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Welcome to the October 2018 issue

The sharing of data online is accelerating at a dizzying rate, with advances in AI and machine learning. As the Cambridge Analytica scandal revealed, Facebook and other platforms are essentially data-mining sites whose success is founded on being able to target users with ads based on how much they know about consumers' activities and preferences.

This month, we take a long look at the ethical and environmental implications of the headlong rush to digitization.

Mike Scott assesses whether new regulations and industry standards to protect privacy will be enough to restore consumer trust.

He also reports on the borderless Wild West that exists online in terms of human rights protection, with companies having to grapple with issues such as freedom of expression, hate speech and fake news.

Diana Marin Dawid of Good Corporation gives tips to help European companies obey the spirit, as well as the letter, of the new General Data Protection Regulation, which came into force in May.

Angeli Mehta looks at how privacy issues have emerged as a major concern as auto companies start to pilot self-driving cars, while Mike Scott reports on spiralling energy use by data centres, and industry moves to take the heat out of the digital revolution with energy efficiency and renewable energy.

We turn to the burning issue of plastics waste in our second briefing this month. Angeli Mehta reports on the first steps being taken by the UK retail industry and its suppliers as they seek to remove single-use plastic by 2025. And she interviews Lonely Whale's Dune Ives about how the NGO is helping companies to incorporate plastic waste in their supply chains, keeping plastic out of the oceans, but in the economy.

Next month our journalists will be evaluating progress on corporate zero deforestation pledges, a year away from the 2020 deadline, and how the health-care sector is moving to address climate change and the SDGs.

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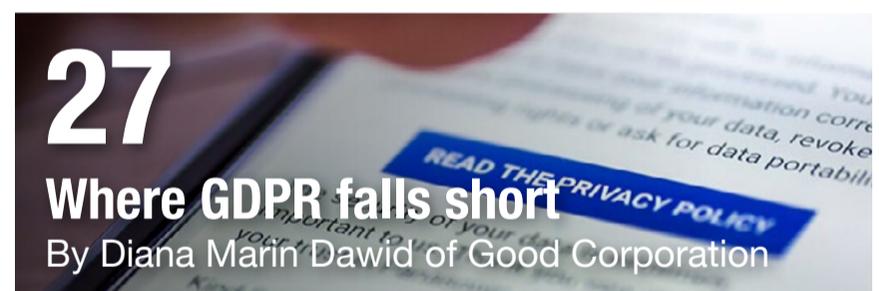
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▶ 18th Responsible Business Summit Europe is back on 10-12 June 2019

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New terms and conditions to rein in the data-miners

The Cambridge Analytica scandal left EU regulators scrambling to safeguard consumers' privacy online. But as Mike Scott says, it will take a lot for companies to bridge the huge trust deficit

One of the most annoying things about signing up for a new service online is the plethora of contracts, license agreements, terms of service, privacy policies and other documents that we are required to confirm we have read and agree to, even though we probably haven't.

"No one reads the paperwork," says Megan Bell, chief privacy officer at Human API, a company that runs a health data exchange that allows US consumers to access and use their health data to get the best healthcare. "They're called clickwraps in the industry, because people just click them without reading them."

However, people are starting to become aware that these documents are there for a reason, one that is not necessarily to protect consumers, and that our data is not confined just to the websites that we use.

This was most starkly illustrated in the recent Cambridge Analytica case, where the company used information obtained from Facebook to target voters in the 2016 US Presidential election.

In the same way that Apple's iPod was basically a hard drive dressed up as a music player, Facebook and other platforms are essentially data-mining and advertising sites disguised as social media, whose success is based on

Every day, internet users interact with technologies that are explicitly designed to undermine their privacy



30 SECOND READ

- Thanks to the Cambridge Analytica case, individuals are more aware of online privacy breaches. However, the way companies use data is so sophisticated, it is very difficult to protect our information, especially when for some platforms obtaining data is their *raison d'être*.
- It is up to users to protect themselves, but they rarely read the terms they have agreed to. However, there are moves to make agreements more user friendly and some firms, like Microsoft and Google, have simplified their terms and conditions.
- The EU's GDPR spells out citizens' digital rights. Underpinning GDPR is that trust and transparency are essential to a thriving digital economy. The regulation champions 'privacy by design', where data protection is 'baked in' from the start.
- The emphasis on privacy has led to a new industry in companies helping people manage their online security. Meanwhile, as more firms highlight their ethics as a differentiator, respecting users' privacy will ultimately make good business sense.

being able to target users with particular ads based on how much they know about your likes, dislikes, activities and preferences.

When this is done to sell us trainers or holidays, perhaps the harm is not that great, but when the information is being used to influence the democratic process, the stakes are much higher. And platforms' ability to target individual users will only improve as artificial intelligence and machine learning spread.

"How companies use data is so advanced and sophisticated that even if consumers had the time to read exactly what is happening to their data and know what their legal rights are, they probably would not understand all the nuances," says Jack Carvel, general counsel at Qubit, a website personalization company.

Meanwhile, buying products online – everything from groceries to clothes to holidays – may seem like simply a more convenient alternative to going into a shop, but is in fact a completely different transaction. If you buy a shirt in a shop and pay cash, all the shop knows is that it has one less shirt and a bit more money. An online transaction gives the website your bank details, identity, address, date of birth and, as you buy more goods online, a comprehensive picture of your spending habits – information that is valuable not just to the site you have used but to plenty of others as well.

Every day, internet users interact with technologies that are explicitly designed to undermine their privacy, says Woodrow Hartzog, a professor at Northeastern University School of Law and College of Computer and Information Science. In his book *Privacy's Blueprint*, he argues that "social media apps, surveillance technologies, and the internet of things are all built in ways that make it hard to guard personal information. And the law says this is okay because it is up to users to protect themselves – even when the odds are deliberately stacked against them".

Nor are these agreements likely to go away, according to Bell. "Why do we have all these complex third-party agreements? Because they're legal agreements, and legal agreements have always been complex.

'Social media apps, surveillance technologies, and the internet of things are all built in ways that make it hard to guard personal information'



“At the back end they have to be complex because they are about complying with the law. I would assume that is not going to change, but there are moves at the front end to make the whole process consumable and give consumers more capacity to make decisions and take control of their data,” she adds. “The question is how you take these complex constructs of US or UK tort law and boil them down to something that the everyday user can understand.”

In the early days of the internet, issues such as data breaches were not seen as that important, says Carvel. “The view was: ‘Why should my behaviour on a website be regulated in the same way as my taking medication is?’

“But now ... our lives are governed by our online presence. As it became more important, more regulation has become appropriate and it is a case of regulators catching up.”

GDPR

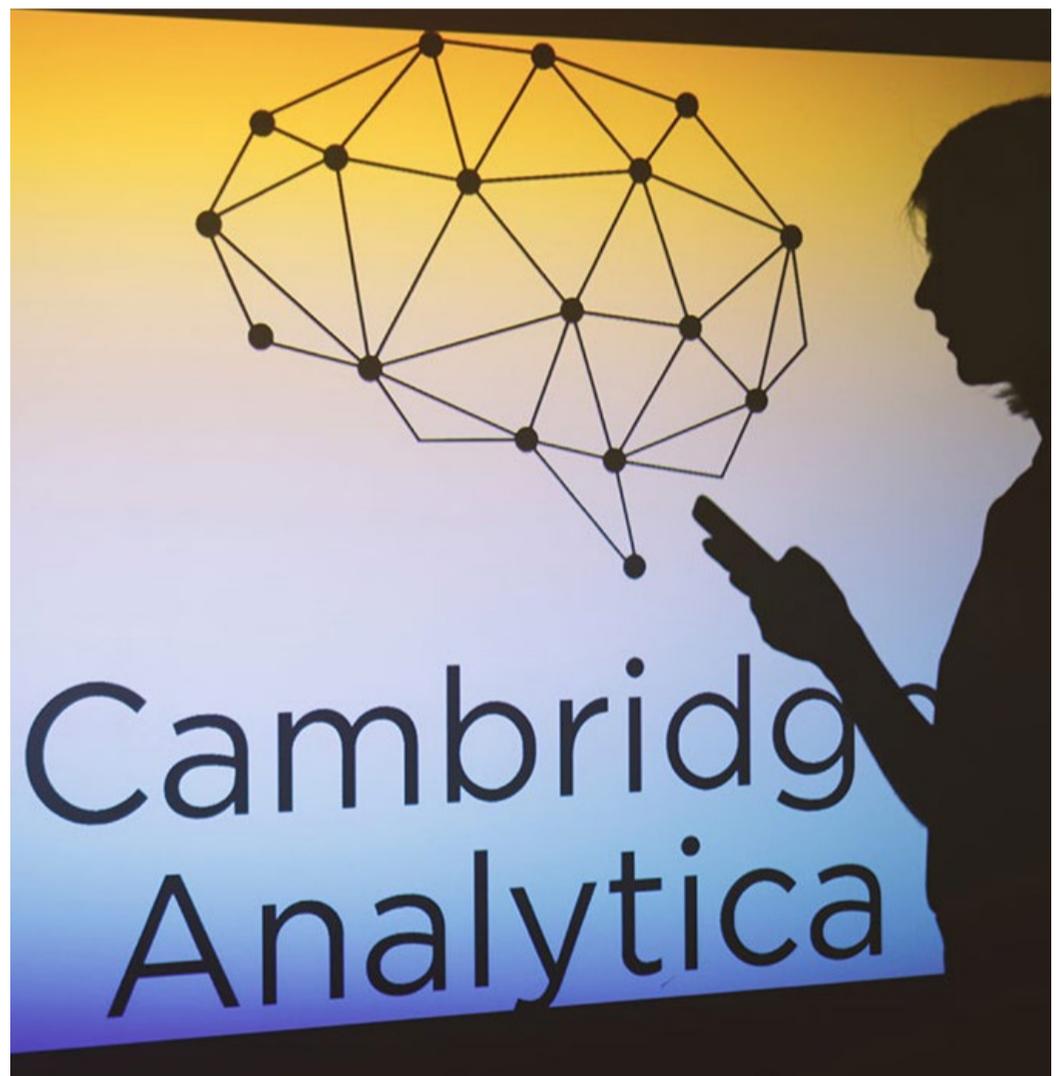
The most high-profile regulation has been the European Union’s GDPR (General Data Protection Regulation), which spells out EU citizens’ digital rights, giving them new powers to access and control their data online.

As is the way of things with European directives, the law was seven years in

the making and when the process started, many questioned the need for it. By the time it came into force, amid the fallout from Cambridge Analytica, the point of it was abundantly clear.

Even though it applies only to EU citizens, the regulation has already become a de facto global standard for data protection, in part because the US has no national privacy law. California has recently introduced a Consumer Privacy Act (CCPA), which is similar to GDPR but with some caveats, according to Bell. “It’s still a piecemeal approach,” she adds. “But at some point, the patchwork fixes will amount to a comprehensive approach.”

However, while GDPR emerged after a long period of consultation, CCPA “is almost entirely a response to Cambridge Analytica. It was rushed and that’s not a sensible way to regulate,” Carvel says.



ALEXANDRAPOPOVA/SHUTTERSTOCK

The Cambridge Analytica case alerted users to dangers of sharing data

Even though it applies only to EU citizens, GDPR has already become a de facto global standard for data protection



Underpinning GDPR is the idea that trust is essential to the growth of the digital economy and that trust has been forfeited by a lack of transparency on the part of the online platforms.

Transparency is important, agrees Carvel, but it is not enough. “It’s not just a question of putting terms in place and saying ‘you agreed to them’. The key points with these online agreements should be fairness and using the technology in an ethical way.”

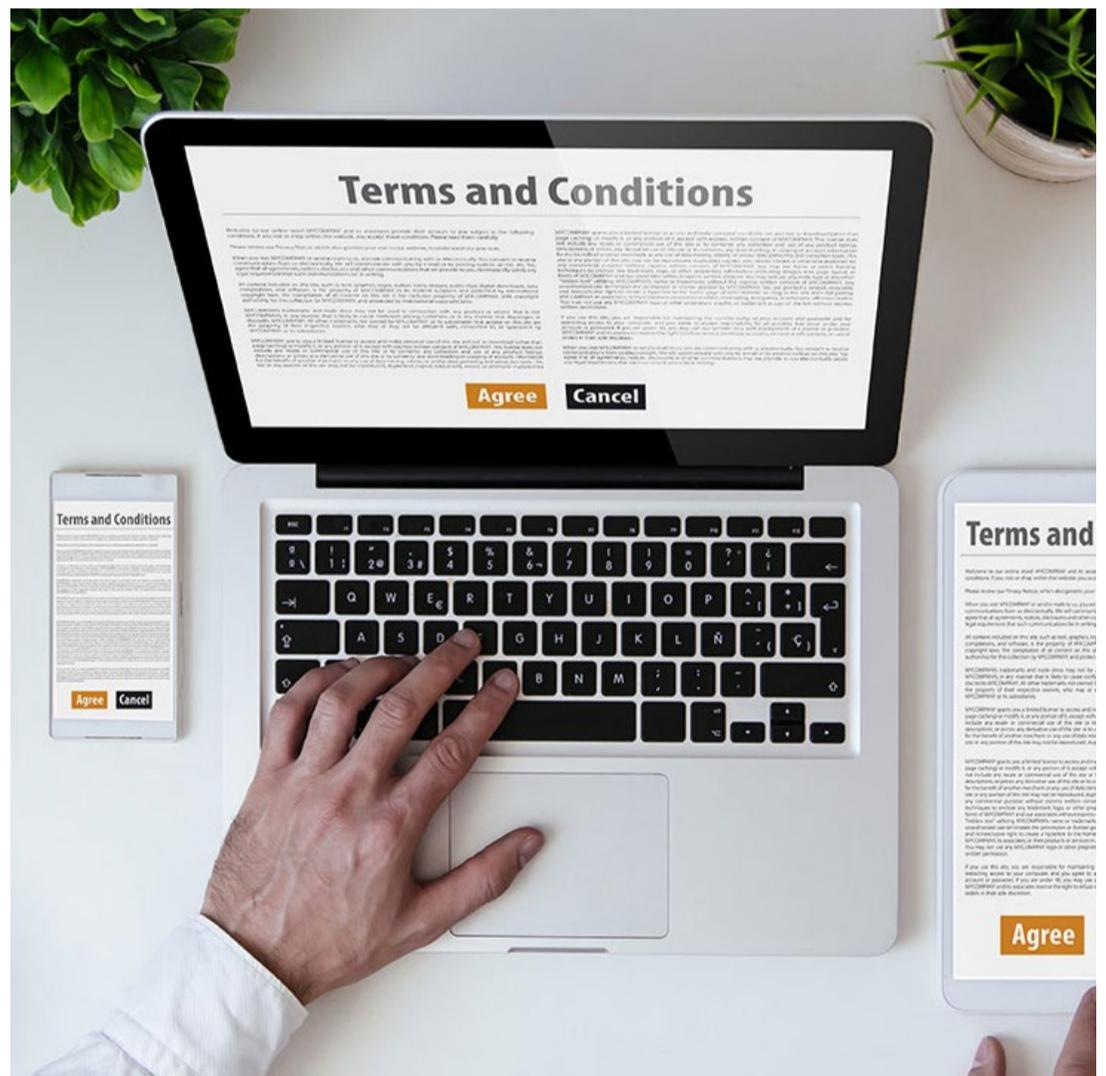
Research by the UK’s Information Commissioner’s Office (ICO) recently showed that barely one third of people “have trust and confidence in companies and organizations storing and using their personal information”. For social media companies, the figure is (15%).

“Across the world people have woken up to the importance of personal data and how it’s used,” says Elizabeth Denham, Information Commissioner. “Personal data has become the currency by which society does business, but advances in technology should not mean organizations racing ahead of people’s rights. Individuals should be the ones in control and organizations must demonstrate their accountability to the public.”

What would also be helpful, Carvel adds, would be the development of standard, agreed templates that are held up as best practice. “It doesn’t really happen, but it would be great if there was a standard we could all use. We wouldn’t have to negotiate agreements for months. It would make things a lot easier for smaller companies, which wouldn’t have to invest so much in legal resources, while consumers would see something they were familiar with.”

Nonetheless, there has been some progress. Companies such as Microsoft and Google have a good reputation for simplifying their terms and conditions, Bell says, while one of the concepts championed in GDPR, “privacy by design”, is gaining traction even where it is not required. “In essence,” says the ICO, “this means you have to integrate, or ‘bake in’, data protection into your

‘The key points with these online agreements should be fairness and using the technology in an ethical way’



GEORGEJMLITTLE/SHUTTERSTOCK

Online agreements are called clickwraps in the industry



processing activities and business practices, from the design stage right through the lifecycle.

“Data protection by design is about considering data protection and privacy issues upfront in everything you do. It can help you ensure that you comply with the GDPR’s fundamental principles and requirements, and forms part of the focus on accountability,” it adds.

The emphasis on privacy and consumers’ rights is leading not just to changes in behaviour, but the emergence of companies hoping to profit from helping people manage their online security. OneTrust, for example, dubs itself a provider of

“privacy management software” that helps companies ensure compliance with GDPR and manage visitor consent and preferences. BigID and ID Experts also help businesses keep customers’ data private in sectors such as health-care, financial services, retail and government.

There is also a new caution in the online community after the years when companies did things just because they could without thinking about whether they should. “There are things that you just don’t do any more,” Carvel points out. “For example, websites can know what other tabs you have open in your browser. Virtually everyone agrees you can’t do that now. It’s the same with ‘zombie cookies’ that stick around even if you delete them.”

Firms are also highlighting their ethics as a business differentiator. Fleksy, a keyboard maker, says that while keyboards can collect and send data just as websites can, “Fleksy does not collect personal data and it gives the user access to the analytical data that is collected to improve the keyboard, and which can be erased. It’s not a matter of legal protection or compliance, but a business decision.”

Qubit benefits from the fact that it is based in the EU, Carvel says. “We are the only company in our field based in the EU. We have had to do this for a long time and over the last three years it has really started paying dividends. We have won a lot of business based on the fact that we can offer better security practices.”

Ultimately, what will restore trust and put power over data back in the hands of consumers is when companies realize that it is good business to do so. ■



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Online transactions give websites a detailed picture of users’ spending habits

‘Data protection by design is about considering data protection and privacy issues upfront in everything you do’

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HBO

Holding the human rights frontier in a borderless internet

In the Wild West that exists online companies are having to grapple with issues such as freedom of expression, hate speech and fake news undermining democracy. Mike Scott reports on how initiatives like the GNI Principles are trying to help

The online world occupies a strange sort of limbo. Because it is not a physical entity, it spans the globe, and is so all-encompassing that it can seem like normal rules do not apply.

“The digital world is very new,” says Justin Chud, ethics editor of Compassionate Technologies. “In the last 20-30 years, as the internet started to blossom ... it kind of dropped a grand piano on everyone. Companies were focused on growth, growth, growth and governments moved much more slowly.”

Despite now being an essential part of modern life, the idea persists that it is the Wild West, and anything goes. “Until recently, policy makers have been very much in awe of, and in some senses afraid to challenge [companies],” says Jonny Shipp, a visiting fellow in the Department of Media and Communications at the London School of Economics. “The online giants have not faced pressure to behave ethically.”

Now, however, the online world is facing some very adult problems, including the need to defend human rights online, such as freedom of speech, the right to privacy and the right not to be subject to hate speech.

‘The internet kind of dropped a grand piano on everyone. Companies focused on growth, growth, growth and governments moved much more slowly’



“It’s often said that the law should apply online as it does offline,” adds Shipp, who is leading the development of an Internet Commission, an independent initiative for a more transparent and accountable internet. “Despite the rapid development of technology and the changes that the digital world brings, people remain people and the need for the protection of fundamental rights remains a constant.”

However, Lise Smit of the British Institute of International and Comparative Law (BIICL) argues that it is not helpful to talk about generic human rights. “There are different human rights at stake when it comes to online content that require very different forms of protection,” she says.

The internet has brought an upsurge in freedom of expression, and many companies have an explicit commitment to encourage this. BT, for example, says: “We stand up for the right to communicate openly, whenever and wherever possible, because that’s what our business has always been about. The right to free expression isn’t just about freedom of speech, it’s also about the right to information.”

The [UN Guiding Principles on Business and Human Rights](#) are clear that businesses should respect human rights wherever they operate. However, this is often easier said than done when it comes to freedom of speech online.

The Council on Foreign Relations, an American non-profit thinktank, points out that “as internet connectivity has spread dramatically throughout the world in the past decade, so has the propensity of governments to disrupt or completely block it”. A lack of internet access represses freedom of expression and threatens livelihoods that depend on network connectivity, it adds, but growth in the use of the internet is coupled with anxiety over its tendency to decentralize power, driving many governments to use it as a tap that can be turned on and off when deemed appropriate.

During the 2011 Arab Spring demonstrations in Egypt, when protesters were calling for the end of President Mubarak’s regime and organizing



30 SECOND READ

- The online world is facing complex human rights problems, such as the rights to privacy and not to be subject to hate speech. Equally, the internet has brought an upsurge in freedom of expression, which many online firms are committed to uphold.
- Because of its ability to decentralize power, governments can try to disrupt the internet. The GNI, a body of companies and freedom groups, fights for ‘internationally recognized rights to free expression and privacy’.
- However, those rights have to be balanced; this year, the UN investigated whether hate speech on Facebook contributed to attacks on the Rohingya people in Myanmar. Some countries, such as Germany, have explicit laws banning hate speech.
- The borderless nature of the internet means governments need to co-operate to enforce human rights and not leave the onus on companies to self regulate. Historically, policymakers have adopted a hands-off approach to the online giants, but now need to pave the way for regulation.

‘There are different human rights at stake when it comes to online content that require very different forms of protection’



demonstrations using the internet and social media, the government ordered all mobile phone networks to shut down. Vodafone saw this as a violation of freedom of speech and expression, as well as conflicting with its human rights policy. The company kept its network open for as long as it could, until executives were forced at gunpoint to shut it down, according to Smit.

The Global Network Initiative (GNI) was set up by companies, human rights and press freedom organizations, academics, and investors to fight for “internationally recognized rights to free expression and privacy”. “Every day, in almost every country in the world, technology companies receive requests from governments to censor content, restrict access to communications services, or hand over user data,” it says.

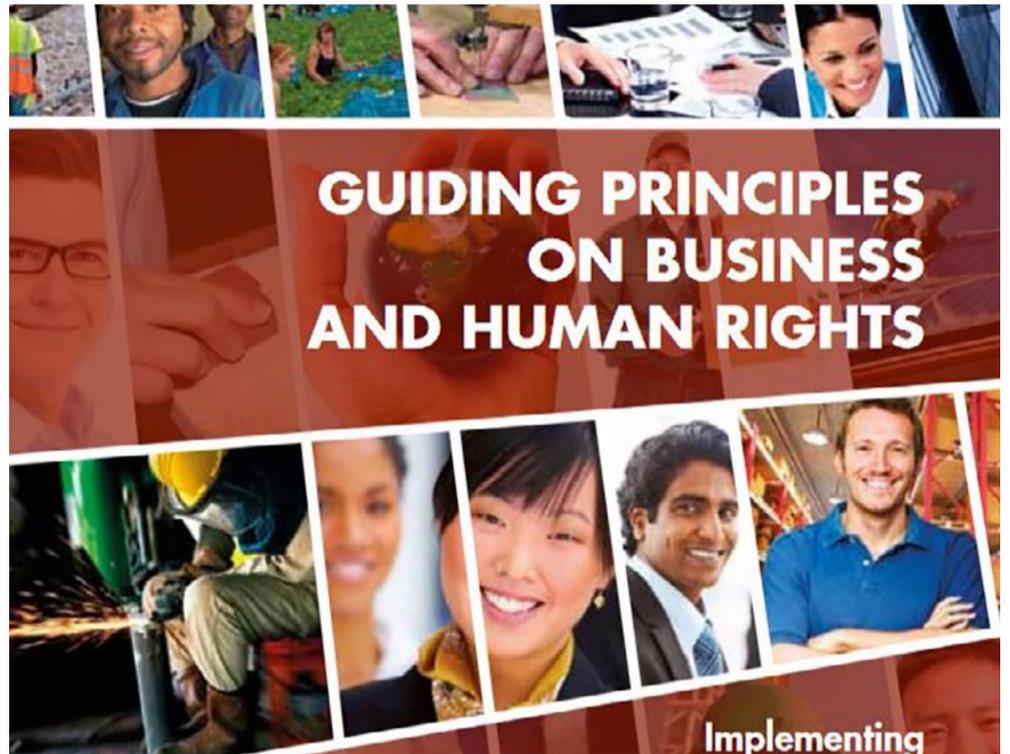
When there is a conflict between a company’s values and government requirements, “in order to succeed in the long run companies have to be driven by their values,” Shipp asserts. “If they can’t operate in line with their values, they will have to withdraw. Organizations like the Global Network Initiative are good at reporting those situations – it is one thing that companies can do in their defence.”

The right to freedom of expression also has to be balanced against the danger that this expression is violating other people’s human rights. “Freedom of speech and protecting against hate speech are notoriously contradictory rights and it’s a very difficult balance to achieve,” Smit says.

United Nations investigators earlier this year said that Facebook had played a role in spreading hate speech in Myanmar that contributed to the attacks on the country’s Rohingya people. This is not specifically an internet issue, Smit points out, but the internet has the power to amplify the danger. “Pre-internet, in Rwanda, we saw how hate speech quickly led to genocide,” she says.

Germany and South Africa have explicit laws banning certain types of hate speech as a result of the role that it played in their history.

There are questions about whether nations are equipped to deal with human rights on the internet, however. “Traditionally, governments have been pretty walled in when it comes to handling human rights,” says Chud. “But they are going to have to work together because there are no walls, no borders in the digital world.”



The UN says businesses should respect human rights wherever they operate, but this is easier said than done online

‘Freedom of speech and protecting against hate speech are notoriously contradictory rights and it’s a very difficult balance to achieve’



CREATIVE COMMONS

During the anti-Mubarak protests in Egypt, the regime ordered all mobile networks to shut down

The internet is different from other sectors of the economy, such as mining or apparel, because there is no physical product or workplace that can be inspected for compliance. And if someone's human rights are being violated, for example through the spread of hate speech, it can be carried out by someone in one country on a platform owned by a company that is registered in another country and pays tax somewhere else entirely, making it hard not just to ascertain who is responsible but which jurisdiction deals with the issue.

Nonetheless, the growing number of data breaches and other online scandals such as the Cambridge Analytica affair make it likely that companies will face more regulation in future.

Companies, particularly internet platforms, need to be more open on what they are doing to tackle issues such as harmful and offensive content; security (both online and offline); ethics around artificial intelligence; online advertising and the impacts of fake news on democracy, says Shipp. "We need an environment where processes and procedures to tackle problems are more visible and accountable, and they need to be independent and validated. There's no doubt that companies are doing a lot to improve their processes, but it needs to be demonstrated."

At the same time, governments should acknowledge the reality that global platforms operate across the world, he adds.

There are fears that laws such as Germany's and South Africa's are placing too much of a burden on companies, as well as failing to recognize the realities of the online world. "All these companies are private, for-profit enterprises and now we're telling them that they have an insane duty to make sure that human rights are not abused – on a global scale," says Chud. "Facebook is not the government. It should not be having to deal with this."

'We're telling these private for-profit enterprises they have an insane duty to make sure human rights are not abused – on a global scale'



Smit agrees. “Germany requires tech companies to take down hate speech within 48 hours, which is really quick. The law expects the company to make the decision on what is hate speech and what isn’t. It has been heavily criticized as a result and there have been calls for an independent body to decide, such as a court or a state oversight mechanism. But on the other hand, things happen so fast that going to court to remove something is a completely outdated idea.”

Internet companies say the only way to monitor the vast amount of traffic on their platforms will be to use automated processes such as algorithms that highlight certain words or images. Algorithms are problematic because they are developed by people with their own biases and without expert knowledge of human rights, Smit says, adding that “context

is everything when it comes to hate speech – who said it, who is the audience, what is the history behind it. You can’t really expect companies to monitor it on their own.

“They are being expected to make decisions that are state obligations. There is not much by way of regulation for companies at all at the moment. There are no regulations for companies to go on, but governments are pushing obligations on to businesses and requiring them to self-regulate. Meanwhile, the public is focused on what companies are doing but not on what governments should be doing to protect their rights,” she adds.

The cross-border nature of the internet means international co-operation is needed to enforce online rights, along with global standards for responsible decision-making, such as the [GNI’s Principles](#). But companies need to recognize that there is a new consensus emerging that technology should work in the service of people, not the other way round, Shipp says. “Companies have been able to pursue their own priorities in an unfettered way,” he adds. “They have not attended to the ethical and human rights considerations of what they are doing, and they have not been called to account as much as other industries have. Now they are being challenged and they need to prepare for regulation, as well as collaborate with policy makers to ensure that any new rules don’t eliminate the benefits of the digital revolution.” ■



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As internet connectivity has spread globally, governments have become more inclined to disrupt or block it

‘The public is focused on what companies are doing, but not on what governments should be doing to protect their rights’

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LEFDAL MINE DATACENTER

Taking the heat out of the digital revolution

With \$20bn a year being spent on new data storage, the IT sector's ballooning carbon footprint is of growing concern. Mike Scott looks at global efforts to green data centres

Think of the world's biggest emitters of greenhouse gases, and power stations, huge industrial facilities and chemical works come to mind.

The IT sector, in contrast, is associated with minimalist clean lines and cutting-edge apps. Even its factories are famously pristine, controlled environments with the few people that are there wandering around in head-to-toe white body suits.

Many of the latest digital advances sound inconsequential and nebulous – cyberspace, the cloud – their products, such as books, CDs and DVDs, so that they now exist chiefly online.

Further progress is promised by technologies including the internet of things, artificial intelligence, 3D printing and blockchain. As a result, most people think that the digital economy is inherently environmentally friendly because of its huge potential to improve efficiency and reduce waste.

But this digital construct has physical foundations in power-hungry data centres, and digital's astonishing growth in recent years has seen it quietly become one of the biggest energy consumers of any sector. "The internet will likely be the largest single thing we build as a species," says Greenpeace, which calculates that the IT sector already consumes 7% of the world's electricity.

'The internet will likely be the largest single thing we build as a species and already consumes 7% of the world's electricity'



30 SECOND READ

- Most people think the digital economy is environmentally friendly because of its potential to improve efficiency and reduce waste. However, the industry relies on power-hungry data centres and already consumes 7% of the world's electricity.
- The sector's power use is set to rise massively fuelled by the IoT, AVs, video streaming and smartphones. Connected devices are expected to rise from 8bn now to 50bn by 2020. More than \$20bn a year is being spent on building new data storage facilities.
- Apple, Facebook, Google and Microsoft, have committed to source 100% of their electricity from renewable power, but Greenpeace warns such leadership is far from standard and points to a lack of transparency in the industry.
- However, there is a lot of innovation in the sector: Google is experimenting with AI to increase cooling efficiency – data centres generate a lot of heat – while other firms are placing centres in cooler countries or environments, such as the seabed.

According to tech firm Cisco, the sector's power use is set to increase massively as the number of connected devices – everything from refrigerators to driverless electric cars to buildings, as well as the ubiquitous smartphone – increases. There are currently 8 billion connected devices, a figure expected to rise to 50 billion by 2020 with internet traffic set to triple in the next five years. More than \$20bn a year is being spent on building new data storage facilities and the sector's energy consumption and carbon footprint are becoming a serious concern.

“Every time we go on the internet, use social media, log on to our internet bank or screen something from Netflix, a process starts in a data centre,” says Fredrik Jansson, chief strategy officer at DigiPlex, a data centre operator based in the Nordic region. “If that data centre is using power from a coal-fired station and is not energy-efficient, then you as a consumer become an environmental problem, and you have no idea.”

This lack of transparency is a big part of the challenge. In a survey for DigiPlex of 300 senior executives across Scandinavia, 60% of respondents could not even say for sure in which country their data was being stored. “Traditionally, when you buy data centre services you do so as part of an IT services outsourcing package. The first thing that companies need to do is really look into where their data sits and how their data centre operates,” Jansson says.

That's because it's clear that when it comes to energy consumption, not all data centres are equal. The largest concentration of data centres in the world is in northern Virginia, just across the Potomac river from Washington DC, where power costs are just one third of those in California. Virginia gets just 3% of its energy from renewable sources, although about a third comes from nuclear power. However, many data centres in Asia are powered by coal-fired electricity, giving them a significant carbon footprint.

There is good news: some of the sector's biggest companies, such as Apple, Facebook, Google and Microsoft, have committed to source 100% of

Netflix alone accounts for over one-third of internet traffic in North America and is in the midst of a worldwide expansion



their electricity from renewable power. Indeed, the sector has been responsible for driving corporate purchasing of clean power in other sectors as well.

At last month's Global Climate Action Summit in San Francisco, a coalition of 21 tech companies announced a partnership with Christiana Figueres' Mission 2020 to harness technology to help reduce emissions across all economic sectors, starting with their own. Led by CRM company Salesforce, the coalition includes Autodesk, BT, Cisco, HP and Uber. (see ['We need everyone in tech to sign up to 100% renewables'](#)).

However such leadership on cutting CO₂ emissions is far from standard in the sector, Greenpeace says: "The least transparent companies, – such as AWS, Tencent, LG CNS, and Baidu – are also among the most dominant in their respective markets, making their lack of movement toward more transparency even more egregious."

Greenpeace warns that "the continued lack of transparency by many companies regarding their energy demand and the supply of electricity powering their data centres remains a significant threat to the sector's long-term sustainability".

The NGO also highlights the key role that video streaming will play in future demand. "Video streaming is a tremendous driver of data demand, with 63% of global internet traffic in 2015, which is projected to reach 80% by 2020. Netflix alone already accounts for over one-third of internet traffic in North America and is in the midst of a worldwide expansion."

There is a tremendous amount of innovation going on in the sector, and those companies that have committed to renewable energy have found that it offers real business benefits as well as environmental ones.

Data centre provider Iron Mountain started looking at its carbon footprint about four years ago, says Kevin Hagen, the company's vice-president for environment, social and governance strategy. "At the time everyone assumed it would cost more. But renewables are cost-competitive now. The switch has been really good for cost reduction, cost stability and reducing our environmental impact."



KODDA/SHUTTERSTOCK

Power-hungry data centres, many reliant on fossil fuels, have made the digital industry one of the biggest energy consumers

'Every time we go on the internet, a process starts in a data centre. If that data centre is using power from coal, then you as a consumer become an environmental problem'



The other key to reducing data centres' impact is to improve their energy efficiency. The simplest way to do this is to outsource. "Old-fashioned in-house data centres are generally the least efficient option, mainly because corporate IT departments are not at the cutting edge of data centre design," says Hagen. "Companies that operate data centres for a living and build them at scale are far more efficient than in-house operations."

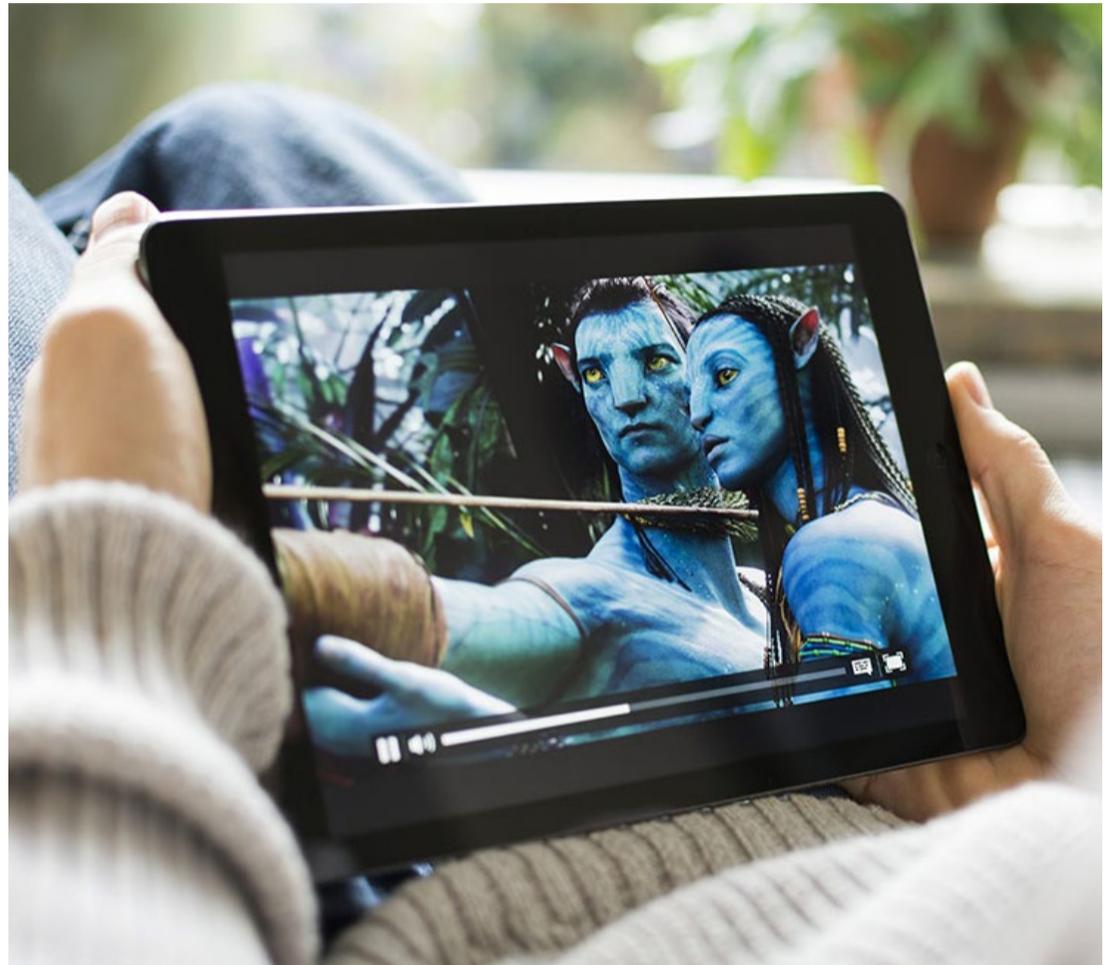
The next option is to go somewhere cold. The servers that data centres use to store information produce a lot of heat, so many companies have started siting their operations in colder countries such as Norway, Sweden and Iceland, which also have the advantage of robust grids and large amounts of renewable energy. Verne Global, for example, has built a facility on a former NATO airbase just outside Reykjavik in Iceland.

"The majority of our power is geothermal and hydroelectric. It is baseload power but renewable," says Tate Cantrell, chief technology officer at Verne Global. "We are able to do it at lower cost and we have the opportunity to tick the renewable energy box. That's good if you're concerned about your energy consumption and the environment, or your customers are."

"There is a drive among data-centre companies to be more efficient, but a lot of it is driven by cost," Cantrell says. One way that facilities are becoming more efficient is by having a higher density of servers, but that creates more heat, which has to be removed.

There are different approaches to doing that. DigiPlex claims that its air-to-air cooling is more efficient than water cooling while Verne's Cantrell says that "air has certain engineering limitations for cooling, so we use liquid cooling".

Microsoft is taking that approach one step further – with more than half of the world's population living within 120 miles of the coast, it is experimenting with data centres sited on the seabed near coastal cities. Earlier this year, it installed an underwater facility on the sea floor at the European



TWIN DESIGN/SHUTTERSTOCK

Video streaming accounted for 63% of global internet traffic in 2015

'Old-fashioned in-house data centres are generally the least efficient option, mainly because corporate IT departments are not at the cutting edge of data centre design'



Marine Energy Centre in Orkney. “By putting data centres in bodies of water near coastal cities, data would have a short distance to travel to reach coastal communities.”

Meanwhile, Google’s DeepMind is exploring how using artificial intelligence to control cooling systems can improve data-centre efficiency by examining the best ways to minimize energy consumption. “Despite being in place for only a matter of months, the system is already delivering consistent energy savings of around 30% on average, with further expected improvements,” Google says. “That’s because these systems get better over time with more data.”

Norway’s Lefdal Mine Datacenter is sited 150 metres underground in an old mine to help with cooling, and it also uses cold water from a nearby fjord.

DigiPlex is going a step further, and reusing its waste heat in Oslo’s district heating system. Other data centre companies need to start reusing heat, Jansson says. “The industry needs to evolve. Even if there is no residential heating system to tap into, there are many innovative ways to make good use of excess heat.”

He also thinks there should be an eco-labelling scheme for data centres. “There is going to be an exponential increase in the amount of data and if we store it in the way that data centres currently operate, it will not work,” he says. “In the worst-case scenario, there will be restrictions on the amount of data people can generate, how much they can watch TV or use the internet. For that not to happen, we need to raise awareness of what happens when you log on.”

In addition, companies need to focus on the sustainability of their data centres, he adds. “I’ve never seen an annual report that talks about a company’s digital carbon footprint. But if you house your data in a dirty data centre, that’s going to have an impact. It’s a brand risk.”

Data centre energy consumption is out of sight, out of mind, adds Hagen, “but buyers [of data centre capacity] have to be part of the solution. You can’t just send it to the cloud and act like it’s not your problem. That’s not the case anymore.” ■



MICROSOFT

Microsoft is has installed an underwater facility off of Orkney



Mike Scott is a former Financial Times journalist who is now a freelance writer specializing in business and sustainability. He has written for The Guardian, the Daily Telegraph, The Times, Forbes, Fortune and Bloomberg



‘We need everyone in tech to sign up to 100% renewables’

One exciting corporate commitment to come out of last month’s Global Climate Action Summit (GCAS) in California was the agreement by a coalition of tech companies to urgently step up action to tackle climate change, working with Christiana Figueres’ Mission 2020 group. The Step Up Declaration, “dedicated to harnessing the power of emerging technologies and the fourth industrial revolution to help reduce greenhouse gas emissions across all economic sectors by 2020”, was signed by 21 companies, including HP, Autodesk, Bloomberg, Uber, Lyft, WeWork and BT.

Patrick Flynn, sustainability director of San Francisco-based CRM firm Salesforce, which leads the alliance, said in an interview that each of the 21 signatories has mapped out how it intends to take greater responsibility for bending the curve on CO₂ emissions ahead of the critically important deadline of 2020.

“The declaration articulates that now is the time where even the leaders have to go further and faster and catalyze change outside their direct operations, upstream into their supply chains, and downstream into the use of their technology,” Flynn said.

Salesforce’s commitment under the declaration was to put a 2022 deadline on its previously announced commitment to source 100% renewable energy. A year ago it said it had already achieved carbon-neutrality by purchasing carbon credits equal to the unavoidable emissions in its direct operations, and was halfway to hitting its 100% renewable energy target.

The latter requires the company to enter into virtual power purchase agreements (VPPAs) for renewable energy equal to what Salesforce uses annually around the world, including the energy used to manufacture its servers, and by its customers using its products.

CEO Marc Benioff said at GCAS that Salesforce had just signed its biggest VPPA to date, a 15-year agreement for 80 megawatts (MW) of new wind energy in Illinois. It had previously signed a VPPA for 24MW of new wind energy in Texas and 40MW in West Virginia.

Flynn said the contracts are virtual because, in common with most of the tech sector, Salesforce doesn’t actually own its own data centres or offices and so doesn’t pay the electricity bills.

It offset its share of energy usage by signing VPPAs, which are structured to provide financial security to renewable energy developers and ensure the clean electricity generated goes into the local grid.

But Salesforce is also leading in another coalition of tech companies that is trying to put pressure on data service providers to clean up the cloud. Signatories to the snappily named [Corporate Colocation and Cloud Buyers' Principles](#), say they will preferentially buy from providers that meet six criteria.

These include investing in renewable energy, allowing customers to collaborate on energy efficiency improvements, and providing monthly data on customer's direct and indirect energy and water consumption, and greenhouse gas emissions.

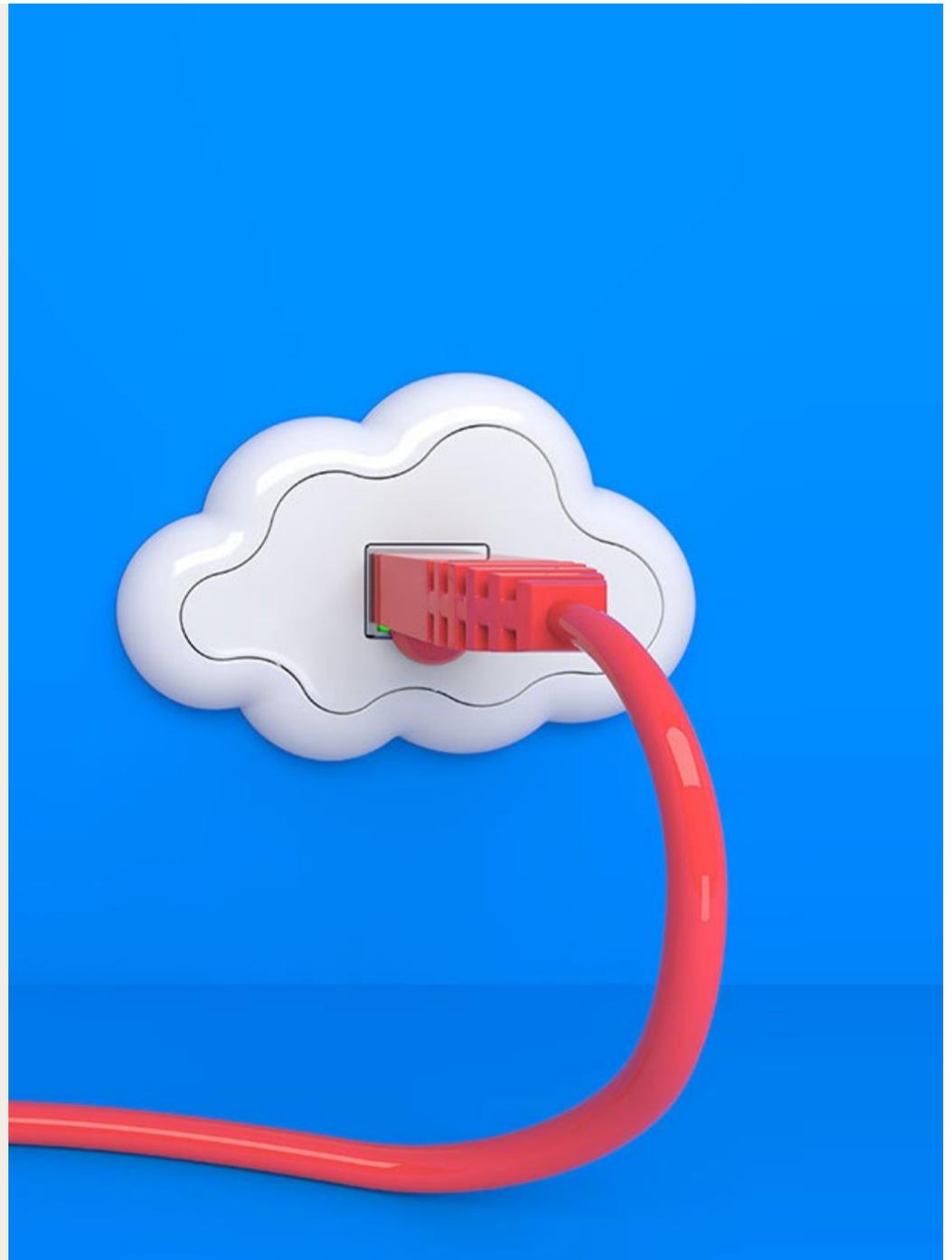
The companies involved are part of BSR's Future of Internet Power initiative, which aims for the internet to be powered exclusively with renewable energy.

Signatories include many of the same names in the Step Up Declaration, along with some big names that aren't, including eBay, Facebook, Adobe and LinkedIn. "Companies worth \$1trn market cap have signed up to these principles," says Flynn. Their message to data centres is: "Not all electrons are created equal. We want green electricity powering our operations."

With data centres rapidly building out new infrastructure to meet the quantum leap in demand expected with self-driving cars (see ['Will privacy concerns throw up roadblocks in race for self-driving cars?'](#)), there isn't a moment to lose.

As Benioff told the 4,000 delegates at the GCAS: "We need every company in our industry to commit to net zero plus 100% electricity. It's all right in front of us. We can do it. Every company can leverage [renewables] right across their supply chain."

Terry Slavin



BSR's Future of Internet Power initiative is trying to clean up the cloud

[View online](#)

NISSAN

Will privacy concerns throw up roadblocks in race for self-driving cars?

Angeli Mehta reports on the emerging regulations to protect the vast amount of data created by automated vehicles

The autonomous vehicles now being piloted around the world have been described as “smartphones on wheels” because of the vast amounts of data they collect about their users and the vehicles and people they share the road with.

In fact, Apple and Samsung are among the 57 companies that by last month had permits to test autonomous vehicles (AVs) on California’s roads. In Europe, Nissan has been testing its vehicles in London, and BMW has built a centre of excellence for autonomous driving near Munich. In China, e-commerce giant Alibaba is one of the latest tech companies to start testing self-driving cars.

We may be some years away from truly autonomous vehicles, but privacy issues are already with us. Advertisers and tech companies would like to get their hands on the data generated by today’s connected cars, and BMW revealed it had turned down requests to share its data as far back as 2015.

In 2014 a senior Ford executive, Jim Farley, made comments at an electronics convention revealing that the company knew whether owners of its cars had broken speeding laws, though he added that Ford didn’t supply that data to anyone. He later [withdrew the statement](#), saying he was speaking hypothetically: the company didn’t track its customers without their approval or consent.

The data already being generated by vehicles could be valuable to governments, insurers and the police, as well as companies



30 SECOND READ

- Today's connected cars generate data that could be valuable to companies, governments and the police. Autonomous vehicles (AVs), which are being piloted globally, can collect vast amounts of information about individuals and other vehicles via their outward-facing cameras.
- AVs need to collect data for safety considerations, which puts it beyond users' control and poses questions about what use companies can put information to and for how long they can hold it.
- The EU holds that data produced by connected cars is personal, and falls under the GDPR. The UK's Centre for Connected and Autonomous Vehicles is looking at how users might be able to control the data generated.
- Carmakers are also addressing the issue. SEAT and Telefónica have signed an agreement that facilitates data collection while 'facilitating the principles of privacy' while in 2014, 20 global carmakers signed up to a series of privacy principles.

Hypothetical or not, the comments highlighted the fact that the data already being generated by vehicles could be valuable to governments, insurers and the police, as well as companies. This data isn't just what is collected from the cars' trademark outward-facing cameras, but all the other data that gets generated such as location, personal data through the apps that provide services, and car-to-car and car-to-infrastructure communications, some of which will be useful and some you may prefer others not to have.

John Verdi, vice-president of policy at Washington thinktank Future of Privacy Forum, points out that self-driving cars will collect data about where and when an individual travels from one place to another, making individuals potentially vulnerable to being stalked or having their home broken into.

When you get to full autonomy, he suggests, there's also the question of how the presence of a live individual or a package in the vehicle gets verified technologically and who can look at that data.

So how will that data be used; how long will it be kept; in what form, and how securely?

At the moment, smartphone users can exercise some control over the vast amounts of data we give away. Verdi points out that consumers "can and do make choices about the data they give, the permissions, location history they enable or disable; they decide whether to take their phone; whether to connect via Bluetooth, or enable Wi-Fi".

However, consumers won't be in the driving seat with the data that is harvested for self-driving cars due to real-time safety considerations, putting the onus for responsible usage on manufacturers: "If you aggregate or delink the data I think that one can glean a fair amount of safety benefit," says Verdi. "Then the question becomes what are appropriate time limits."

Uber, which has been [hailed up](#) in the US for "deceiving consumers" about its privacy and data security practices, said in an emailed response to questions that the data the company collects in self-driving trials is used to inform its track tests and simulation scenarios.

How will the data be used; how long will it be kept; in what form, and how securely?



The company currently has a standard holding period for data, but does not provide detail around that. But it asserts that autonomous vehicles won't drastically change the situation for Uber riders because its existing business doesn't offer anonymous trips; nor will AVs collect additional data from the rider.

The state of legislation

Europe is leading the way on privacy legislation (see [‘Europe’s privacy revolution far from over’](#)). Since May, data protection has been controlled by the General Data Protection Regulation

(GDPR), which aims to strengthen data protection across the EU, and restricts the transfer of data outside its borders. Importantly, the GDPR requires data to be considered at the design stage, so data protection is incorporated from the beginning – so-called “privacy by design”.

The EU also has a connected-cars strategy, and recommendations are expected later this year on an automated mobility strategy that will include cybersecurity. But at its heart is the notion that data produced by connected cars is personal data, and so how it is used falls under the GDPR.

The EU strategy document says: “Users must have the assurance that personal data are not a commodity and know they can effectively control how and for what purposes their data are being used.”

Richard Benjamins, data and artificial intelligence (AI) ambassador at Spanish telecoms company Telefónica, told Ethical Corporation that this could be achieved by “managing data as an asset with proper governance, security and privacy rules. At any moment it needs to be known what data is stored and used for what purpose”.

Last year, Telefónica and carmaker SEAT [teamed up](#) to work on digitalization in the automotive sector, including testing new technologies for 5G networks in Spain that will be needed for autonomous driving. The announcement stated that the agreement “provides for the implementation of tools and joint mechanisms that facilitate data collection, management and analysis, all while respecting the principles of privacy, confidentiality and transparency of user-owners. In addition, both companies will work together to explore the benefits of Big Data and the shared use of data in designing new mobility proposals.”



The Waymo AV being piloted in Seattle

SUNDRY PHOTOGRAPHY/SHUTTERSTOCK

‘Users must have the assurance that they can effectively control how and for what purposes their data are being used’



Benjamins points out that “if we provide the vehicle with a SIM, then we know the location of the vehicle, which is used when a crash happens, for instance, to notify authorities. All this personal data is protected under GDPR. If we want to use the data for other purposes than operating the service, we need to ask the user for explicit consent.”

He adds: “We need also to provide the security level adequate to the risk to which the personal information may be exposed.”

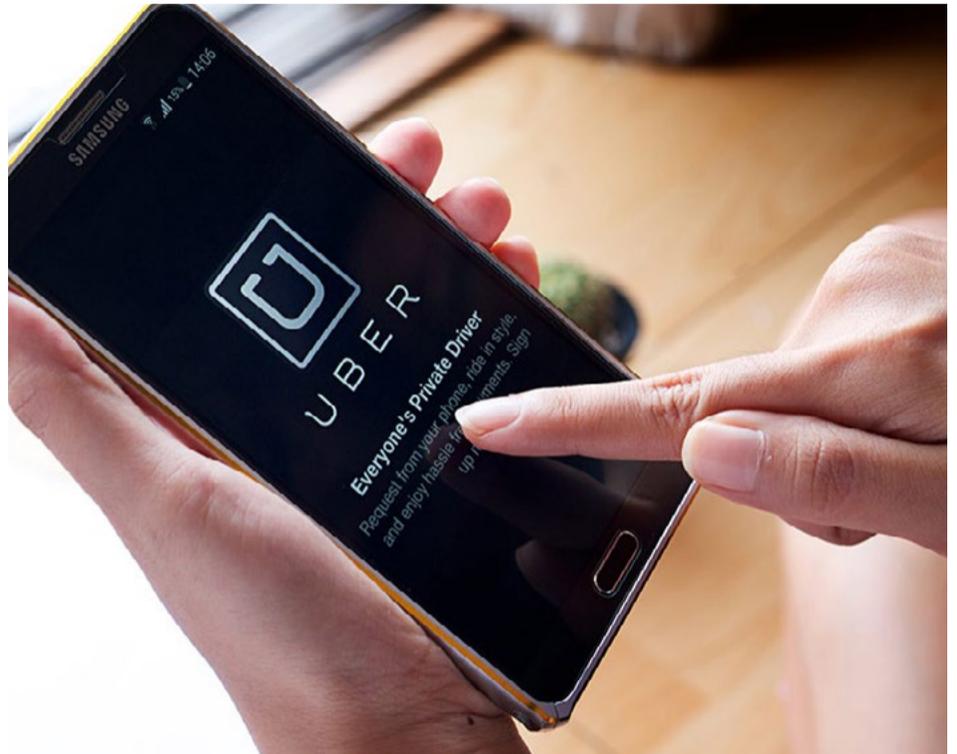
The UK, which wants to be a world leader in self-driving technology, has set up a Centre for Connected and Autonomous Vehicles. One of the [projects](#) it funded is looking specifically at how users might be able to control who discovers – and hence who can access – the data generated. The UK’s Information Commissioners Office, whose job is to uphold individuals’ data privacy rights, plans to issue a call for evidence on connected and autonomous vehicles to help it understand public attitudes towards the technology and to find out what steps vehicle manufacturers and technology providers are taking to address data protection concerns.

In the US in 2014, 20 global car makers signed up to a series of [privacy principles](#); “a good first step by automakers,” suggests Verdi. The principles include: “Obtain affirmative consent before using geolocation, biometric, or driver behavior information for marketing and before sharing such information with unaffiliated third parties for their own use.”

The alliance later followed up with a framework for best practice in automotive cyber security. “In the US, the view now is preference for self-regulation. Some privacy advocates and some in the Senate disagree,” suggests Verdi. However, he points out that the Federal Trade Commission, which doesn’t have any statutory authority on connected vehicles, does have the authority to make sure the companies that make public assurances actually keep their promises.

It’s clear there is much thinking to be done: technologies and services are still evolving; while regulations and standards are still being formulated in many jurisdictions. The current state of play is perhaps summed up by Nissan’s response: “We have robust plans in place that keep evolving as the technology evolves. Due to the nature of our security planning, there is a lot that we cannot share publicly.”

At some point the public is going to want to know. ■



MR. WHISKEY/SHUTTERSTOCK

Uber has been hauled up in the US over privacy violations



Angeli Mehta is a former BBC current affairs producer, with a research PhD. She now writes about science, and has a particular interest in the environment and sustainability.
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JEVANTO PRODUCTIONS/SHUTTERSTOCK

‘Europe’s data privacy revolution is far from over’

GDPR is just the start, says Diana Marin David of Good Corporation. More regulation and hard work by companies will be needed to ensure EU consumers gain control over their data

It has been four months since the General Data Protection Regulation came into force on 25 May this year. In the run-up to GDPR Day, consumer awareness of data protection legislation seemed to be at an all-time high. Flooded with updates, notifications and requests from corporations, for many consumers it was the first time they were able to get a clear picture of how far their personal data had spread. Simultaneously, high-profile data scandals, like the ongoing Cambridge Analytica case, helped more people to realize the extent to which their personal data has become a valuable currency.

While it is good that individuals have become more aware of their rights to data privacy, there is a risk that they will soon become fatigued by the approach some organizations have taken to ensure that they are compliant with the GDPR.

Indeed, some approaches may breach the spirit of the legislation, such as when users face requests to agree to the transfer of their data to third-party partners and other profiling activities. One user, for example, followed links for further details to find a list of over 250 third parties that could receive this data.

In this example, both the number of third-party partners and the extra steps required to access information on them meant that the user was not neces-

One user followed links for further details to find a list of over 250 third parties that could receive his data

sarily making the informed choice on usage of personal data envisaged by the legislation. How this sort of approach to “informed consent” will be treated by enforcement authorities remains to be seen.

Initial pleas that the GDPR would prove too burdensome have quietened recently. While some organizations have chosen to pull out of the EU market entirely, including some high-profile media sites like the Chicago Tribune and the Los Angeles Times, for the most part organizations have tried to adapt. In the run-up to May some bodies went into overdrive in their campaign to request consent for processing users’ personal data. Now, having received that consent, organizations will have the additional important task of ensuring that they are monitoring that database of users, keeping details up to date, and only using the data for the purposes for which the user has granted permission.

Other ongoing tasks include the need to complete data privacy impact assessments, responding to subject access requests and ensuring that breach monitoring is taking place effectively. Ensuring that these requirements continue to be met, and that resource levels remain up to dealing with the tasks, will be an important factor in organizations remaining compliant with the GDPR after the initial excitement and concern from senior management passes.

Eyes are now turning to the ePrivacy Directive (implemented in the UK as the Privacy and Electronic Communications Regulations 2011), which is to be replaced by a new ePrivacy Regulation, expected to be in place in 2019. While much of the directive is not directly applicable to individuals, it contains important provisions on direct marketing.

The final text of the ePrivacy regulation will have important implications for the way companies talk to their customers. For example, many organizations, even post 25 May, currently operate using a “soft opt-in”, which means that they can assume they have consent for direct marketing to their customers. If the wording around this soft opt-in changes, many bodies will have to re-examine how and why they communicate with their customers.

Enforcement

While much focus has been given to the facets of data protection that affect consumers most directly, there are many areas of data protection “behind the



The General Data Protection Regulation came into force in May

Eyes are now turning to the upcoming new ePrivacy Regulation, which will have important provisions for direct marketing



scenes” that require careful thought and planning from data processors, and several topics where individuals and companies are still awaiting guidance and a direction from the regulators.

These include areas such as the one-stop shop for data protection authorities, the Irish Supreme Court’s judgment on referring a case on standard contractual clauses to the Court of Justice of the European Union, and the direction that data sharing takes in a post-Brexit world.

Six steps to better data protection

On the other hand, there are a number of organizations that are really trying to inform their user base about the decisions they make around the use and collection of their personal data. Some areas of best practice include:

1. Ensuring privacy statements are clear and simply spelled out, without hiding crucial information behind multiple clicks
2. Evaluating their policies on sharing data with third parties and the number of third parties they choose to share that data with
3. Keeping up with data-retention policies that may have been drafted recently to comply with recent legislation, but not had cause to be used yet
4. Regularly monitoring data flows to keep on top of potential changes, ensuring that they follow up on any initial data-mapping exercises
5. Sustaining management commitment to ensure that data protection principles are embedded in the organization
6. Periodically evaluating measures they have in place to ensure they remain effective and relevant

The key principles to respecting data privacy and protection are similar to those required for any element of good customer experience: keep things clear, give people options and be transparent with your customer. Giving individuals more control over their data is vital, and when a company can show that it respects this it resonates strongly with users in this increasingly privacy-conscious age. It will be important for organizations to sustain their commitment to good data protection principles through continuous review and adaptation as technology and user expectations evolve. ■



ARTS ILLUSTRATED STUDIOS/SHUTTERSTOCK

Pleas that businesses would find GDPR too burdensome have died down



Diana Marín Dawid is an analyst with business ethics advisers GoodCorporation

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Beyond plastics briefing

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DIRIMA/SHUTTERSTOCK

UK takes first steps towards a future without plastic waste

Tackling ‘on the go’ packaging is the first priority as the UK retail industry seeks to remove single-use plastics by 2025.

Angeli Mehta assesses the difficult road ahead

The recent launch of JUST Water, a water bottle made from 82% renewable materials, in 800 Boots stores is the latest development in the UK retail industry response to growing consumer pressure to end plastic waste.

Billed as “mostly from plants”, JUST’s water bottle is made from FSC-certified paper, lined with a thin layer of aluminium and plastic film. The plastic in the cap and shoulder of the bottle are made mainly from sugarcane.

JUST Water’s packaging starts its journey in a flat roll made by its parent company JUST Goods, a US-based B Corp founded by actor Will Smith and his son Jaden. It then gets folded into shape when filled with spring water at its UK bottling partner’s plant in Northern Ireland.

The pack can be recycled widely in UK local authority collections, but JUST Water company suggests that, with care, it can be reusable. It will hope the “on-the-go” consumers who buy their bottles at Boots will do just that.

JUST Water’s launch comes after Boots and 67 other retailers, brands, makers of packaging and waste and recycling companies signed the [UK Plastics Pact](#) earlier this year, setting a voluntary target for all plastics packaging to be either reusable, recyclable or compostable by 2025.

‘Surveys suggest that the under-35s, the most vocal group when it comes to recycling, actually recycle least’



30 SECOND READ

- Earlier this year a consortium of 69 retailers, packaging firms and recycling companies signed the UK Plastics Pact, setting a voluntary target for all plastics packaging to be either reusable, recyclable or compostable by 2025.
- The UK government is due to release its Waste and Resources Strategy later this year with on-the-go consumption in its sights and a consultation on a deposit return scheme for single-use drinks containers.
- The government is also expected to begin reforming the UK's 20-year-old producer responsibility system, which has been described as a 'comfortable way to meet targets'. Since 2002 the amount of waste exported for recycling has increased more than six times, while the amount recycled in the UK has not grown.
- UK Plastics Pact members are seeking solutions, with measures including using bottles made from paper to recycling apps. Other schemes include designing packaging with an online tool that will provide an assessment of recyclability.

Separately, several companies in the UK bottled water and soft drinks industry, including Danone Waters, Lucozade Ribena and Nestlé Waters, have worked with the Institute for Sustainability Leadership at the University of Cambridge, to come up with a [roadmap](#) to eliminate plastics packaging waste from their UK value chains by 2030.

Beverley Cornaby of the Cambridge Institute for Sustainability Leadership (CISL) said the roadmap would see the bottled water industry go further than the UK Plastics Pact, though it doesn't set additional targets. As a starting point, it wants to see policy actions to encourage use of recycled materials and support investment in reprocessors.

These initiatives are timely because the UK government is considering policy that will potentially reform the landscape for recycling in Britain. A long-awaited Waste and Resources Strategy is expected later this year. On-the-go consumption is in its sights, with Defra due to consult on a deposit return scheme (DRS) for single-use drinks containers aimed at cutting litter and boosting recycling.

The idea is that consumers would pay a small deposit (eg 10p), which would be refunded when they return the bottle to a retailer or collection point. The UK's largest supermarket chain, Tesco, has just begun trialling recycling machines in four stores in England, Scotland and Wales, paying 10p for every bottle returned. It follows Iceland, which began trials of reverse vending machines in selected stores in June.

Jane Bevis, chair of the On-Pack Recycling Label (OPRL) scheme – whose label is on the JUST Water bottle – argues a DRS needs to tackle on-the-go consumption, rather than detract from existing local authority collection schemes. She points out that surveys suggest that the under-35s, the most vocal group when it comes to recycling, actually recycle least, and are more likely to eat out and on-the-go.

In September OPRL began industry-backed trials of its #LeedsbyExample app: on-pack bar codes let [consumers in Leeds](#) know whether material can be recycled, and how far it is to the nearest recycling site.

Eunomia believes reported plastics recycling rates are over-inflated by as much as a third



ICELAND

Supermarkets are piloting reverse vending machines, which give customers 10p back for every plastic bottle they return

The Scottish government launched its public consultation on DRS at the end of June, fueling concern that we could end up with different schemes operating in different parts of the UK. However, ministers and officials from the devolved administrations have since met to discuss co-ordinated action.

Chris Brown, managing director of the UK's largest PET recycling facility, Clean Tech, says: "What's needed is a well-designed system that builds on the collection system the UK already has." He adds: "Getting incremental collection and incremental quality of feedstock is key."

Experts say action, ambition and investment are all urgently needed to make plastic packaging recyclable, encourage consumers to recycle it, and ensure there's consistent quality of materials for processors, so it is valued and recycled.

The problem

Reforms are urgently needed to overhaul the UK's 20-year-old producer responsibility system, which is designed to meet EU targets for recycling at a low cost to industry, rather than obligate companies to collect and recycle their own packaging.

Under the system, companies that handle over 50 tonnes of packaging a year and have a turnover above £2m – including manufacturers, supermarkets, and makers of packaged goods – have to show that they've recovered and recycled a minimum level of packaging waste.

To do that they buy packaging waste recovery notes (PRN) from UK reproprocessors or waste exporters for the amount of packaging they've recycled. These are sold on the open market and prices vary with demand.

'What's needed is a well-designed system that builds on the collection system the UK already has'



According to a report from the [National Audit office \(NAO\)](#) in July, reproces- sors and exporters were paid £73m in 2017.

Meanwhile, Defra estimates that in England alone, local authorities (and hence taxpayers) spent £700m collecting and sorting waste in 2017.

Businesses in other parts of Europe pay a lot more for recycling – almost four times as much in Germany and the Netherlands, for example. But there, the system is intended to fully cover the costs of collecting household pack- aging waste.

The NAO has condemned the system as having “evolved into a comfort- able way for government to meet targets without facing up to the underlying recycling issues”.

It points out that the system “relies on exporting materials to other parts of the world without adequate checks to ensure this material is actually recy- cled,” or whether other countries will continue to accept it in the longer term. As China has shown us, it won’t.

It’s telling that since 2002 the amount of waste exported for recy- cling has increased more than six times, while the amount recycled here has not grown.

Clean Tech’s Chris Brown explains that this is because of the incen- tives structure: a PRN is generated for 100% of the tonnage exported, but if materials are processed in the UK the PRN is only generated on the percentage of material that is actually recycled.

Typically, Clean Tech finds that 30% of what it receives for recy- cling is not suitable to go through its wash process.

That’s one of the reasons that environmental consultant [Eunomia](#) believes reported plastics recycling rates are over-inflated by as much as a third.

According to Brown there is strong demand for recycled PET from brands – like its biggest customer Coca-Cola – that have signed up to the UK Plastics Pact committing them to using more recycled content.

But there are questions over availability of feedstock both in the UK and in continental Europe. He’d like to see that materials collected here are processed

According to Zero Waste Scotland, 15,000 tonnes of PET plastic drinks bottles – worth up to £1.95m – went to landfill last year



CLEAN TECH

Recycled pellets produced at the UK’s largest PET recycling facility owned by Clean Tech



in the UK, suggesting incentives for the industry to come up with solutions that will make more recycled material available.

The government is expected to begin consultations later this year on reforming PRN as part of the Waste and Resources Strategy. But it already has some answers from the Treasury's investigation of how the tax system could be used to cut waste of single-use plastics, and how barriers to investment in the recycling industry can be overcome.

The signatories to the UK Plastics Pact are also mobilizing to seek solutions.

David Moon, head of business collaboration at WRAP, which convenes the UK Plastics Pact, told a recent meeting at Coca-Cola European Partners (CCEP) that action groups have been set up to look at how to tackle key issues, including how to measure progress towards the agreed targets.

Signatories are being consulted about potential flagship projects to solve big challenges such as black plastics and film recycling; and work is being done on guidance around bioplastics, polymer choice and film recycling.

"We're looking for leading businesses to participate so we develop best practice and collectively work on engaging the citizen, which is arguably the hardest challenge," Moon said.

The value being lost at the household level was highlighted by [Zero Waste Scotland last year](#) when it reported that 60% of waste that went to landfill could have been collected at the kerb-side for recycling. That included 15,000 tonnes of PET plastic drinks bottles, which would have been worth between £375,000 and £1.95m had they been recycled.

The industry recognizes that it has to be as easy as possible to recycle at the household level, but that it also has to take action to filter out the more difficult materials and simplify the range of things it is dealing with, suggests Bevis.

"We don't want to lose plastic as a packaging material but we have to value materials more – to ensure second, third ... 25th life."



OPRL

Jane Bevis, chair of OPRL wants to tackle on-the-go consumption

It's telling that since 2002 the amount of waste exported for recycling has increased more than six times, while the amount recycled here has not grown



But there are choices to be made as part of a bigger sustainability assessment.

Take vegetables. To extend shelf-life these are often packaged in a gaseous atmosphere that is modified from the air we breathe, and so the polyethylene packaging has to be sealed. Bevis says recyclable PE films can't be sealed, so there's a balance to be struck as the impact of food waste is greater in terms of carbon emissions.

Another big recycling challenge is flexible laminated packaging, which is made of multiple layers of materials, such as aluminium, paper and plastics.

CCEP says it's working on solutions to make it easier to collect and recycle its drinks pouches, and is collaborating to develop industry-wide solutions.

Meanwhile, Cambridge-based Enval has developed a process to recycle aluminium and plastic laminated packaging but is struggling to get support from brands, or for local authorities to agree to collect the material. It is recycling the post-production waste from CCEP's Capri-Sun pouches, but not post-consumer waste.

CCEP's response is that the economics of the process makes it difficult for local authorities to introduce the necessary collection systems. Perhaps this is an example of where producers need to take responsibility.

"Where product needs are such that you're pushed down a particular route, is there a way to create infrastructure, or have we really got the design [of the packaging] right?" Bevis asks.

OPRL intends to help its members (which include retailers and manufacturers) to design packaging with recycling in mind. It's now testing the UK version of an Australian Prep for Design tool. The online tool will provide an assessment of recyclability, given current collection and processing systems, and whether the value of the material is diminished by, for example, putting a PVC sleeve around it.

Brown comments that he's "never seen so many different areas of our customers' business spending time to understand the environmental impact of their products and how to minimize that". He suggests that while there will be no overnight solutions, the progress that has been made so far needs to be encouraged. ■



The #LeedsByExample app lets consumers know whether and where a material can be recycled

OPRL will help retailers and manufacturers to design packaging with recycling in mind

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HUMANSCALE

‘We need to keep plastics in our economy – but out of the oceans’

Angeli Mehta interviews Lonely Whale’s Dune Ives about how the NGO is working with Dell and other partners in the NextWave initiative to help companies incorporate plastic waste in supply chains

The rising tide of plastic waste is not only littering our ocean: its damaging impacts include carrying contaminants and bacteria that harm marine organisms such as coral. How can we stop any more fouling the water?

Seattle-based Lonely Whale is an NGO that is helping companies take positive action to address that challenge by incorporating plastic waste in their products. Its supply chain initiative [NextWave](#) “is trying to create new demand for a greater collection of materials – what we call additionality”, explains executive director Dune Ives.

Recovering plastics that wash up on ocean beaches is not the focus of Lonely Whale. This is technically challenging, as Procter & Gamble found out when it developed shampoo and washing-up liquid bottles using ocean plastics. (See [P&G sends recycling message to consumers with ocean plastics bottles](#))

The NGO instead targets plastic waste that is found around waterways and is likely to end up in the ocean.

Two years ago, it began working with computer maker Dell to use ocean-bound plastics in its packaging. Now the two are creating an industry consortium to develop a supply chain that will keep plastics in the economy and out of the water.

‘If we can demonstrate value, people will pick up thin-film packaging and pull it back into the economy’



Lonely Whale is managing the connections and interface with suppliers; it will liaise with governments and pull in scientists and other NGOs. Each company that signs up to NextWave also commits to reduce and eliminate unnecessary plastics in its own business – even if it’s just balloons and straws.

“What are the plastics that we use today that could be replaced; and what is the most harmful to the environment? Can we be more creative about collecting and integrating them?” asks Ives.

Take bicycle maker Trek, one of the consortium’s founder members. Trek is exploring whether cork might be a viable alternative to the expanded polystyrene foam used in helmets, a material that is particularly challenging to recycle.

Another (as yet unnamed) company is a big user of Nylon 6. This can be sourced from fishing nets – another problematic waste, as they can drift for long distances and entangle marine life. So Lonely Whale is trying to create depositaries for used fishing nets, and finding a means to turn them into pellets of Nylon 6.

Yet another business is exploring the means to recycle multi-layered and thin-film packaging. “Why isn’t it picked up? Because it has no value at present,” says Ives. “If we can demonstrate value, people will pick it up and pull it back into the economy.”

Each NextWave member has a different interest in a different part of the world – perhaps through its supplier network or even a personal connection. So far, it’s sourcing plastics from Chile, Indonesia, the Philippines, Cameroon, India and Denmark. The latter recovers fishing nets.

The key, suggests Ives, is to create a network of suppliers to ensure stability and continuity in the supply chain. “This has been a big learning [point] for me,” she says. “We can’t all be focused on Indonesia and then find the supply chain gets disrupted because of a natural disaster: there has to be a strong, stable supply chain in place that will maintain companies’ commitment.”

In a separate initiative, Bacardi is teaming up with Lonely Whale to eliminate one billion straws globally by 2020 in a campaign called #TheFutureDoesnt-Suck. Bacardi will work on eliminating plastic straws and stirrers, starting with



JEREMY COHEN/LONELY WHALE

Dune Ives is executive director of NGO Lonely Whale

‘There has to be a strong, stable supply chain in place that will maintain companies’ commitment’



venues in London, having successfully got rid of them at its own offices and in-house events.

“A bit of it is just putting our voice to the cause, to try to amplify it,” says John Burke, Bacardi’s chief marketing officer. But it’s just the first step, he adds. “When you become aware of single-use plastics you see them throughout the supply chain.”

Lonely Whale will help Bacardi review and remove non-essential single use plastics, then work on getting recyclable and renewable plastics into its supply chain. Burke explains that “the first piece of work is to quantify the scale, and pick the low-hanging fruit, then begin to look at the nuts that are harder to crack, where technology development is needed”.

Ives comments: “We sought out Bacardi because of its strong relationships with bars and mixicologists: our theory was, if we engage the mixicologists then how many consumers can we influence?”

Straws, she adds, are “not the worst offender but they’re a good place to start a conversation”.

Bacardi also understands that water is fundamental, says Ives: microplastics showing up in the water could start to impact the quality of its products.

Another NGO, Washington DC-based Ocean Conservancy, has teamed up with Closed Loop Partners, which invests in sustainable goods and recycling technology. The aim of the partnership, called [Circulate Capital](#), is to unlock the billions of capital investment that will be required to create the necessary recycling infrastructure in key Asia-Pacific countries, where so much plastic waste actually enters the oceans.

An initial \$150m fund is being created with the backing of partners including P&G, Unilever, Coca-Cola and Kimberly-Clark. The idea is to identify and develop local projects that will stop the damage but also demonstrate that it can be profitable to return plastics to the supply chain.

When Circulate Capital has identified those locations, Ives hopes that “they align with where we already have companies ready, willing and able to purchase material they intercept. This is very early stage but I have a lot of optimism that these initiatives will come together in this way.” ■



SHAWN HEINRICH

Computer-maker Dell is using ocean-bound plastics in its packaging



Angeli Mehta is a former BBC current affairs producer, with a research PhD. She now writes about science, and has a particular interest in the environment and sustainability.

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Achieving sustainable growth now and for the future

By Dr. Thomas Fleissner, Judith Ruppert and Daniel Wiegand, DFGE Institute for Energy, Ecology and the Economy

ALEX KNIGHT/UNSPLASH

Recently, artificial intelligence (AI) has been widely discussed being a focal point for debates about hope and scepticism related to the world's future development. AI is an innovation which will profoundly change our economy, politics and society – it is therefore time to ask if and how AI will change corporate social responsibility (CSR) practices, and which opportunities this will bear for companies.

Data is important – but not everything

Already now, AI is part of everyday life for many people, as it is used for instance in online shops, search engines or voice-controlled devices. Besides the application in 'intelligent' products, AI is also used to optimise logistics or labour and production processes. Generally, there are three conditions which must be met to ensure successful application of AI:

- Availability of enough qualitative data and does this data contain meaningful statistical connections and correlations?
- A clearly defined problem which needs to be solved, and clear purpose / targets of the project
- Sufficient complexity of the problem which needs to be solved to justify the use of AI algorithms



Other key components for a successful AI project relate to the way a project is operated: It is advisable to start with small projects which quickly yield results rather than setting up a complex multi-year project with uncertain outcomes.

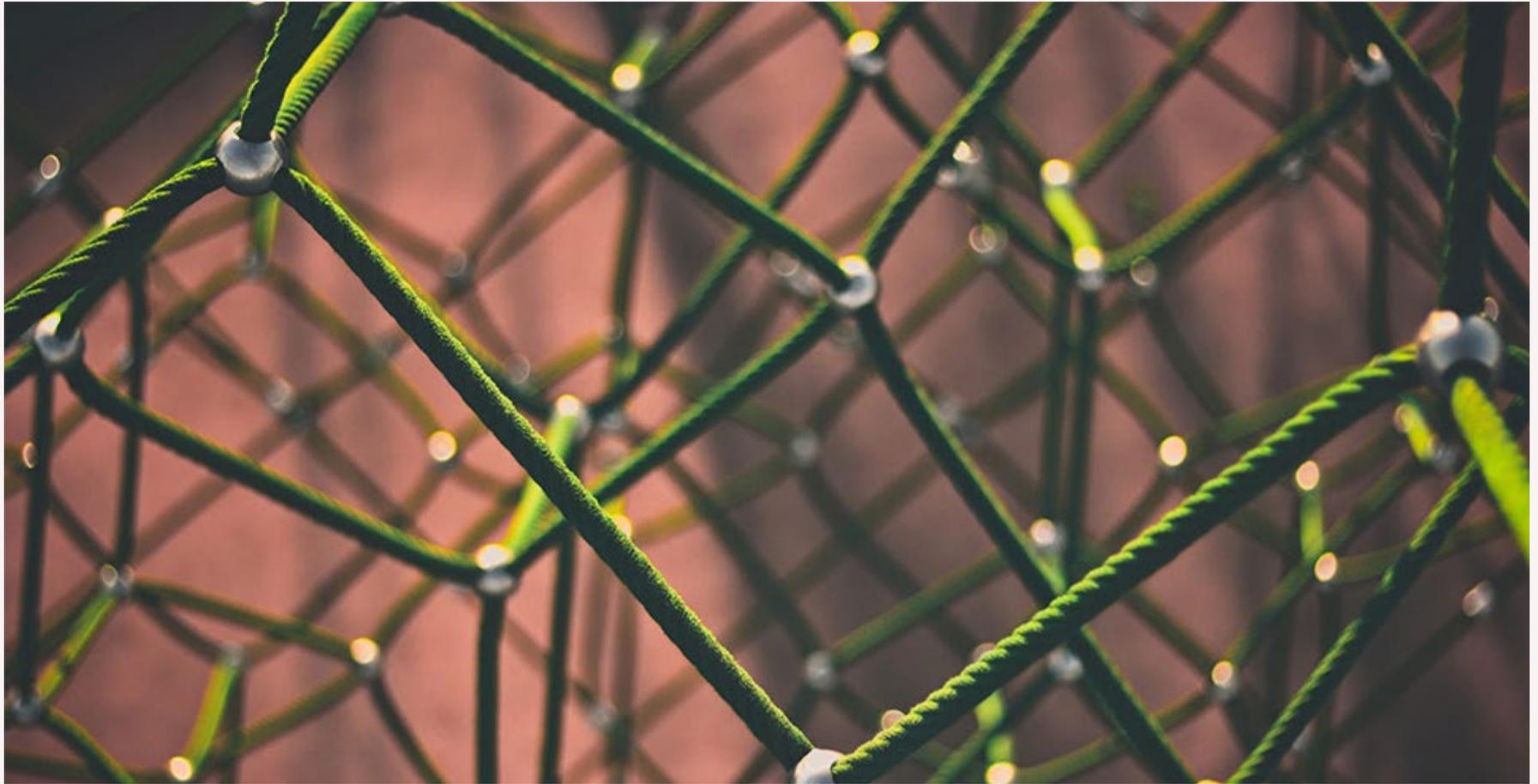
Where will you go, AI & CSR? Numerous potential applications

A recent report published by the World Economic Forum (WEC) showcases the significant opportunities in employing AI for the Earth¹. However, not all the possible sustainability-related use cases for AI offer direct benefits for a company's CSR approach. The following overview provides guidance on where potential opportunities lie:

- ESG (environment, social, governance) risk quantification: Four of the top five global risks in terms of impact are related to environment or society, according to WEC's Global Risk Report 2018². AI can help companies in evaluating and quantifying these risks: For instance, it could contribute to a sound analysis and prediction of risk related to human rights issues among suppliers of a certain country or region.
- Materiality assessment: Materiality is a key concept of CSR. With the help of AI, companies could use large amounts of public and internal data to get a solid prioritisation of relevant topics, saving both time and resources.
- Energetic optimisation: AI could help in analysing large amounts of data and optimise energy efficiency during production. Google, for instance, achieved energy savings of 30% for its data centres by using AI³.
- Carbon Footprint Calculation: A company's carbon footprint is an important KPI related to environmental sustainability. Instead of an extensive bottom-up analysis, AI could be used to estimate the carbon footprint top-down, making use of mostly public data and avoiding the effort of extensive data collection.



ANDY KELLY/UNSPLOSH



CLINT-ADAIR

Conclusion: AI for sustainability

Developments related to artificial intelligence have the possibility to impact and change corporate sustainability practices. The increasing amount of available sustainability-related data is an opportunity for a company's CSR practices, and some viable use cases exist already now. Besides having reliable data, it is also important to thoroughly define purpose and target of an AI project and to start on a small scale with incremental improvements.

If you would like to know more about AI and how your company could benefit from it for its sustainability strategy, please contact Judith Ruppert on 0785 2535868 or ruppert@dfge.de. DFGE - Institute For Energy, Ecology and Economy has been offering consulting, software solutions and auditing services for companies since 1999, in order to integrate CSR activities in business activities and the supply chain. DFGE's sustainability intelligence portfolio provides solutions for CO₂ management (greenhouse gas balances), creation of corporate carbon footprints, product carbon footprints/LCAs, as well as support in international rankings and reporting standards like UN Global Compact, Global Reporting Initiative (GRI), EcoVadis or Carbon Disclosure Project (CDP). Being an independent institute, DFGE's work is based on international standards and scientific methods. ■

1 http://www3.weforum.org/docs/Harnessing_Artificial_Intelligence_for_the_Earth_report_2018.pdf

2 http://www3.weforum.org/docs/WEF_GRR18_Report.pdf

3 <https://techcrunch.com/2018/08/17/google-gives-its-ai-the-reins-over-its-data-center-cooling-systems/>

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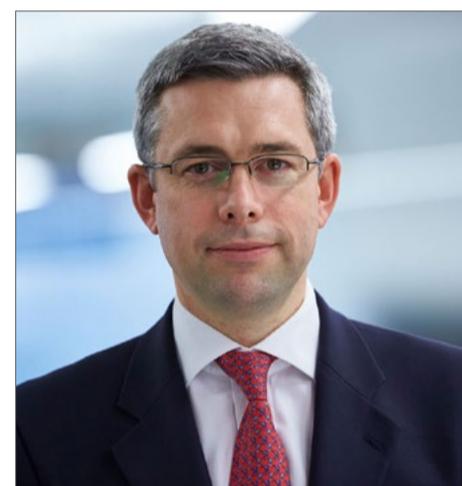
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