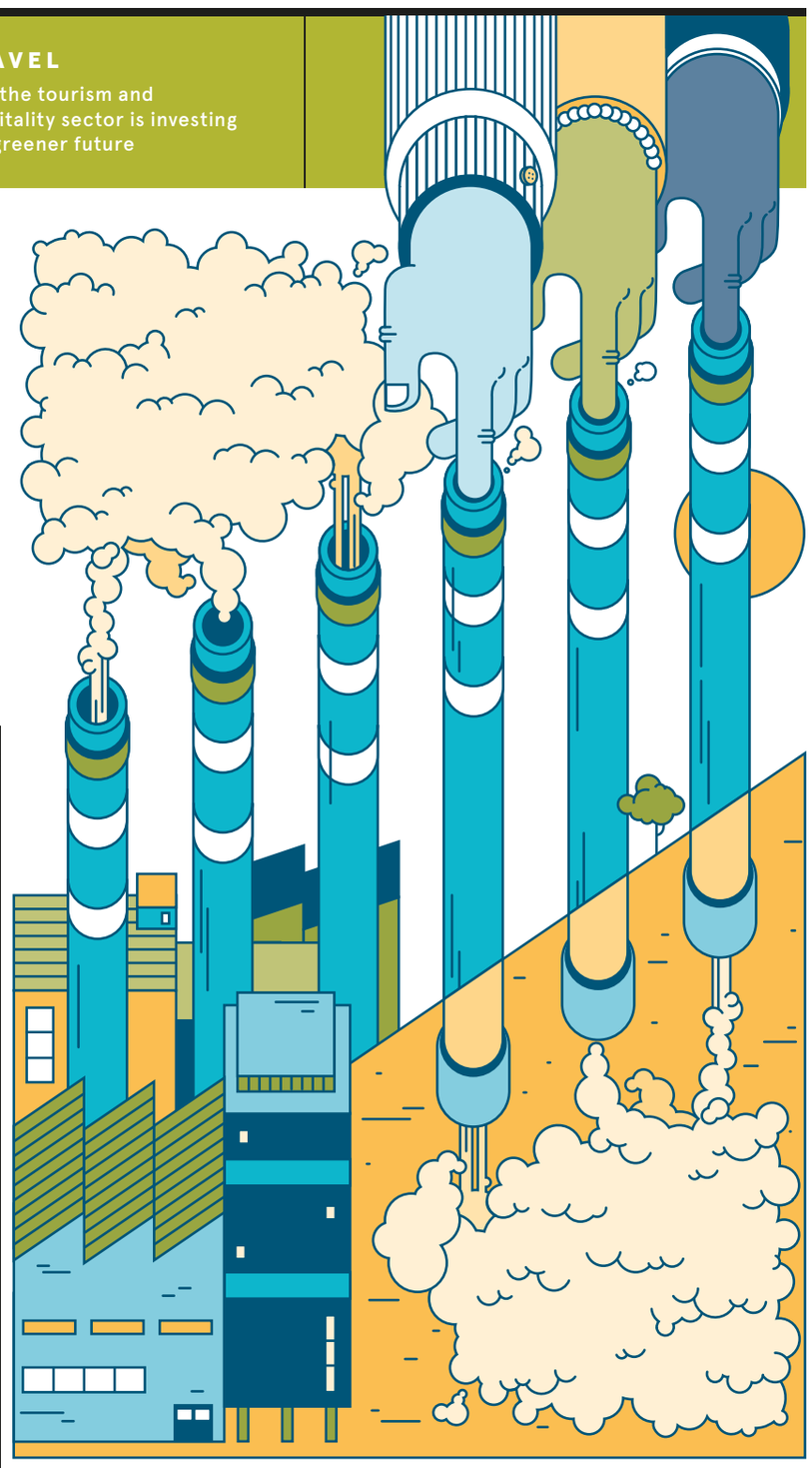
SUSTAINABLE INNOVATION



CARBON CAPTURE

To have and to hold

In the run-up to the UN climate summit in Glasgow, carbon capture and storage is emerging as a crucial technology in the effort to arrest global warming

Peter Archer

After a slow start, the UK is set to accelerate its carbon-capture initiatives, with the government aiming to position itself as a world leader in this field by as soon as November, when the UN is due to hold its COP26 climate conference in Glasgow.

The plan includes growing more trees; restoring peatlands, which are big absorbers of CO_2; and developing technologies such as carbon capture and storage (CCS).

Expert groups such as the Climate Change Committee, an independent public body that advises the government, concur that the world will not hit its net-zero targets for carbon emissions without the help of CCS.

"The committee has consistently stressed the importance of CCS in achieving net zero," says Tom Dooks, communications officer at the Climate Change Committee. "For industries such as cement production, it's the only viable technology for reducing emissions to the extent that's required. All credible pathways through which the UK could reach net zero domestically involve a significant role for CCS, especially for greenhouse gas removal, to help offset some of the emissions from those sectors where abatement will be most difficult."

The technology can be used to extract CO_2 from industrial processes or directly from the air and transport it to be stored deep underground, where it cannot contribute to global warming.

"CCS potentially has a big role to play in several applications by 2050," Dooks says. "These could include the removal of greenhouse gases, the production of hydrogen and the generation of power. While global progress has been slow, there are now 43 large-scale projects in operation or under development around the world."

The UK has CCS projects at the planning stage. These will be based on the Humber estuary and along Scotland's North Sea coast. Shell has started working in the latter location with the Storegga Group and Harbour Energy on the Acorn Project. This will initially capture CO_2 from industrial sites in Scotland and store it deep under the seabed. Any gas that isn't stored could be used in the manufacture of plastics, fertilisers, fuels and even fizzy drinks.

> **The use of renewable energy sources on its own won't get us to net zero, which is why we need carbon capture**

Sinead Lynch, Shell's country chair in the UK, believes that CCS will be "vital" in tackling climate change, stressing that the technology enables a producer of fossil fuels to be part of the solution by reducing or offsetting carbon emissions when these cannot be avoided.

"CCS is not an option but a necessity to address climate change," she says. "We do need to ramp up investments in this technology. There is no doubt that the scale required ranges from large to huge. The use of renewable energy sources on its own won't get us to net zero, which is why we need carbon capture."

Dooks notes that achieving carbon neutrality will "require new infrastructure to be built. This must be a partnership between government and business. CCS can benefit the national economy, especially by levelling up areas across the country. The government will need to lead on infrastructure development and offer long-term contracts to encourage investment in carbon-capture plants."

For instance, the government has provided £250,000 in funding for Sizewell C, the planned nuclear power station on the Suffolk coast, to develop technology that will remove CO_2 directly from the atmosphere once the plant is up and running as expected in 10 years' time. The project is being developed by a consortium including CCS experts from the University of Nottingham, Atkins, Strata Technology and Doosan Babcock.

Professor Colin Snape, director of the university's Energy Technologies Research Institute, believes that the use of CCS in the UK will focus on heavy industries and the production of gas – if gas remains a significant part of the country's energy mix.

"CCS has to feature on the agenda at COP26," he says. "If gas does stay in the mix, it will need to be decarbonised. But industrial processes emit huge amounts of CO_2 as well, so CCS could be playing a significant role in those by 2040."

Snape adds that the main problem with CCS projects is that they are "huge, requiring a lot of money up front to build the plant and pipeline". But he suggests that it should be possible for industrial clusters to pool their resources and share infrastructure.

Dooks agrees. "Developing regional CCS clusters will be the first step," he says. "To enable that, there will need to be appropriate incentives – and the government is working on a series of them to support different parts of the chain."

The first of these, known as the CCS transport and storage regulatory investment model, will fund the development of shared infrastructure, Dooks explains.

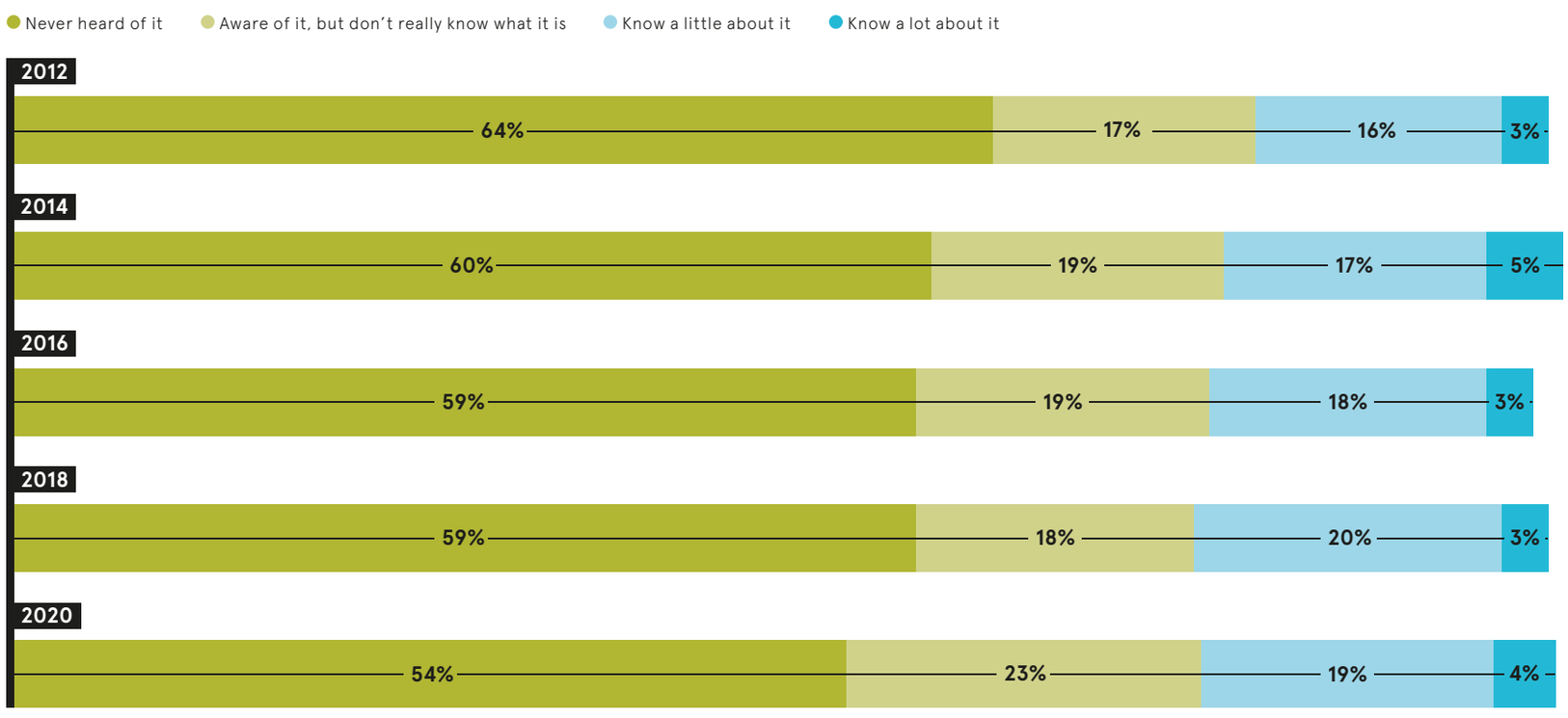
"There will also be a series of business models to support CO_2 capture from different sources: industrial, power generation and hydrogen production," he says. "Such incentive models will need to be finalised and contracts awarded before companies can make their final investment decisions and get started on any construction work. The government recently took its first step towards awarding these with an 'expression of interest'."

Although it has yet to activate a single CCS facility, the UK is already sharing technical knowledge with a number of countries and also the EU, according to the Climate Change Committee. Its activities include: leading an international working group to expedite the deployment of CCS; participating in Mission Innovation, a global R&D initiative focusing on clean energy; and collaborating, via the UK CCS Research Centre, with equivalent groups in Australia, Canada, China, the Netherlands, South Korea and the US.

"COP26 will oblige the UK to demonstrate its credibility to the world, but it can be the chance to lead the world towards net zero," Dooks says. "This will require many technologies – including CCS – to be discussed and knowledge to be shared."

AWARENESS OF CARBON CAPTURE REMAINS LOW IN THE UK

The percentages of Britons who answered in the following ways to the question: how much, if anything, do you know about carbon capture and storage?
(Owing to rounding, numbers may not add up to 100)



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Commercial feature

How to build trust in sustainable innovation

Innovations aimed at reducing carbon emissions are increasing rapidly – from lab-grown meat and edible packaging to smog vacuums. However, there's an increasing deficit of consumer trust globally and that's where new innovations, standards and marks of trust, such as the BSI Kitemark™ certification, are essential for building public confidence in products, services and organisations

Many countries are a long way off meeting their Paris Agreement target of limiting global warming to 1.5 degrees. As November's UN Climate Change Conference (COP 26) gets closer, most are looking at ways to accelerate sustainable innovation and find new ways to meet the goal.

The last year has shown the speed with which consumer sentiment can change on sustainability impacts, from environmental damage to social inequality.

Wide-ranging factors — from Covid-19 to the effect of campaigners Greta Thunberg and David Attenborough — have accelerated people's readiness to protest against organisations that do not demonstrate sustainable practices.

Organisations need to be part of the race to innovate in order to remain both sustainable and resilient for the long-term while helping to meet environmental regeneration targets.

Likewise, they need to build trust by proving that their innovations genuinely promote sustainability – rather than adding to the challenge.

> **Organisations need to be part of the race to innovate in order to remain both sustainable and resilient**

Transparency is trust

Sustainability standards and certification schemes, such as those provided by BSI (British Standards Institution), use rigorous assessments and testing to help build trust in sustainability initiatives.

Dan Purtell, group innovation director at BSI, says, "Organisations need to inspire trust by demonstrating that their products, services and processes are built sustainably — and back those claims. They need to tell their sustainability story in a way that is transparent and allows independent and immediate verification."

He adds, "At BSI we innovate around our purpose of trust, sustainability and resilience. Our solutions are designed to automate trust mechanisms and make it easy for a consumer to validate product or organisational sustainability claims."

BSI offers a range of best practice measures in this area, such as the publicly available specification (PAS) 2060 standard for demonstrating carbon neutrality. This is relevant to organisations of any size who wishes to demonstrate its sustainability credentials – from aerospace to construction.

Recognising the importance of pioneering developments to sustainability goals, BSI also provides an Innovation Management Kitemark that certifies a company's credentials in this field and helps them realise return on investment.

"Markets are experiencing a convergence of concern around sustainability, security and social issues. These standards and certifications are instrumental in helping organisations with their sustainability journey. Transparency is trust and corporations that adopt the UN's Sustainable Development Goals understand this well. They are adopting new ways to demonstrate their commitment to the environment," said Purtell. "You manage what you can measure, so standards will play a key role in underpinning sustainability efforts in the lead up to COP26."

To match companies' sustainability aims, BSI's standards also align with two of the most broadly used frameworks — the UN's Sustainable Development Goals, and the Task Force on Climate-related Financial Disclosures (TCFD).

Riding the crest of innovation

BSI has been innovating in the field of standardisation since its launch in 1901. Recently, its focus has been on bringing certification to clients through disruptive technologies, such as digital assurance, which focuses on the next generation of auditing and consulting solutions.

"Instead of flying consultants or auditors around the globe for every assessment, we now have a range of immersive technologies that allow us to audit online, and via smart wearables, for example," says Purtell. "We also use other technologies to provide assessments, training and certification, such as light detection and ranging (LiDAR), drones and interactive drone maps."

Beyond certification

BSI is also moving beyond traditional certification to help clients meet their sustainability objectives through innovative measurement, assessment, analytics and solutions.

"Our assessment and certification work creates a wealth of data available in real-time that is extremely valuable to our clients. This enables BSI analytics to support organisations with other sustainability goals, such as reducing waste in their product cycle. Typical examples are helping a syringe manufacturer reduce single-use plastics or a delivery service optimise its cardboard packaging."

The wealth of data also allows the organisation to provide predictive analytics, identifying where a company is likely to experience waste, security or quality issues, for example.

BSI has taken this further by introducing predictive modelling of weather and air quality over the next 15 years. This helps it forecast where environmental changes could disrupt supply chains, create foreseeable sourcing challenges and suggest mitigation strategies.

"By using multiple climate and environmental data variables, we can forecast and provide actionable information on TCFD targets, asset risk and supply chain exposures," says Purtell.

Blockchain and supply chain transparency

Another innovation at BSI has been to adopt blockchain technology to help organisations see the full custody chain of a product – origins, traceability and even product authenticity and thereby build trust in their supply chains.

Purtell says: "We're committed to providing a full suite of solutions that inspire consumer trust. Using blockchain technology allows companies to verify any false certification claims and fake products in supply chains."

Reflecting on its own approach to sustainable development, Purtell says. "We're committed to making a difference to people, society, and the planet, and sustainable innovation is helping us do just that."

"This matters because our employees want to work for an organisation where they feel connected to the purpose, know what they do is meaningful and positively impacts the world. And this matters to our clients too, as they want to know that they're working with a responsible organisation" says Purtell. "We're committed to ensuring our knowledge and work make a difference and provide meaning to all who work for and partner with us."

For more information please visit bsigroup.com/innovation

bsi.

CIRCULAR ECONOMY

Phoning it in

As mountains of electronic waste pile up, will consumer tech manufacturers ever embrace the circular economy and use more recycled material if they aren't legally obliged to do so?

Stanislaw Pytel via Gettyimages

Sam Haddad

The giants of consumer tech have prospered during the pandemic, with Apple and Samsung in particular announcing yet more gargantuan sales figures. But another set of numbers provides an altogether more sobering read: the sector generated a record 53.6 million tonnes of electronic waste in 2019 – up 21% on 2014's total – according to research published last year by the Global E-Waste Statistics Partnership.

E-waste has become the world's fastest-growing domestic waste stream – a problem that has been compounded by increasing consumption, shortening product lifespans and limited repair options, as anyone who's tried to get an old laptop fixed will know only too well. Less than 20% of e-waste is collected and recycled, leaving the rest, much of which contains toxic chemicals, destined for burial or incineration.

The environmental impact of e-waste stretches far beyond the toxicity of its components. "In 2020, more than 100 billion tonnes of raw materials were extracted from the earth – the most ever," says Otto De Bont, CEO of Renewi, a waste management company operating mainly in the UK and Benelux.

The first goal of Renewi's five-year sustainability strategy is to "enable the circular economy". To this end, De Bont explains that there needs to be a dramatic improvement in the recovery of previously used material, such that far more of this can be converted into secondary raw material for new products. He points to recent research published by a Dutch social enterprise called Circle Economy.

"According to its *Circularity Gap Report 2021*, if the circular economy were to be enacted globally, it would be possible to close the emissions gap and slow global warming. Today the world is 8.6% 'circular'. But, if governments, industry and other key players were to embrace the circular economy and recycling, as opposed to allowing the incineration or disposal of used material into landfill, they could push the figure up to 17% by 2032."

But getting the consumer tech industry to cooperate in such an effort will be no mean feat. So says Christian Rudolph, a partner at codify Group, a Berlin-based innovation consultancy whose clients include Philips and Fairphone.

"The circular economy needs a high level of transparency in the supply chain, but tech companies aren't always fully aware of what's happening throughout their supply chains," he explains. "Anything that occurs in their own plants is quite transparent, but it's far less so when you're talking about a supplier of a supplier. An average mobile phone comprises 250 materials, so it's simply not viable for those companies to dig that deep into their supply chains."

Rudolph adds that their supply chains rarely feature the logistical systems that would aid the reuse of materials. "When you aren't planning these into your designs, you really decrease the probability that your product will be recycled," he says.

According to Rudolph, consumer tech manufacturers need to think more about "precycling". This means taking recycling requirements into account at the design stage and embracing key concepts of the circular economy, such as reducing the number of materials in their products to make these easier to recycle.

Rudolph acknowledges that some firms are starting to take circularity more seriously, although that's not because they're worried about the PR risks posed by their contribution to the e-waste mountain.

"The impact of customer scrutiny is limited," he says. "If we look at recent scandals in the tech industry, they have a very short shelf life – everything tends to return to normal after a couple of weeks."

They are more concerned about the price volatility of raw materials and want to mitigate that risk, according to Rudolph, but so far they are only touching on "the outer rings of the circular economy. In essence, they are building their phones as they always did, but now they have buy-back systems in place, so that you can return your old handset for scrap. Yet they're not using those materials to produce new phones."

> **The time has come for producers to move towards recycling as the starting point of the development process for their new products**

One mobile phone producer that's way ahead of the pack in the circularity stakes is Fairphone, a social enterprise established in Amsterdam in 2013 to make handsets with a lower environmental impact. The company has created a modular, repairable phone that has parts, such as the battery, that can easily be replaced. A certified B Corporation, the firm is also on a mission to ensure fair conditions for those working throughout its supply chain, as unethical employment practices are particularly common in the mineral extraction sector.

It has not all been plain sailing for the company. It struggled when negotiating deals with mobile operators, while its first two models were significantly more costly than their mainstream equivalents. But in August 2019 *Wired* deemed the Fairphone 3+, which is made from 40% recycled plastic and available on Vodafone's network in the UK, a potential "breakthrough product".

Rudolph thinks that it would help the company to think first and foremost about making a great product. "It can be circular on the back end, but on the front end it needs to look very compelling to the consumer," he argues. "Its quality should be at least comparable, but maybe even superior, to that of linear products."

Even if Fairphone can't yet compete on quite the same level as the smartphone giants, it is playing an important role by showing what level of sustainability can be achieved in its industry, thereby prompting conversations about circularity among businesses and consumers.

For De Bont, whose company provides recycled plastics through its Coolrec subsidiary, the only way to prompt consumer tech firms to adopt a circular approach is legal compulsion.

"Although consumers are open to sending their electronic waste for recycling, manufacturers are less inclined to draw on that material when making new products," he says. "To ensure that electronic goods are created using a mix of primary raw materials and secondary materials, it is important for governments to introduce legislation requiring manufacturers to do so. Governments also need to help align the prices of high-specification secondary raw materials with those of primary raw materials. The time has come for producers to move towards recycling as the starting point of the development process for their new products. Currently, it's the final stage, making the e-technology more difficult to process."

De Bont continues: "The European Parliament has introduced legislation across the EU, but member states' governments can interpret this individually, making the 'end of waste criteria' different from country to country. Consistency in regulation is required if we're to move towards the circular economy."

8.6% The global economy is only 8.6% circular, leaving a massive 'circularity gap'

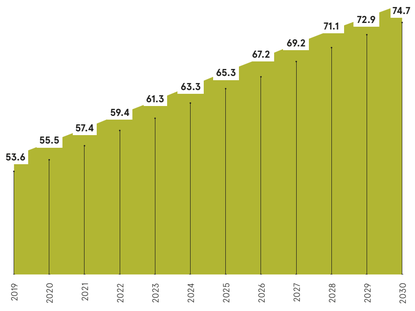
70% of greenhouse gas emissions are directly linked to material handling and use

100bn tonnes of materials are consumed every year

Circularity Gap Reporting Initiative, 2021

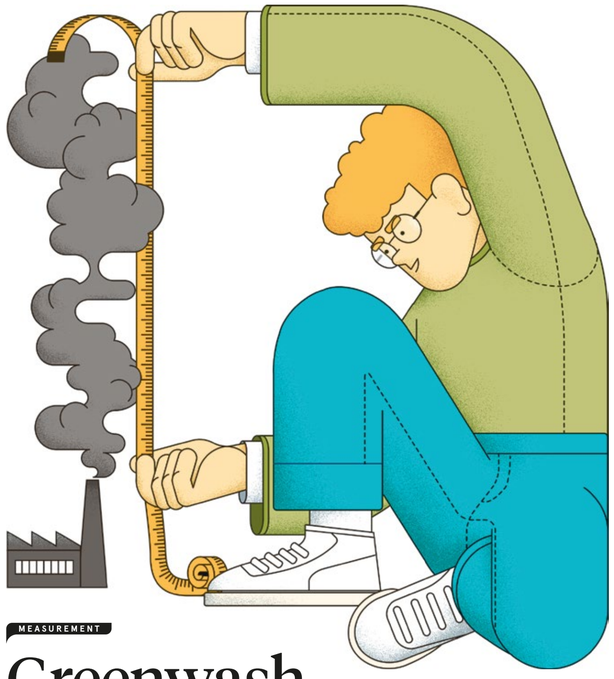
FROM TECH TO TRASH

Projected e-waste generation worldwide from 2019 to 2030 (million tonnes)



World Economic Forum, 2020

Commercial feature



MEASUREMENT

Greenwash gets the black flag

To win over an increasingly sceptical investment community, companies must state clear environmental goals, measure their progress using widely agreed benchmarks – and report candidly on their performance

Nick Easen

Filling their websites with sugar-coated words and pretty photos, businesses have found it easy to peddle the line that they're working tirelessly to deliver a greener, cleaner, more eco-friendly future. Indeed, a whole industry has grown up based on sustainability-speak. But today's vague commitments to do something tomorrow are no longer cutting it with investors and other stakeholders. They want to see more, in the shape of credible targets and meaningful data measuring progress towards these goals.

For this reason, calibration and transparency in climate accounting are becoming increasingly important. So says Dexter Galvin, global director of corporations and supply chains at CDP, a charity (better known by its former name, the Carbon Disclosure Project) that runs a reporting system designed to help enterprises manage their environmental impacts.

"Transparency is trust. It provides the essential foundation of accountability and verifiability," he declares. "In this way, disclosure is the antidote to greenwash. Only with clear, consistent and comparable disclosures can a company show its stakeholders that it's acting in line with its public commitments."

Created by the UN, CDP, the World Resources Institute (WRI) and the World Wide Fund for Nature six years ago, the Science Based Targets initiative applies stringent technical benchmarks to validate corporate environmental targets in line with those of the 2015 Paris agreement on global warming.

"Science Based Targets has introduced much-needed standardisation and rigour to the climate targets space," Galvin says. "But self-disclosure is the best the market currently has, because most companies still aren't required by law to disclose environmental information."

To date, nearly 1,500 of the world's biggest and best-known businesses have signed up to the initiative. But this is just the start. Much more innovation is needed, according to Lihuan Zhou, an associate at the WRI's Sustainable Finance Center.

"The financial markets don't yet have consistent and comparable information from all participants. Without this, investors may not be able to allocate their capital investments efficiently to support the economy in line with climate goals," he says. "Mandatory climate-related disclosure can potentially address this challenge and level the playing field."

The independent verification of corporate emissions data and other key environmental metrics is crucial, therefore, but not everyone around the world is on the same page when it comes to such issues.

Masja Zandbergen-Albers is head of sustainability integration at Robeco, a global asset management company based in Rotterdam. She says: "We don't need more standards; we need more transparency. European companies are fairly transparent on relevant issues, but we still lack a lot of information from those in other regions. In the biggest part of the market, even the more objective output measures, such as carbon data and water use, are still estimated. We would make great progress if more companies were to start reporting against any standard."

Although numerous global sustainability benchmarks exist, definitions of sustainability still differ in various parts of the world. Measuring environmental performance also costs money, as does independent verification.

"We do see many commitments, including our own, to achieving net-zero carbon emissions by 2050, but it remains very uncertain as to how we'll all get to that point," Zandbergen-Albers admits. "We are developing research into the extent to which different sectors need to decarbonise, what technologies will be needed and how well companies are prepared. But this is all still quite unclear."

The vast bulk of most companies' environmental impacts reside in the supply chain. Recent CDP research has found that supply-chain carbon emissions are, on average, 11 times higher than operational emissions. More information and innovative ways to generate data on suppliers from around the globe will therefore be crucial in the coming years.

Ray Dhirani, the World Wide Fund for Nature's UK head of sustainable finance, believes that progress is being made in this respect. "While it can be difficult to get the right information, this is changing rapidly with the advent of spatial data and other novel approaches, which better identify the risks related to assets on the ground," he says.

For instance, businesses are working with satellite imagery providers to verify that farmers in their supply chain are actually using the sustainable agricultural methods that they claim to be practising.

The Transition Pathway Initiative is a global scheme, created by investors for investors, that assesses how prepared companies are for the low-carbon economy. It is chaired by Adam Matthews, who is also chief responsible investment officer on the Church of England's pensions board.

> **Transparency is trust. It provides the essential foundation of accountability and verifiability**

He says: "It's becoming ever more complex, yet ever more critical, to build a shared understanding of what the global low-carbon transition looks like. We need to enable companies to innovate and advance while being held accountable for delivery through their disclosure."

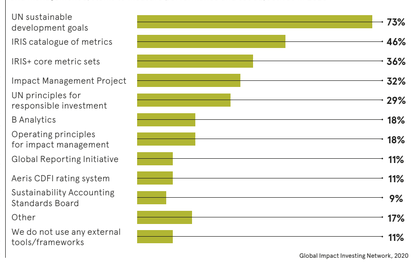
The appetite for sustainable investment has increased as a result of the Covid-19 pandemic, yet it is still early days. Some people can imagine a future where environmental, social and governance (ESG) reporting is as common, credible and clear as any other type of corporate disclosure.

The London Stock Exchange's head of sustainable finance for capital markets, Claire Dorrian, is one of them. "Companies need to treat sustainability reporting in the same way as they communicate their financial performance," she says. "They must give the market detailed information in publicly available annual reports."

Until that day happens, there is a lot to play for in the ESG reporting space, but the days of the glossy brochure filled with greenwash are, with any luck, numbered.

HOW WE MEASURE SUSTAINABLE PERFORMANCE

Percentage of impact investors worldwide who used the following impact measurement and management systems to measure performance and set objectives in 2020



Global Impact Investing Network, 2020

Powering the circular economy

Recycling waste and using more secondary raw materials holds the key to transitioning from a linear to a circular economy and driving the progress necessary to halting climate change

Solving the planet's climate emergency requires a transformational approach from governments to reinvent the very fundamentals of their economies. Traditionally, economies have been linear. Products are made from primary raw materials, used once and then discarded as waste. This deeply ingrained model, however, is preventing climate progress.

Greater volumes of raw materials are being used to feed consumer demand every year, with 2020 hitting a peak of 100 billion tonnes, emitting 59.1 billion tonnes of greenhouse gases along the way. The objectives of the Paris Climate Agreement, though ambitious in themselves, will only accomplish 15% of what's needed to slow global warming. The other 85% can only be accomplished by transitioning from a linear economy to a circular economy.

The circular economy has the power to shrink global greenhouse gas emissions by 39% and to cut virgin resources by 28%, according to the Circularity Gap Report published earlier this year. Following the philosophy of 'reduce, reuse, recycle', it's a vital weapon in the climate battle, but it requires governments to rethink the concept of waste.

"In a linear economy, the price of a product does not include the negative impact the product has on the environment," says Otto de Bont, CEO of Renewi, a leading waste-to-product company. "Products that are impossible to recycle are not necessarily priced higher than products that are easily recyclable because the price doesn't include the cost of disposal. That's where the issue is. There's no penalty for bringing non-recyclable products to market.

"A more circular economy requires new thinking. We need to design with a view that the item itself can be recycled again, and using materials from secondary sources. Recycled materials have historically been seen as lower quality, but new technologies mean the difference is getting smaller and smaller. We can deliver products today that can easily replace virgin materials, but in some cases you might have to design slightly differently."

Crucially, there is no place in a truly circular economy for burning waste, yet the UK government has invested and is investing heavily in transitioning from landfill to incineration. While this made sense two decades ago when those investments started – incineration has a better carbon impact than landfill and also produces energy – more recently new technologies have made recycling more competitive. In 2019, 11.6 million tonnes of household waste was incinerated, compared to only 10.9 million sent for recycling.

Across the UK there are 48 energy-from-waste incinerators operating. Another 17 are under construction and councils continue to approve planning applications for new permits. Meanwhile, countries such as the Netherlands, Belgium and Germany, are racing ahead on the recycling front, with a progressive approach to carbon tax and reducing incineration. To keep up, the UK government must take a similar policy approach and invest in recycling.

"When you look at Northern European countries, the transition from landfill to incineration took place about 15 years ago, but in the last couple of years they have shifted away from incineration and towards recycling," says de Bont. "The landfill rate in the Benelux nations is below 2% now. In the UK, it's still around 20%. The UK is doing now what was done in the Netherlands 10 to 15 years ago. The question is, why build all that incineration capacity today when you know the next step is not incinerating waste but recycling it as much as possible? There's a real chance to skip incineration and start recycling more today."

In parallel to this shift, it's important that the UK government sets clear targets for the use of secondary materials, as well as introducing policy, taxes or initiatives to create demand for them. Though these kinds of discussions are already taking place across the continent, much of the focus is on plastics, despite it only accounting for 100,000 of the 13 million tonnes of waste that Renewi collects. Circularity cannot be achieved by recycling plastics alone.

Recognising this, and as part of its target to achieve a 50% circular economy by 2030 and 100% by 2050, governments committed to deliver on the circular economy have said anybody producing a product and using raw materials must use 50% fewer primary materials by the 2030 milestone. Governments across Europe, including those in Netherlands and Belgium, are aligned behind this. UK also signed up to this commitment when it was part of the European Union.

By recovering valuable streams and, through innovative processes and partnerships, recycling them, as well as increasing production of secondary raw materials, Renewi is helping to create a circular economy. The company currently delivers an industry-leading 66% of materials recycled, which amounts to 7.9 million tonnes of waste being sent into reuse and 3.1 million tonnes of CO2 emissions avoided. Renewi is committed to increasing this recycling target to 75% by 2025, which will result in 10 million tonnes of materials being recycled and the production of over 1 million additional tonnes of secondary raw materials.

Renewi works independently and with partners to give new life to used materials, including teaming up with IKEA to invest in Retourmatras, a mattress recycler. Currently up to 1 million mattresses can be recycled per year in the Netherlands, with the next factory openings based in the Netherlands and Belgium set to increase this to 1.5 million. By introducing this mattress recycling solution, IKEA and Renewi are cutting levels of incineration.

"Circularity is an inherent factor of making economies sustainable, but we can't achieve it on our own – we need partnerships such as IKEA, as well as the right government policy," says de Bont. "In all cases, recycling makes environmental sense. The challenge is the cases when it doesn't make economic sense. We can overcome that with new and more efficient ways to recycle, making it cheaper and in some ways competing with virgin materials.

"But when that's not possible, because collecting, sorting, cleaning and treating the waste is too expensive, we need taxation or other methods to make those streams economically viable to recycle too. If on a worldwide basis we can uplift recycling to 17% by 2032, we are putting the world on a path to achieve 2 degree centigrade, slowing global warming."

> **A more circular economy requires new thinking. We need to design with a view that the item itself can be recycled again, and using materials from secondary sources**

100bn tonnes of raw materials used in 2020, generating 59.1bn tonnes of greenhouse gases

20% of the UK's waste goes to landfill still, compared with 2% in Benelux nations

39% reduction of greenhouse gases emitted if countries opted for circularity (the circular economy)

For more information, visit renewi.com

renewi
waste no more

URBAN LIVING

Slicker cities

Far-sighted innovators working in sectors such as property and logistics are aiming to make urban areas in the UK both more sustainable and human-friendly spaces

Christine Horton

shomos uddin via GettyImages

Buildings and motor vehicles are fundamental parts of the modern metropolis – and both are among the largest contributors to global carbon emissions, given the former's need for heat and power, and the latter's continuing dependence on the internal combustion engine. The good news is that sustainability concerns are at the forefront of several initiatives to shape the cities of the future.

Planet Mark is an organisation that's committed to transforming society through the measurement of carbon and social data. It certifies businesses and properties for cutting their carbon emissions.

"To keep the certification, an organisation must reduce its carbon footprint every year," explains Planet Mark's founder and CEO, Steve Malkin. "On average, certified businesses make a 16% carbon saving per employee through efficiencies in energy, waste, water, travel and procurement."

Malkin says companies that make year-on-year reductions can achieve benefits ranging from efficiency gains and cost savings to an enhanced ability to attract and retain the most talented people.

> **Imagine a city where products are delivered through pipes, enabling most HGVs to be taken off the road**

Mount Anvil is the first residential property developer to have achieved Planet Mark's certification for new developments. The company's marketing director, Tom Beardmore, says that its goal is for residents to thrive in their homes.

"We know that healthy homes contribute to residents' wellbeing," he says. "We have put that principle at the heart of the homes and communities we're building. Examples of this include the 5,000m² of landscaped green space we have introduced at Royal Eden Docks in the London Borough of Newham and the biodiversity net gain we're incorporating into The Verdean, our scheme in Ealing."

Elsewhere, Heatherwick Studio – the firm of designers and architects famed for creating the new Routemaster bus and the cauldron for the 2012 Olympic Games in London – is prioritising large urban projects with the greatest potential to benefit society. It states that some of these developments "use technology such as the solar panels and geothermal piles, but we also use nature. Trees not only sequester carbon; they also create a more human environment than the relentless monotony of hard surfaces."

It's not only the urban construction sector that's developing innovative solutions to tackle climate change. For instance, Oxfordshire County Council has just collaborated with Alchera Technologies, a provider of artificial intelligence software, on a system to support connected and autonomous vehicles.

The firm's co-founder and head of operations, Anna Jordan, says: "As cities adopt electric buses, trams, micro-mobility services or any other shared transport modes, having control of how these mechanisms get used for the benefit of citizens and commuters is becoming ever more important."

Consumer demand and legislation are also driving the development of greener transport and logistics systems. For instance, the sale of new petrol and diesel vehicles will be banned in the UK from 2030. But, when it comes to the movement of goods, there is an alternative to electric vehicles. London firm Magway is developing a zero-emissions underground delivery network that claims to reduce the need for heavy goods vehicles.

"It doesn't rely on battery power and can, when connected to a renewable energy source, deliver goods without releasing any emissions," says Huw Thomas, the company's development director. "At the same time, by removing the need for vehicles, Magway also reduces city congestion."

Thomas says that there has often been a focus, in planning new urban developments, on how cities work for drivers, rather than for other road users and pedestrians. "Imagine a city where products are delivered through pipes, enabling most HGVs to be taken off the road; you instantly have far less traffic to deal with," he says. "Then, if you connect all the remaining vehicles in a network, they can move faster. Vehicles linked this way can travel at a more constant speed, as they know what those in front of them are doing. If people are also sharing vehicles, you reduce the need for car parking space as well. The land freed up can then be put to better use – converted into green areas for people to enjoy, for instance."

Although tackling climate change is clearly a priority, much of the sustainable development occurring in cities goes beyond the pressing need to reduce carbon emissions. Innovators see their work as a chance for cities to be reshaped into places of togetherness, according to Thomas.

"Sustainable cities should not just be thought about as being better for the planet – although they undoubtedly will be – but better for people living and working in them too," he says. "With all these exciting developments, we have so much to look forward to. It's an exciting time of innovation and action, with the goal of a cleaner, healthier planet within our reach." ●

BNG for your buck: what is a 'biodiversity net gain'?

In 2018, Theresa May's government published *A Green Future*, its 25-year plan for improving the environment. Acknowledging that the uncontrolled expansion of towns and cities erodes natural habitats irreversibly, the document introduced the principle of biodiversity net gain (BNG) for all new developments. Simply put, this is an approach to construction that leaves a wider range of living organisms at a site than there was before building work started.

Developers cannot simply pay to compensate for any natural habitat destroyed as a result of their activities. They must guarantee a 10% uplift in biodiversity, which must be maintained for at least 30 years.

Gatwick Airport acted to improve the biodiversity of its non-operational land long before the government adopted the BNG principle, embarking on a five-year plan to do so back in 2012. Working with the Sussex Wildlife Trust, the company started surveying and managing the various meadows, woods, streams and ponds around the 75ha site, with a view to increasing the number of species living in these habitats.

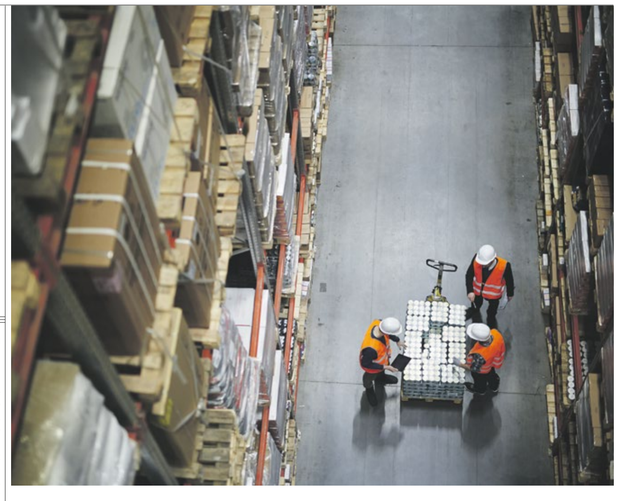
A review of the scheme published in March 2018 showed the difference such work can make. The airport, which has recruited an ecologist and a ranger while engaging more than 280 volunteers a year, has met its objectives so successfully that the Royal Society of Wildlife Trusts has given the company a Biodiversity Benchmark Award, its nationally recognised accreditation, every year since 2014. Protected species such as great crested newts have returned to breed on the airport's property, while the endangered long-horned bee has also been observed living here.

Commercial feature

Building diversity into the supply chain

Businesses increasingly look to reflect the diversity in their customers and employees throughout their supply chains. Experts, taking part in a virtual roundtable, consider practical ways to make it happen

Gren Manuel



Procurement teams have bulging to-do lists. Improve sustainability. Ensure continuity of supply in the face of new waves of Covid-19. Is it reasonable to add yet another demand – to spend more with diverse businesses or social enterprises?

The answer from a virtual roundtable hosted for this supplement was a resounding 'yes.' Helen Cooper, vice president for procurement excellence & corporate services for IHG Hotels & Resorts, which manages almost 884,000 hotel rooms worldwide, says: "We have brands that appeal to everyone, so it's important that our supply chain reflects that diversity as well."

Angela Qu, chief procurement officer, Lufthansa Group, adds: "We have a diverse customer base. We have global operations. It follows that our supply base should be diverse by default. This makes our supply chains more resilient and agile."

Social reasons, though, are just part of the picture. Participants attested to the business benefits of working with suppliers whose founders are women, ethnic minorities, LGBTQ, have disabilities or are from other groups under-represented in business. A survey published by banking trade body UK Finance in March reported that companies with founders from minority ethnic groups are "very ambitious, report high growth rates and innovate more than non-ethnic minority SMEs."

Mayank Shah, founder and CEO of MSDUK, a non-profit organisation that helps large companies procure from businesses founded by ethnic minorities, says: "Diversity brings different ideas, driving innovation and making the supply chain more competitive."

However, few companies could say that their spending with diverse businesses matches these groups' representation in society. They face barriers. The UK Finance study found that companies with non-white founders were refused bank loans at twice the usual rate, even when adjusting for factors such as their shorter trading history. (The report said it did not have the data to explain this.)

> **We have a diverse customer base. We have global operations. It follows that our supply base should be diverse by default. This makes our supply chains more resilient and agile**

Shah says new and diverse businesses also lack network and connections. "That's where we as an organisation work to remove those barriers, giving them a platform where they can meet procurement people and decision-makers in large organisations."

Raphael Fadiora-Johnson, regional manager at procurement platform Avetta, noted that tender documents are often written with large suppliers in mind. "Smaller, diverse suppliers don't have the ability to meet, say, £10m indemnity clauses," he says. "Your organisation's procurement directors have to find a way of asking different types of questions."

Claire Costello, chief procurement officer of Co-op, which operates insurance and funeral businesses as well as its distinctive blue-logo food shops, says her organisation is addressing this head-on. She says: "We've spent quite a lot of time over the last 18 months, looking at where can we flex? How do we coach? Where do we need to be open-minded?"

Imran Rasul, chief procurement officer at Nationwide Building Society, notes his organisation, like Co-op, is a mutual that answers to members, not shareholders, and that sourcing from diverse or social businesses is seen as organisationally important: "We've got a wide ambition within our organisation to build an inclusive culture, and we want to replicate that within the supply chain, in the communities we serve."

As a highly regulated organisation, he says there can be additional barriers to becoming a supplier. Yet it has a long history with some suppliers that are run for social good. It has been buying braille services from Scottish Braille Press, part of charity Sight Scotland, for two decades.

However Nationwide is determined to give diverse suppliers a chance to compete for its information technology spend, one of its largest categories but also one where regulatory requirements can be particularly challenging for smaller players. It has signed the Fintech Pledge, an industry framework that helps new suppliers by providing clear communication lines, guidance and feedback.

Participants agreed that top-level backing is vital. Fadiora-Johnson says: "It's not enough to do a forum on supplier diversity with half the members of the procurement team and then ask six months later about how it's getting on. It has to be continuous."

It is helpful to be able to highlight the benefits. Cooper reports, for instance, that diverse suppliers showed ingenuity and flexibility when the company was urgently searching for protective equipment in the first weeks of the pandemic. She says: "It is a great example of where we have used diverse suppliers and smaller suppliers to solve critical problems for us as a business."

As for the difficulty of finding diverse or social suppliers, Qu recalls the sustained efforts made by some procurement teams in the 90s to find qualified suppliers in Asia. She asks why companies couldn't use those creative sourcing skills to find diverse suppliers.

"We have all this experience; we shouldn't forget it when it comes to supplier diversity," Qu says, adding that diverse firms that lack scale but are otherwise excellent could be introduced to tier one suppliers and thus integrate into the supply chain.

Diverse businesses are not asking for special treatment – just an equal chance. The ethnic-minority members of MSDUK, Shah says, debate among themselves whether they should mention it in tender documents.

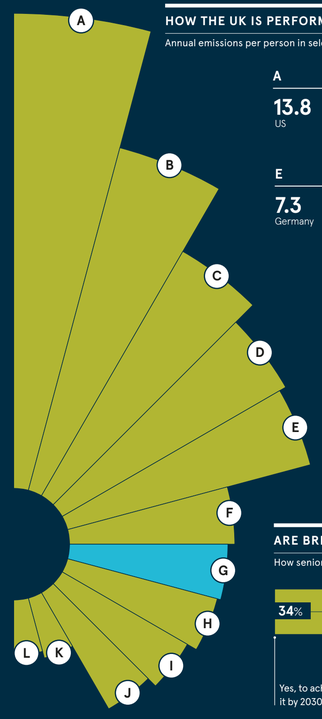
Each CPO round the virtual table has a different approach to measurement, a sign that every organisation has to tailor its approach. Some compile detailed numbers. Others opt for the big picture, aggregating spend across diverse firms, social enterprises, and sustainable suppliers – and aim to make that aggregated number increase.

Cooper says data is essential but needs to be seen in context: "It is so much more than just numbers on a page; it is making the change that is right for the business."

Costello adds though, that it's important not to get too focused on narrow categories. For Co-op and others, there is a substantial overlap between encouraging diverse suppliers, encouraging SME suppliers and encouraging innovative suppliers. "I think of it as being inclusive with new suppliers. But with a social lens," says Costello. "It all comes back to having that openness of spirit, about doing the right thing and cooperating for a fairer world."

BRITAIN'S PATH TO NET ZERO

In the run-up to the UN's COP26 climate change conference in Glasgow this November, the UK government has been promising to 'build back better' and pursue a green recovery. But how is the nation's race to net zero progressing? And, more crucially, how much is the private sector doing to improve the situation?



HOW THE UK IS PERFORMING RELATIVE TO OTHER COUNTRIES

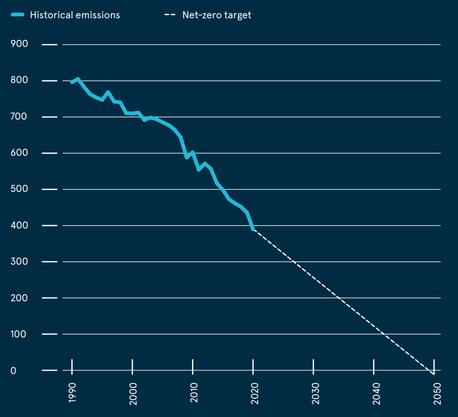
Annual emissions per person in selected countries in 2020, relative to the global average (tonnes of CO_2)

A	B	C	D
13.8 US	10.3 Russia	8.2 Japan	7.5 China
E	**F**	**G**	**H**
7.3 Germany	4.8 Italy	4.6 UK	4.5 Spain
	I	**J**	**K**
	4.2 World	3.9 France	1.8 Brazil
	L		
	1.6 India		

Learning & Work Institute, 2021

THE UK IS WELL ON ITS WAY TO NET ZERO

UK territorial greenhouse gas emissions (million tonnes of CO_2 equivalent)



Department for Business, Energy and Industrial Strategy, 2020

ARE BRITISH BUSINESSES DOING THEIR BIT?

British Standards Institution, 2021

How senior business decision-makers from a range of UK industries answered the question: have specific targets and deadlines been set in your company to achieve net zero emissions?

MEASURES TAKEN BY THE UK GOVERNMENT TO SUPPORT A GREEN RECOVERY

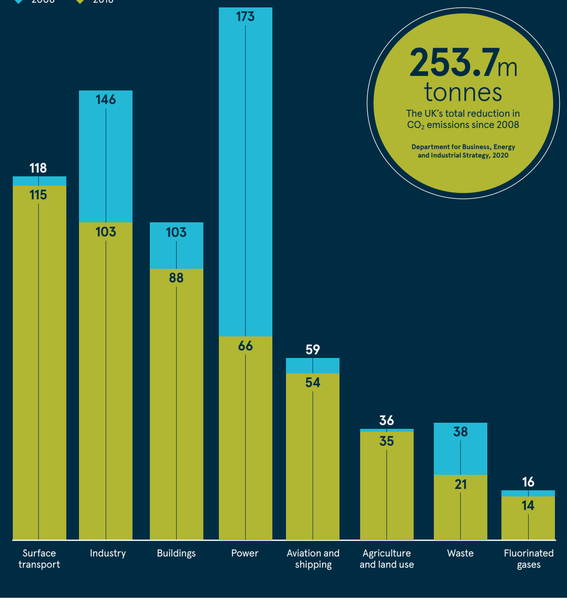
£2.4bn	£1.3bn	£1.03bn	£640m	£240m	£191m	£100m
for transport decarbonisation	allocated to decarbonise buildings in England and support the creation of clean health networks	for the carbon capture and storage infrastructure fund	for growing trees and restoring peatland	for the net zero hydrogen fund	for the sustainable innovation fund	for direct air Capture

HM Treasury, 2020

WHICH SECTORS ARE MAKING THE NECESSARY CHANGES?

National Audit Office, 2020

UK emissions reduction by sector, between 2008 and 2018 (million tonnes of CO_2 equivalent)



253.7m tonnes

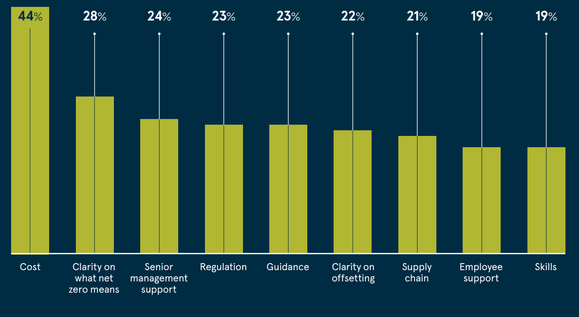
The UK's total reduction in CO_2 emissions since 2008

Department for Business, Energy and Industrial Strategy, 2020

WHAT IS HOLDING UK BUSINESS BACK?

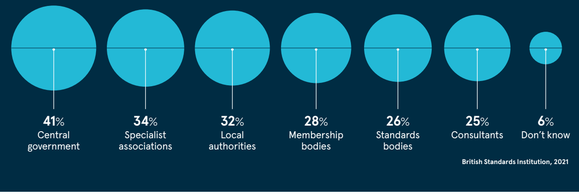
British Standards Institution, 2021

Percentages of senior business decision-makers from a range of UK industries who believe that the following are barriers to achieving net zero



WHO IS RESPONSIBLE FOR GUIDING BRITISH BUSINESSES?

Percentage of senior business decision-makers across a range of industries in the UK who say the following are the organisations they look to for advice on meeting net zero

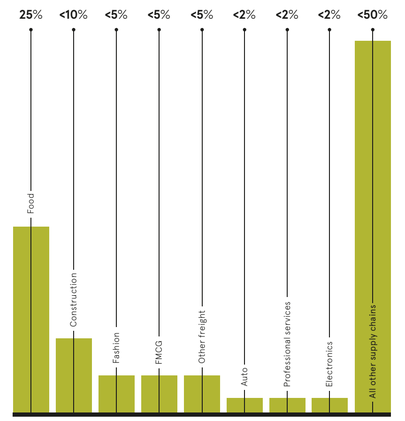


British Standards Institution, 2021

Abstract Aerial Art via Gettyimages

WHICH INDUSTRIES' SUPPLY CHAINS ARE THE WORST CLIMATE OFFENDERS?

Eight supply chains are responsible for more than half of the world's greenhouse gas emissions



World Economic Forum, 2021

Some of the biggest opportunities to reduce a company's carbon footprint are lurking in its supply chain – a fact that's spawned a new generation of innovative greentech startups

Rosalyn Page

However hard a business works to become more sustainable, its efforts will have little impact if these don't involve its suppliers. Fortunately, several new greentech enterprises are addressing this need, offering hi-tech solutions targeting all aspects of sustainability throughout the supply chain.

Dan Yates is the co-founder and CEO of Greener, a startup that's building a networking platform to help SMEs in the food and drink industry find partners with shared values concerning sustainability. He believes that, while global supply chains are intricately connected, there are still huge disconnects when it comes to sustainability – which is why innovation is key.

"Innovation is about building sustainability into the decision-making process from the get-go," Yates says. "It will always be harder to retroactively fit sustainability into established processes than it is to build thoughtful operations from the start."

One of the biggest obstacles, especially when retrofitting, is inertia, he says. Large businesses face inertia of scale, which applies when they try to change well established working methods. Smaller businesses, which often lack the resources that would enable them to fully embrace sustainability, face investment inertia. For Yates, advanced tech such as big-data analytics has the potential to offer effective solutions.

"Its ability to explore and process huge amounts of complex data very quickly and translate this into meaningful action will be so relevant," he says. "Many businesses, particularly SMEs, still depend on word of mouth to find partners – a system that's existed since the dawn of commerce. Technology has the potential to elevate this exchange. Whatever you think of the outcome, it's undeniable that social networks have reimagined how we connect with each other. We need a revolution on that scale in the way that businesses communicate to engage meaningfully with sustainability."

Reducing an organisation's CO_2 emissions is a sustainability imperative that needs to involve every part of the business. So says Mauro Cozzi, co-founder and CEO of Emitwise, a provider of software that enables companies to monitor their carbon footprints in real time.

"To decarbonise a business, it's vital to fully understand the climate footprint and the associated risks of the company's entire set of activities. This knowledge will guide actions to minimise its impacts," he says. "But the largest and hardest-to-reach area is the supply chain. Its emissions are extremely complex and lie beyond the control of most companies, while the accuracy of reporting can vary widely among suppliers."

Cozzi continues: "The clearest, most sincere commitment to decarbonisation is the setting of a science-based target. This will guide the extent and speed of emission reductions along the value chain to constrain global warming to 1.5ºC [above its pre-industrial level]."

While the latest technology can handle large swathes of data, it's only as valuable as the information it can process. This requires enterprises to be open about the full extent of their carbon footprints, he says, adding: "The most effective carbon accounting, supercharged by machine learning, can absorb the vast complexity of a global value chain, apply algorithms to analyse data, learn from it and make predictions that create real impact."

When Spendesk, a provider of expenses management software, wanted to reduce its carbon footprint, it first asked Emitwise to apply its AI-driven monitoring system to obtain a true picture of the company's greenhouse gas emissions. This has given the business a solid starting point on which to base its efforts, taking a lot of guesswork out of the process.

"We now know which aspects of company life contribute most to our carbon footprint, so we can make targeted plans to fix these," says Spendesk's inbound marketing manager, Juliette Hervé.

The firm also benefited from having a clear view of its suppliers' activities – something that may not be available to all businesses. "Spendesk is a specialist in tracking corporate spending, so we're particularly aware of our own activities in this area – whom we pay regularly and for what," Hervé says.

> **To decarbonise a business, it's vital to fully understand the climate footprint and the associated risks of the company's entire set of activities**

This facility revealed how much was being spent on small purchases around the organisation. "These add up on the company card, but also on our carbon footprint," she says. "Without this full spending overview, there's no way that we could have known that."

When looking to improve sustainability throughout the value chain, a company needs to ensure that both its internal functions and its external partners can offer a clear view of their controllable emissions. So says Ronit Eliav, vice-president of brand and product marketing at Bringg, a green delivery and fulfilment specialist.

"This data needs to be conveyed to the consumer as well as the organisation, so that everyone is equipped to make the right choices about green deliveries," she argues.

Here, innovation through technology can support sustainability in many ways. A last-mile delivery and fulfilment solution, for instance, can apply vehicle-load optimisation and fuel-efficient routing to support the delivery of goods on a connected fleet of electric vehicles to reduce carbon emissions.

Eliav notes that digitally transforming the supply chain can help a firm to integrate its financial and environmental practices all along it. "From development through production to delivery", she adds, "an organisation can focus on creating efficiencies for sustainable initiatives such as the reduction of waste and carbon emissions." ●

OPINION

'It's down to the COP26 delegates to determine the broad brushstrokes of climate action. But how can business best play its part?'

The silver lining of COP26's postponement for a year was the chance it gave businesses to reflect properly on what's at stake. The meeting had been billed as a make-or-break, last-moment opportunity to limit the world to 1.5ºC heating – and it's not as though this task has got any less urgent. I hope that the pandemic has given business leaders the room to dwell on their role in the climate crisis – and how they can contribute to solving it. If not, there was always the surge in ESG stocks to make them wake up and smell the tofu.

Investors are aligning themselves with the consumer shift over the past decade towards sustainable business. There's no faking it on that front now, either. Both investors and consumers want to see demonstrable action on sustainability issues, not just a touch of greenwashing. The good news, especially as the recovery gathers momentum, is that companies investing in innovative business models and new sustainable technologies will gain a competitive edge.

It's down to the COP26 delegates in Glasgow to determine the broad brushstrokes of climate action. But how can business best play its part? Part of the current bind in which the private sector finds itself is that big corporations can often be too immobile and constrained by their structure to innovate quickly. Meanwhile, entrepreneurial ventures, with grassroots passion and left-field solutions, are often in want of the funding, resources and access to the kind of influential networks that would enable them to scale up their ideas.

Crowdsourcing has been around for a while now, but it's just starting to show its potential to close this gap. Given the right platform, corporate expertise and startup insight can come together and bring solutions to fruition. We have already seen 'co-innovation' approaches on the environmental front, including the Massachusetts Institute of Technology Climate CoLab and the World Bank's Climate Business Innovation Network, launched at COP22 in 2016.

In January 2020 the World Economic Forum created its own collaboration platform, UpLink, to get its vast network of investors, experts, corporate partners and entrepreneurs all moving in sync towards resolving the world's most pressing problems. We at UpLink have been amazed by the energising effect of our digital platform, which seeks to identify and scale up the best innovations. More than 22,000 users have registered and more than 100 high-impact innovators have been recognised. UpLink's first two competitions to crowdsource entrepreneurial solutions unearthed nearly 350 promising solutions for marine and forest issues – and this is just the beginning.

A spark of an idea or an early-stage enterprise, no matter how pioneering, can all too easily fade away in isolation. But, when nurtured by collaboration, publicity and funding, it can grow to its full transformative potential.

Cubex Global is one such startup. This company has identified a huge systemic flaw that contributes to global warming: the vast amount of container space on cargo ships that goes unused. Through UpLink, Cubex Global was introduced to a large Middle Eastern logistics company that is interested in implementing its blockchain-based solution to fill this dormant space. This initiative could be worth £18bn a year and reduce shipping carbon emissions by 20%.

The crowdsourcing model might seem contradictory to that of any conventional business strategy. But it actually aligns perfectly with the 'agile' approach that's currently in vogue, which emphasises flexibility and responsiveness as key attributes in the face of continual disruption.

The pandemic showed business the importance of such adaptability. We will need to mobilise every ounce of inventiveness to tackle the climate crisis. Companies showing commitment to climate action, by seeking and supporting innovative solutions such as those surfacing through UpLink, are sending a message: the time for timidity is past – something that will be on the minds of everyone at COP26. ●

John Dutton
Head of UpLink and a member of the executive committee for the World Economic Forum

Commercial feature

Transparency will help businesses communicate their approach to net zero

With so many organisations coming forward with net zero targets, it's crucial they consider their supply chains and the need for transparency. Carbon footprinting and labelling will help

Corporate net zero targets are announced weekly and the rhetoric around net zero has reached fever pitch. However, the challenge is now turning these words into actions. Many businesses are only just starting to look at their operations more closely and decarbonise, while others are realising that it's going to require real tenacity to achieve their targets.

There's also a new reality setting in for most organisations. The majority of their emissions are actually along their value chain – upstream supply chain and downstream products in use – tackling these so-called Scope 3 emissions will, for many, be a massive issue.

In fact, supply chain greenhouse gas emissions can be 11 times as high as operational emissions, according to non-profit the CDP. Reducing emissions therefore doesn't stop at the head office - operational emissions are just the tip of the iceberg.

"Many companies want to do the right thing but the control they have on their overall emissions can be limited. It's a really big and tricky problem but doing nothing is not an option," explains Hugh Jones, managing director, advisory at the Carbon Trust, a global, mission-led organisation that works with governments, investors, businesses and organisations to accelerate the delivery of a sustainable, low carbon economy.

"Corporations are going to have to innovate and make significant changes to their business model in order to drive progress. They will have to account for emissions across their full value chain. Only through collaboration can businesses tackle this challenge."

Many organisations are engaging with their direct and multi-tier suppliers in order to source products with lower emissions. Others are looking at alternative production models, involving remanufacturing, reuse and recycling of materials and parts to create new products. This is a move to a more circular economy, reducing the need for raw materials.

"We've seen a lot of this in the fashion industry with fibres for clothing and in ICT with components and equipment," adds Jones. "There are also an increasing number of industry-wide initiatives that are driving change in supply chains, while some big corporate buyers are now asking their suppliers to decarbonise as part of their purchasing criteria. For example, certain supermarkets require their suppliers to comply with a range of environmental criteria including tackling carbon emissions.

> **For a company to say they are green is one thing. It's not quite as tangible as a product with an independently verified carbon label**

"Others are setting up innovation centres and designating staff specifically to focus on this issue. The dial is shifting. Just look at the new job titles that are cropping up, such as 'sustainable supply chain manager' or 'director of supply chain innovation'. It's a sign that this is being taken seriously and is becoming part of the mainstream agenda."

The fight against climate change will be won by those businesses that do things differently. Setting targets will not be enough. By measuring their organisational and value chain carbon footprints - and where appropriate the footprint of a product's full lifecycle - businesses can identify areas for innovation that will reduce emissions and also potentially save money.

"Some organisations are able to cut costs while they reduce emissions by taking a more carbon-centric approach. Knowing where your emission hotspots are can help focus efforts and often prompt fundamental shifts in business models," says Jones.

The Carbon Trust has two decades of experience in the climate change sector and a global team of more than 250 staff across five continents. It has noticed growing interest in product carbon footprinting and in its carbon label, which covers all greenhouse gas emissions released throughout a product's full lifecycle. This 'cradle-to-grave' approach captures emissions from the extractions of raw materials, through to manufacture, distribution, use and eventual disposal. It can provide strong transparency for stakeholders, including customers.

"We are seeing growing interest in this from a wide variety of companies, including food and beverage companies as well as others in packaging and electronics. They often want to measure, reduce and communicate the carbon footprint, and in some cases the carbon neutrality, of their products directly to the consumer," says Jones.

"A footprint label is more tangible for the general public than long-term targets and trajectories, vital though these are. A label has the power to bring these issues into people's everyday lives via their shopping basket."

A 2020 YouGov survey commissioned by the Carbon Trust of more than 12,800 consumers across the UK, US, China, France, Germany, Italy, Belgium, Spain, Sweden and Mexico found that 67% agree carbon labelling is a good idea and 65% said they are more likely to think positively about a brand that had reduced the carbon footprint of its products. 2021 YouGov research (yet to be published) found that 54% of international respondents would be more likely to purchase a product that had a carbon label.

Danone brands evian and Volvic, plus Tetra Pak and Quorn, are among the many companies already engaged in carbon footprint labelling. The aim is to drive consumer demand for better products, which can then align with climate goals and emissions targets. It also doesn't matter what country the consumer is in, a globally recognised label relating to carbon impacts at the company or product level is a universal idea.

"We need much greater uptake of carbon footprint labelling in terms of market sectors and geographies. There's a huge opportunity for businesses who want to be seen as leaders in their field to communicate their good work on tackling emissions throughout their value chain with labelling. For a company to say they are green is one thing, it's not quite as tangible as a product with an independently verified carbon label," says Jones.

"If we get this right we will create a virtuous circle of business activity. More demand from consumers for lower carbon products will drive organisations to address the emissions along their supply chains, bringing everyone together both upstream and downstream to deliver decarbonisation. We need organisations worldwide to be on board. Raising consumer awareness will be a key driver in reducing emissions over time. Labelling can help make this change happen."

67%

of consumers surveyed agreed carbon labelling is a good idea

65%

of consumers surveyed said they are more likely to think positively about a brand that could demonstrate it had reduced the carbon footprint of its products

YouGov 2020

For more information please visit www.carbontrust.com/labelling

CARBON TRUST

Commercial feature

The path to sustainability is through smarter fleet mobility

A great deal of emissions comes from vehicles on our roads, it is time we ran fleets more efficiently, as well as realise the transition to electric vehicles

Reducing carbon emissions to net zero by 2050 is a worthy goal and, with over a quarter of UK emissions coming from transport and particularly from road vehicles, mobility is a worthy target. Drill down further and half of these greenhouse gases come from fleet vehicles. So, by tackling emissions from vans, trucks and delivery vehicles countrywide, businesses start to address this issue.

"When it comes to tackling transport emissions, greening a fleet of vehicles represents the low-hanging fruit, it's not only a low-cost option, but there's also a huge cost saving too. By reducing fuel consumption, corporations can save money and slash emissions. This is why eco-friendly driving matters, and this can now be achieved with the latest telematics," explains David Savage, associate vice president for UK and Ireland at Geotab, a global leader in fleet management solutions.

In a more sustainably conscious era, fleet journeys can be monitored using vehicle tracking devices and GPS data to calculate how environmentally friendly they are. It's not just efficient route planning that reduces emissions but accelerating and braking less. Slashing idling times for stationary vehicles is also crucial. For every hour a car is left idling, four litres of petrol are consumed, cumulatively this costs UK businesses £3.3bn a year in wasted fuel, not to mention the emissions produced.

"There are many savings to be made. But like any innovation in sustainability, if you don't measure it, you cannot reduce it. By processing 40 billion data points every day we know what works. Those businesses who are taking this seriously are changing driving behaviour at scale, they are producing driver score cards that highlight emissions and incentivising eco-friendly driving," states Savage, from Geotab, which has more than 2.2 million connected vehicles around the world in over 130 countries.

"The return on investment is very positive if you combine telematics and eco-friendly driving. Vehicle users can be prompted by text or email to change their behaviour. Some fleet managers use gamification, offering theatre tickets and other incentives to drivers who top leaderboards for sustainability. This innovation raises awareness and has a real positive effect."

> **Telematics, and the data it generates, provides more certainty and helps inform better decisions**

The new frontier for fleet management is electric vehicles or EVs. The next decade will be one of transition as businesses look to replace their petrol and diesel fleets with those that generate lower emissions. In the years ahead many corporations will create mixed fleets as they phase out fossil fuels. This complicates the picture in terms of how fleets are run in an eco-friendly way.

"It's nearly impossible to do the transition to a more sustainable, EV-led fleet without data. Telematics allow businesses to understand their current fleet's eco-performance. It also allows them to work out what impact it will have if they transition to an EV fleet," adds Geotab's Savage.

When it comes to this transition new issues are arising. Suitable electric vehicles for higher payloads and longer ranges are not yet available. Charging has gotten quicker and more efficient but still takes time. Optimising hybrid fleet management during the next decade will therefore be a vital innovation.

"In uncertain times, telematics, and the data it generates, provides more certainty and helps inform better decisions. It also helps to reduce business risk, because the data provides insight into real-world behaviour," details Savage whose company works with the largest fleets in the world including those in food and beverage and last-mile delivery.

"Fleet managers will need to create a blueprint for their future EV fleet and telematic data can help businesses understand how their current fleet operates and what to invest in. Not all electric vehicles can currently meet the requirements of all mobility tasks however; with over 250 types of EVs and rising, knowing when to invest and in what model matters, as well as when to hold back and optimise an existing fossil fuel-based fleet. Mapping out a more climate-friendly future for fleets will take patience. Geotab is at the forefront of this innovation in sustainability."

Do you want to drive sustainability? Go to www.geotab.com/uk/sustainability

GEOTAB

OPINION

'Here is a long-term vision that we can all rally behind: over 9 billion people living well, within planetary boundaries, by mid-century'

Sustainability is going mainstream for governments, business, consumers and financial markets. The momentum had been building for several years and has increased sharply during the pandemic, with the link between the pressure on the environment, human health and economic progress becoming increasingly clear. The ill-preparedness for a global shock has driven a sense of urgency in dealing with some of the other challenges.

For business, this mainstreaming of sustainability means it has become one of the key drivers in strategy and business transformation. Companies are increasingly expected to set targets based on science; to integrate the environmental and social impacts of their products, business models and operations into their strategies and risk management; to put in place operating plans and product roadmaps to deliver the targets; and to report progress transparently to capital markets and other stakeholders.

Leading companies have begun this journey already. Others see the changes come via shifts in demand for their products, an increase in the number of sustainability-related questions and votes at their shareholder meetings, and a growing number of legal challenges in case they are seen not to transform fast enough.

The conversation has moved from 'why to engage' with sustainability to 'how to operationalise the transformations'. In the current decade, every company will have to deal with its impacts on the three global emergencies of our time: the climate crisis, the loss of nature and mounting inequality. Each of these can endanger the safe operating space for business. And the pandemic has further highlighted how connected these challenges are.

Here is a long-term vision that we can all rally behind: over 9 billion people living well, within planetary boundaries, by mid-century. Achieving this relatively simple vision requires a wholesale transformation of everything we have grown up with. We must decarbonise energy, embrace a circular economy and find ways to produce healthy food sustainably.

Vision 2050: time to transform, published in March by the World Business Council for Sustainable Development, is a timely guiding framework for business action in the decade ahead. This report clarifies that, to achieve the vision it sets out, business needs a fully fledged system transformation.

The framework contains 'transformation pathways' for the nine most impactful product and service categories that business provides to society. Each of these nine pathways contains 10 action areas. These address climate action, nature action, equity action and the way that changing economics can incentivise transformations. The vision and the transformation pathways are all aligned with the UN's sustainable development goals and the targets of its Paris agreement.

Vision 2050 is a 2030 action agenda for business. It provides a framework within which to pursue integrated strategies and sustainability commitments and contribute to the transformations needed.

To move beyond business as usual into the accelerated transformations necessary, *Vision 2050* calls for a new way of thinking through three 'mindset shifts': reinventing capitalism, building long-term resilience and promoting regenerative business models. By making these an integral part of the way business approaches its agenda for climate, nature and equity action (as well as the way it redefines value), it will unlock the transformations needed to realise the vision.

Vision 2050: time to transform should influence the strategic business agenda for this decade. And it should inspire you to have greater focus and ambition, helping you to shape the agenda for your company's transformation.

The need to transform systems is what everyone in sustainability is talking about. Now the talk needs to be backed up by actions. ●

Peter Bakker
President and CEO, World Business Council for Sustainable Development

TRAVEL

Grounded in reality

Taking advantage of the pause in long-haul travel to assess the state of the industry, innovators are exploring ways to make tourism in the Covid era more sustainable

Rebecca Hallett

As the Covid-19 pandemic sent the world into lockdown and put the brakes on travel, the environmental side effects were undeniably beneficial. Air pollution in cities fell dramatically, for instance, while fish could be seen in Venice's canals again. And, with tourism accounting for at least 5% of the world's greenhouse gas emissions in 2019, according to the UN World Tourism Organization, it is clear that certain forms of transport are incompatible with the sustainability agenda. But borders are reopening and international travel is resuming, so what's to be done?

Even before Covid halted long-haul travel, consumer interest in sustainability was increasing. TUI Group reported an 84% increase in the number of its clients choosing "greener and fairer" holiday packages between 2015 and 2020, for instance.

Observing this trend, Cat Jones founded no-fly travel company Byway in March 2020. "Even before the pandemic, there was a surge in consumer consciousness and the number of businesses being built on sustainability," she says. "With the first lockdown coming, I knew that, if there was ever a time to give people a travel experience grounded in the fact they aren't flying, this was it."

Japan is one of many markets where the eco-travel sector has yet to make much headway, but younger consumers are becoming increasingly concerned about sustainability issues, reports Kenji Itakura, deputy sales director at the Tokyu Hotels Group. With an eye on attracting millennial travellers in particular, his firm is implementing sustainability practices throughout its property portfolio and adopting new technologies.

The Kawasaki King Skyfront Tokyu Rei Hotel is the world's first 'hydrogen hotel', for instance, generating all of its energy from waste plastic and food. Itakura notes that it was developed as part of a project started by the Ministry of the Environment in 2015 "to combat pollution and make effective use of hydrogen energy".

This kind of public-sector backing is vital for continued innovation in travel. As Byway builds the complex dynamic packaging technology that will underpin its product, it has been supported by a £100,000 Innovate UK grant, which Jones describes as "exceptionally useful".

Alexandra Pastollnigg is the founder of Fair Voyage, an online travel agency specialising in socially and environmentally responsible trips to lower-income countries. She believes that Covid has offered the industry "a once-in-a-generation opportunity to do things differently", but governments must first lead the way with sustainable development plans and investments.

Travel was already a low-margin, high-competition industry before the arrival of Covid-19. The pandemic has created further pressure, with consumers expecting low prices and free cancellations to tempt them back.

"Local travel agencies, tour operators and travel businesses haven't had customers for a long time and are struggling to survive," Pastollnigg says. "The harsh economic reality is that few consumers can afford to pay a sustainability premium."

Hence the need for government incentives. In the UAE, the Ras Al Khaimah Tourism Development Authority provides a case in point. The authority, established by the government of Ras Al Khaimah in 2011, has used the pause in international travel to strengthen the emirate's sustainability focus.

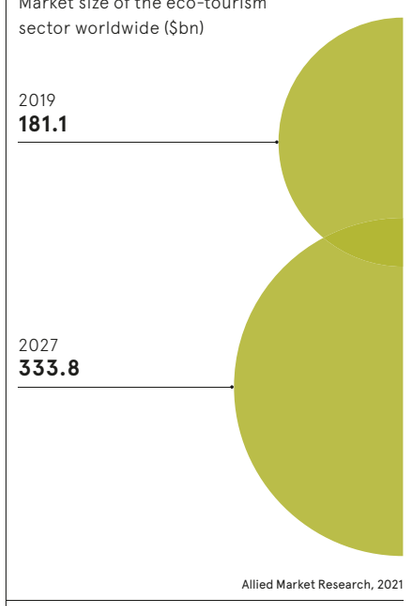
Marketing itself as 'the nature emirate', Ras Al Khaimah has decided to target socially and environmentally aware travellers and is investing in developments aligned with that goal. The May 2021 announcement of £96m in funding for the sector shows that the emirate is truly "serious about investing in sustainable tourism", according to the authority's CEO, Raki Phillips.

At the luxury end of the market, there is more financial freedom to innovate. For instance, New York business Yuji Yamazaki Architecture designed Kudadoo, a fully solar-powered private island resort in the Maldives, in 2018.


Kudadoo Residence via Kudadoo

ECO-TOURISM SET TO BOOM

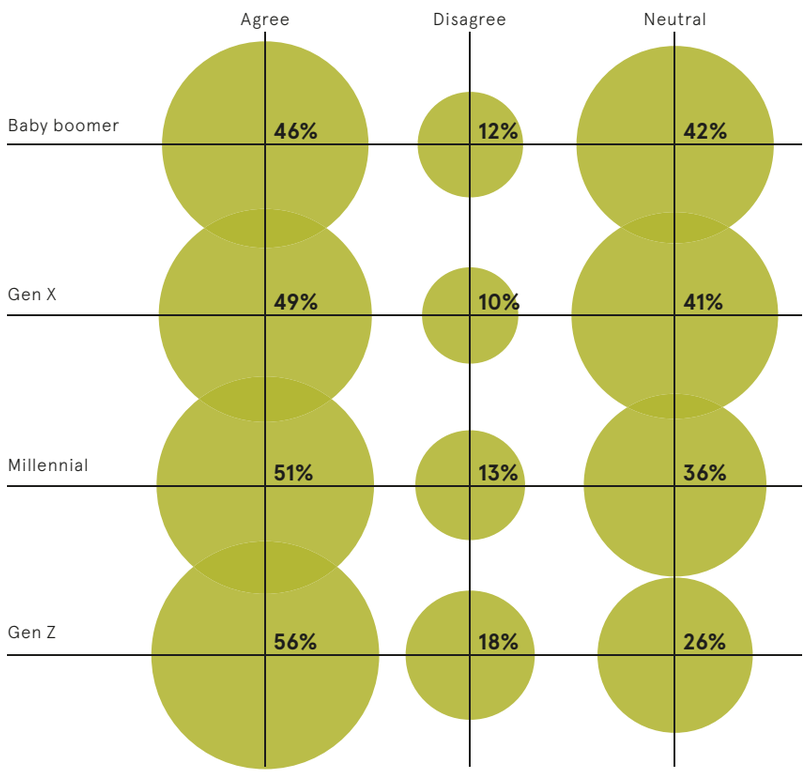
Market size of the eco-tourism sector worldwide ($bn)



Allied Market Research, 2021

YOUNGER TRAVELLERS ARE DEMANDING GREENER OPTIONS

Generational breakdown of travellers' responses to the statement: "Choosing an environmentally friendly travel option is important"



Hotel Management, 2020

"This was a big design statement and a big investment at the time," says the practice's principal architect, Yuji Yamazaki. "But, as the price of solar panels goes down, I hope that going fully solar will become a more viable option for many smaller projects, particularly in equatorial countries."

Although Kudadoo remains largely "symbolic" for now, according to Yamazaki, its renewable energy generation system may be adopted more widely in the Maldives over the longer term. The low-lying archipelago is extremely vulnerable to rising sea levels and its tourism industry is far from sustainable. In 2019, the sector accounted for 40% of the nation's total CO_2 emissions, more than three-quarters of which resulted from electricity generation.

According to the World Bank, tourism directly accounts for about a quarter of the Maldives' GDP, which contracted by an estimated 28% in 2020. In many territories that depend this heavily on income from holidaymakers, the pandemic has not offered a golden opportunity for ecosystems to recover. On the contrary, local populations have suffered, while tourism-reliant conservation schemes have foundered.

Paul Gardiner is CEO of the Mantis Collection, a company that owns 'eco-lodges' and hotels on every continent. Although it is investing in exciting projects at its eco-lodge innovation hub in the South African province of Eastern Cape, he says that the focus has been on damage limitation.

In 2018, Mantis and French hotel giant Accor entered a partnership to establish a not-for-profit enterprise called the Community Conservation Fund Africa (CCFA) in their bid to tackle the continent's social and ecological problems. Throughout the pandemic, the CCFA has distributed thousands of food parcels to communities affected by the sharp drop in tourism income. The aim, Gardiner says, has been "to help them through this awful period and also to prevent them from having to poach wildlife in order to sustain themselves".

Alongside this, Mantis has continued investing in innovative business models and initiatives, including the 'Adopt a Beehive' campaign, in which "the CCFA donates hives to local communities, trains people in beekeeping and then purchases the honey to use at Mantis properties".

Simon Willmore, chairman of the British Guild of Travel Writers and digital manager at Bradt Travel Guides, says he feels that "many people are expecting a company to produce some sort of technological silver bullet that will enable us to take 20 long-haul flights a year with no environmental impact. That won't happen in our lifetimes."

Instead, he says, there will be more "intangible" innovations, including so-called digital nomad visas. Jurisdictions ranging from Croatia to Bermuda have established these to "allow people to visit new places, but with a 'travel less, stay longer' mantra".

The path towards sustainability in the travel industry is not straightforward, but innovators are helping to chart a course. And they're responding to a clear public interest in sustainable tourism. Yet the real question is: will the travel-starved consumer be prepared, once the Covid restrictions are finally lifted, to put their money where their mouth is?