SAP and sustainability reporting and our ability to actually give insight and analytics, not just for the financial performance, but for carbon, biodiversity, water, energy usage, etc. So that's a big one. Procurement officials. Kris Timmermans tells the story of walking into the meeting with the CPO of Solvay, a specialty chemical company, and their CEO, and literally modeling directly off the data what their exposure risk was to child labor in their supply chain. And so this is like another important reputational issue. Right at the beginning, Peter talked about the 17 SDG goals, and they cover a whole wide range of aspects of what it really means to be able to do that one planet thing Sanjay was talking about. Supply chain, logistics, warehousing, it's a massive---we talk about the different, carbon Stage 1, Stage 2, Stage 3, well, Stage 2 is all about what it takes to get your product out to your market, and the reality is our supply chain practice is working really hard to say, how do you optimize the way that your trucks, your fleet works so that you are actually minimizing it? We're working with my client Anglo American on how do they get rid of the combustion engine, full stop, in order to actually reduce their diesel footprint. So this is a big area. Employee, I mean, Peter in the preshow, for those of you paid attention, talked about employees who are walking out because they don't think the companies they're working for are really being sustainable enough. And then there's us customers, and all the surveys we've done say---and if you then say people will choose a product that they think is truly green or sustainable. And for those of you who say, oh, yeah, Rachael, it's dead easy to say that on a survey, when you actually do an analysis, because Peter's team's done this, of consumer goods companies to see which are their fastest-growing product ranges, guess what? It's the ones that have a greener footprint. But then you should also send him an email about Unilever, and I think it's Marmite, because they're struggling to make Marmite sustainable. And they did actually think of getting rid of it, but I think that caused such an uproar, it wasn't going to work. So in summary, the reality is it's not just the CIO; it's every part of the organization that is actually grappling with this. And this whole idea that Peter mentioned of sustainability in the core is really crucial. And what's so exciting is we all can be having this conversation. This is a conversation we can all be having at all levels in an organization. This isn't just stuff for the CEO; this is stuff for everybody around the patch. And so I encourage you all to get more familiar. Now what we did specifically for one of our mining clients was, we actually---they have a big commitment to sustainability and mining's been on this path a lot longer than a lot of the other industries have been, and basically, what they did is, as we were looking at their entire green cloud, we did a whole assessment of how they were using the cloud within their workforce, within their production

systems, how they were doing the ORP body processing and everything. And we actually used it, not just to do a massive cost-reduction exercise, but we actually significantly reduced their CO₂ footprint. And for them, that is---they actually have a stated aim, like most of the mining companies, of being carbon neutral either by 2040 or 2050, and the reality is this was a huge marker for them to move forward. And also, because it wasn't just playing into IT; it was playing into operations technology, and for a mining company, group IM, SAP, and all that stuff is a tiny part of their technology footprint. The lion's share of it is actually in their operation technology. And so by integrating this approach using the tools that we have, we actually---I think it was a 5000-ton reduction in carbon. So really significant for them. Now what's really exciting is all of you, because all of you, well, I suppose most of you are working on account and working for clients, and those of you aren't get out there pretty damn quickly, we need you, you can actually get the carbon footprint for your account calculated. So we did that for Anglo American, and we came back to Anglo and said, look, this is the current carbon footprint that Accenture generates for all the work that we do working for you, and we are now working out how to actually get that to net zero so we can be a zero-carbon supplier to Anglo American. So anyway, I will shut up at this point and hand back to you Sarah. But to everybody listening, you know what, we all need to step up. There is only one planet. There is only one for now, despite what Elon Musk and Jeff Bezos are trying to do. -Yeah, exactly, we still have one earth. We have one earth we have to take care of. But Rachael, what I loved about that is you highlighted that no matter what you're doing, whether you're in technology, finance, procurement, sales, supply chain, it doesn't matter. There is something you need to be doing and thinking about as it relates to sustainability. And I love the idea of measuring our sustainability at the account level. There's nothing more that Accenture loves than a little competition to see who can be more sustainable, so that is an awesome idea. So thanks, Rachael, thank you for bringing that to life.

Our ecosystem partners

Well, Emma, it's great to have you back too. You're a frequent guest here, and you're going to tell us a little bit more about how we're partnering with some of our IPS partners in sustainability. So I know there's great things that we're doing, we already talked about Microsoft, but there's great things that were also doing with Salesforce. So can you tell us a little bit about that? -Thank you. I'm delighted to be back at TQ HQ. For anybody who doesn't know Salesforce, they're an American cloud-based software company. And you're probably familiar with a lot of the work they do in the CRM space, but they also extend into marketing automation, analytics, and app development. We've been working with Salesforce to really expand our partnership to help companies really embed sustainability into their businesses, focusing on providing the C-suite with visibility into their company's historical and their real-time environmental, social, and governance. It's that EXG data again. -Thank you for talking about that and telling us a little bit more about Salesforce. That's a really powerful example. And I know we've already talked a little bit about SAP, but I think there's something more there in our partnership with SAP. Can you maybe dive into that a little bit more for us? -We as Accenture are SAP's most strategic partner, and that's what allows us to go develop these solutions with our ecosystem partners. And we've been working

with SAP for many, many months now, driving those SDG ambitions together with the UN and with 3M, and we're jointly running workshops with over 600 companies around the world. We're co-innovating in sustainability and how we can embed it into the ERP system. We have to work to make sure that our tools measure sustainability in the way those ERP solutions come to life, how those cloud systems come to life. And it's so important when you think about the information that the CFO needs to really be able to deliver to the boards of our clients of those organizations. But also working down the organization, we need to be able to measure the impact through supply chain operations. We need to think about it to Sanjay's point around IT and IT procurement. All of these different peoples, and these are just a small number of examples, they need to be able to have the tools to really make sure that the choices they're making, whether it's the design, whether it's the suppliers, whatever it is, they're driving that sustainability outcome. So you can think about this as retooling the organizations but embedding it into those enterprise platforms so that we can make sustainability a---let's say the sustainability ledger is as core of the business as the financial ledger, and we can really understand how they relate to each other. The other thing I'm really excited about the work we're doing with SAP though is the way we are accelerating the development of the SAP responsible production and design software, and that's such a core element of the circular economy that we were talking about earlier on in this session. -Okay, well, it's clear, both of those are great examples, Emma, sustainability is not just on our radar, but it's clearly on the radar of all of the biggest tech companies, all of our partners. And it's great to see that we're out in front helping to save the planet literally and working closely with these partners. That is a very powerful example. Peter, don't you think that is just amazing the work we're doing with those partners? -I think it's incredible, Sarah. We've heard so many wonderful stories already on the TQ Aftershow. But I think the ecosystem partnerships that we've put together are only the beginning, but they're so fundamental to not only Accenture's business, more than 40% of our global revenue comes from our partnerships, but also fundamentally how we want to work to support our clients through collaboration, through those partnerships, through innovating and co-innovating.

A client story

Accenture's one of more than 400 companies who on that note have joined the UN Global Compact's business ambition for 1.5° pledge, promising to do our part to keep global warming below 1.5°, and Stephanie covered a number of things that we're doing as an organization through CIO. But only one area, being CIO, we're doing it right across the board as we think about facilities, as we think about our procurement, as we think about our fleets. And we're excused putting a science-based target against that, and that's incredibly important. As sustainability is maturing, as we've talked about a number of times today, people are being held accountable, Rachael talked to this point, and they're going to be held accountable for both their ESG performance and their sustainability performance. We are creating sustainability ledger in the global economy alongside financial ledger, and that's how investors are looking at companies. That's how we need to look at our clients and help them, and that's really where I think also our ecosystem partners come in, being able to measure and understand the value at different levels, from the CEO to someone in procurement buying pencils who can't just

do cost, quality, and availability anymore, now needs to add sustainability to be able to make the right decisions in the right place. For us specifically, we're aiming to be net zero by 2025. We set that out in Davos, Julie, myself, a number of the GMC, and that was at the time the industry leading target. I'm very pleased to say it's no longer that we're out there alone. Others are now following our lead, and that's what we want. We want the whole industry to move, but we like being a little bit ahead. -Yeah, we always like to be first, but everyone should be right behind us. And that's a big goal. -Wait, hold on, Sarah. You need to hold Peter's feet to the fire here. Because, so Peter, when are we going to go do the retroactive thing like Microsoft did? Come on. -That one, I had my first session with the board the other day at Julie's request. That one we'll have to talk about. But what I will tell you is that we are already on track, and in fact, that we're ahead of on track on our net zero target, the one we've set so far not, the one that Rachael's holding my feet to the fire on, next, but I'm not ruling it out. -So we've been talking about conservation, we've been talking about technology, I think those seem to be two of the big themes to help us reach our goals. And when we think about technology to help to address the situation, I think on every TQ HQ we end up talking about AI, Cloud, automation and how those come into play, so my guess is those three also come into play when we think about sustainability. We talked a little bit about Cloud. But Stephanie, maybe you can give us an example of how are we doing this with AI, automation, and Cloud. -Yeah, I'll give you an example. In fact, it's my favorite credential. It's Metro de Madrid. It's an artificial intelligence credential. It's on our website. I use it regularly with clients, and I hope that everyone's using it with clients. So I'll give you a bit of context. Metro de Madrid is the seventh largest metro system in the world. It's in Madrid, so it operates in a hot climate; therefore, they consume a ton of energy to keep customers cool. The client approached us to help them develop an efficient new ventilation system that would reduce consumption while still maintaining comfort. Accenture worked with Metro de Madrid to leverage artificial intelligence and machine learning to optimize the connections between a number of inputs, including temperature, customer load, maintenance schedules, hourly energy prices, train frequency, and many other variables. This project helped the client slash their energy costs by 25% and reduce CO₂ emissions by roughly the same percentage. It's quite an impressive case, and I really hope everyone at Accenture's using this with their clients, Sarah. -Yeah, we were talking a lot about what we're doing in Accenture, but these stories of what we're also helping our clients do, that's an amazing story and thinking about the impact that we have on the world through not only our work, but what we're doing to enable our clients. So thanks, Stephanie, that was a great example.

Key takeaways

Before we end the show, I always like to give everyone one last chance. If you can give me one key takeaway, and I know you're all going to try and squeeze in like two or three, but I'm going to try and hold you to one key takeaway about sustainability and technology. So Sanjay, let's start with you. -Well, for me it's what we call sustainability by design, and sustainability, therefore, is everyone's focus. Whoever you are, it's not restricted to the sustainability organization. Bring sustainability in every client conversation, in every piece of code you write. That would be my key takeaway. -Love it. Stephanie, how about you? -It's really simple. Take everything that was

heard here and share it with your clients, because we are in the front, and every time I talk to our clients about sustainability, every credential that I take, at the moment it's new. So talk to them, help them solve their problems, bring Accenture to them as their advisor. -Okay, sounds awesome. Casper, how about you? -Yeah, so I'm going to complement what Sanjay said. And when we're thinking about sustainability by technology, we can start today. All of the processes that our clients need to think about can start to have sustainability in mind, as Rachael was talking about, across supply chain, procurement, finance, logistics. Start to think about redesigning those business processes to be enabled by technology, by technology as our platform partners and other technology platforms evolve. -Get started today. I love it. Kishore, how about you? -So myNav Green Cloud Advisor delivers 85% carbon CO₂ emissions saving from your data center today, and it's delivering to a lot of our clients. Talk to your clients about the myNav Green Cloud Advisor. -That was a little commercial, Kishore. I loved it. All right, Emma, about you, one key takeaway? -The thing I would say is, we can't do this on our own. We need to do this as a, this is a team sport. Whether we're working with each other, whether we're working with our partners, whether we're working with our clients, we need to bring ecosystem solutions together, and then we can together change the world. -Great, I love that one. -Okay, Rachael, you can only have one. Give us your one big key takeaway. -It's up to us. There's no other planet. There are no aliens about to arrive to save us. It's up to us. Each action counts, at your clients, personally, with your kids, with your parents, with your dogs, it all counts. Start counting, start doing. -Do it, all right. And Peter, how about you? -It starts with us today; I think is a good paraphrase of what others have been saying. It starts with us today. Sustainability is the new digital. Digital and sustainability are the new competitiveness. -I love it. Peter, I'm going to give you one last chance. We're at the end. Anything else you want to sum up? I love that last point you made, but anything else you wanted to say? -Well, for me this is arguably the greatest opportunity we're going to have as a business over the next decade, over and above what we already do. We have spent the last 20 years the most extraordinary exercise in value creation for our clients, for our people, for our shareholders, for other stakeholders. Now it's time for us to step up to add sustainability to that. We have the power at Accenture, genuinely, while being humble about it, to change the way the world lives, works, and plays. That was our old strapline. I love our new philosophy of taking the world's toughest problems and applying human ingenuity and technology to them. What greater innovation roadmap for us with our clients and our partners than these 17 SDGs behind me? And these, for those of you don't know, are climate warming stripes that show the preindustrial revolution right now in climate change, and really highlight the need for a 1.5° or less world. What greater innovation roadmap do we need? We've never had an industrial revolution mapped out so clearly ahead of us on what's required. And what is required is technology and business know-how and human ingenuity, and blend sustainability into the heart of that, and you've got a very, very optimistic, auspicious future for us and a contribution to changing the way the world lives and works. -Wow, those are the best points to end on. I think we all know what we need to go forward and do. So thank you, Peter, for cohosting the sustainability Aftershow with me. This has been a tremendous show. And really, thank you to all of our guests who joined us today. I love the examples you brought to life and the experience and the passion that you have for this topic, so thank you. And thank you to everyone for watching. That is a wrap for our sustainability Aftershow. But remember, head on over to the TQ home page where you can

get a lot more information. You can get content on case studies, credentials, I think Stephanie made that point. Make sure you can talk about sustainability and you can bring this story to your clients. We'll catch up soon at the TQ HQ on our next topic, but until then, happy learning. 🎵 TQ, where would I be without you? TQ, what would I do without you? I always feel like I have my head up in the clouds. Now I store my data there. My applications are running wild. 🎵

Course author



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