

GREEN GROWTH

The IIC and its UK Chapter convened events on the direct and indirect contribution of the TMT sector to environmental sustainability and net zero. Report by **RUSSELL SEEKINS**

After the immediate public health crisis caused by COVID-19, the key priority for policymakers is economic growth. There is a particular focus on growth which supports environmental policies such as “net zero”, to which the technology, media and telecommunications (TMT) sector can make a variety of contributions, both direct and indirect. There is a great deal of work underway to reduce the impact on the environment of communications, for example by reducing network energy consumption, which has the additional benefit of reducing operational costs. There are also many ways in which communications networks enable wider environmental benefits, from use of internet of things-based smart grids and smart cities to web-based collaborative platforms.

On 11 June 2020, the IIC UK chapter convened a webinar that reviewed the current state of play in green growth, asking what more might be done, and what changes in regulation might be necessary to enable TMT’s contribution to net zero. On 25 June 2020, the IIC held a closed workshop on sustainability measures in the online media and entertainment industries.

SUSTAINABLE GROWTH

Daniel Mes, member of the cabinet of executive vice president Frans Timmermans, European Commission, set out the EU perspective on the subject of sustainable growth. It is a global issue and opportunity, and in Europe the focus is on growth, especially post COVID-19. This is “Europe’s moment”, with the opportunity to build back stronger, but is also technology’s moment to tackle climate change. Europe wants to be a leader in the discussion about technology – “with a purpose” – to address climate change, and to reduce its own carbon footprint. The World Economic Forum has suggested that technology has the potential to reduce its emissions by 15%, representing a quarter of the target reduction in Europe, by 2030. Connectivity will be the main enabler in many climate solutions, especially in areas such as smart farming, urban mobility, wind farms and smart meters. Blockchain could be the technology to bring it all together. Satellites will be an important part of the “green warning system” for climate change.

The role of regulators. There are also different goals for regulators in this debate. When allocating spectrum for the 5G rollout, the commission hopes that EU member states will look to the long-term benefits of addressing climate change, and not just short-term economic pressures created by COVID-19. There is a risk that technology can, on the one hand, contribute to emission reductions but, on the other, see its own emissions rise. At 2% of global emissions, the digital sector is already close to that of aviation. The current roadmap from the ITU and GSMA envisages a carbon reduction of 45% by 2030 and net zero by 2050 for the telecoms sector. In Europe there is a role for public authorities to be more ambitious than this, ensuring the benchmarks are right, that measurements are accurate and transparent and there is no “greenwashing”. Examples in the sector include base station cooling through water rather than air and using excess heat in the buildings on which they stand. Finally, the reason for the focus on this isn’t for the benefit of the Commission, but for the “youth on the street” that demonstrated in their millions in favour of addressing climate change. We can be in a position to say that we enabled technology to leave a better, cleaner world.

GREEN DEAL

Dorothee D’Herde, head of sustainable business, Vodafone Group, welcomed the EU’s leadership on the Green Deal and digital transformation strategy and set out the ways in which Vodafone is contributing. Operating in 24 countries gives Vodafone the speed and scale with which to reach the sustainable development goals (SDGs). COVID-19 has revealed the vital role that digital plays in the functioning of society and a sustainable future. The IPCC says that there are only 10 years left to avoid a climate catastrophe, but the good news is that the potential for digital technology to support the green transition is phenomenal. With better connectivity can come smart cities, a smart grid driven by IoT, cloud and hosting services reducing energy use and the power of data to allow better analysis and resource efficiency.

Energy efficiency. Vodafone’s energy comes mostly from electricity, 95% for base stations and technology centres. By 2025 the target is to source 100% of Vodafone’s energy from renewable sources, but the main focus has been on energy saving. Over five years, Vodafone’s energy consumption has been flat, in spite of a 1000% increase in network traffic – a 90% reduction in energy per unit of data traffic. This has been achieved by actions such as shutting down old equipment, use of power saving modes and smart monitoring.

Vodafone uses some on-site generation, but mostly uses power purchase agreements with green tariffs and guarantees of origin. The company’s geographical footprint makes switching to 100% renewables difficult even in the EU, but the company will continue its efforts and will be publishing targets in the next few months using the GSMA pathway.



Left to right from top: Nina Beebe, head of region, UK & Europe, Access Partnership; Dr Stephen Unger, senior advisor, Flint Global UK & director, IIC (moderator); Dorothee D'Herde, head of sustainable business, Vodafone Group; David Scuderi, senior manager, public policy, Amazon; Daniel Mes, member of the cabinet of executive vice president Frans Timmermans, European Commission; Mats Pellbäck Scharp, head of sustainability, Ericsson

Digital transformation. Digital transformation will be critical to the COVID-19 recovery, and the greener Europe that is envisaged. It's an opportunity that Vodafone recognises and wants to get right. The basis for this is the connectivity layer. One fifth of all the world's internet traffic travels across Vodafone networks. In the early weeks of the coronavirus pandemic, mobile traffic increased by 15%, broadband by up to 50%. Despite this, there was only a limited increase in energy consumption. The future will continue to see exponential growth in data traffic, with polling showing the popularity of the home office and additional connectivity in more rural areas. New technologies such as fibre to the home (FTTH) and 5G will improve connectivity and use less energy. Investment costs are considerable, and allocations under the recovery package need to be forward-looking. This needs to be accompanied by demand-side incentives, such as vouchers, to encourage more businesses and citizens to become digitally equipped.

Internet of things. IoT will provide the link between the data economy and the physical economy. One third of Vodafone's customers benefit from IoT to reduce energy emissions. It is an area in which Europe can lead but is currently hindered by the fragmentation of structures and regulation. Sectors such as agriculture and energy have some of the highest emissions. Examples of where IoT is making a difference include MyFarmWeb in Africa. It enables farmers to monitor data on soil, pest presence and weather and results in better water and energy consumption and more profitable and efficiently produced crops. Vodafone is also involved in partnerships with companies in the property industry to enable remote metering in houses and commercial buildings. The company works with Energy Web to ensure that new equipment is incorporated into the grid as effectively as possible. Vodafone is a partner of the Seville municipality, where IoT is used to monitor

services such as city lamps, water supplies and air quality.

BREAK THE ENERGY CURVE

Mats Pellbäck Scharp, head of sustainability, Ericsson, noted there are some myths surrounding the carbon footprint of the ICT sector and set out some facts about life cycle assessment based on Ericsson research. The ICT sector accounts for 1.4% of global greenhouse emissions and 3.6% of global electricity consumption and is the world's largest purchaser of renewable energy. While previous generations of mobile technology resulted in significant increases in energy consumption, 5G can "break the energy curve" by replacing, rather than adding to, the current network. The new network will be "built with precision" and employ energy saving functionalities that can result in fourfold faster download speeds with a net reduction in energy consumption.

Focus on the network. It's important to focus at the network level – how much throughput can be achieved in the network – and not at the individual level of comparing individual pieces of equipment, which may have different levels of energy consumption but also different levels of performance. In this way it's possible to break the connection between data throughput and energy consumption. The ICT industry has set a new standard in addressing the 1.5 degree rise target, which requires halving energy consumption every decade. The agreement includes all aspects of the sector, including data centres and fixed networks.

On climate, the ITU/GSMA Exponential Roadmap¹ estimates that the ICT sector accounts for 1.4% of emissions but can enable a reduction in emissions of 15%. For example, as the transport industry goes electric, the ICT industry will be crucial both to vehicle charging rates and to control the power. Only 5G, with its lower latency and edge cloud possibilities, will be able to offer the speed necessary while keeping the network stable.

Efficient networks. It's important that any regulation doesn't go into too much detail and remains focused at the network level. The industry is engaged in a major drive towards renewables and is focused first on energy reduction through efficient networks. Ericsson's customers are very active in investing in this area.

PARIS TEN YEARS EARLY

David Scuderi, senior manager, public policy, Amazon, introduced the Amazon climate pledge: "Paris ten years early". The goals are to measure emissions, implement decarbonisation strategies

◀ in line with the Paris Agreement, then neutralise remaining emissions through meaningful offsets. The company targets are for 80 per cent renewable energy by 2024 and 100 per cent by 2040 – ambitious targets for a company that moves goods.

Signalling to the market. As a large company, it's important that Amazon signals its commitment to the market in order to drive change through the supply chain and stimulate investment in green technologies. An example is the decision to purchase 100,000 fully electric vehicles, with 10,000 to be on the road by 2022. Nature-based solutions are a critical part of the mitigation part of the company's strategy, with \$100 million allocated to the Right Now Climate Fund in partnership with NGO, The Nature Conservancy.

Environmental accounting tools. The Amazon approach to climate change is to link science to technology, and technology to customer obsession. The company has built tools for teams across the company to enable them both to measure emissions, and to radically reduce carbon in the company and through the supply chain. Amazon is a complex company providing a multiplicity of services and products and as a result has created one of the most sophisticated carbon accounting tools in the world. It enables the measurement, to a high degree of resolution, of the environmental impact of the products and services Amazon is creating. In the case of the Alexa device, the tool can inform decisions on energy consumption and material choice.

Benefits over traditional commerce. Amazon's view is that ecommerce is inherently more environmentally beneficial than traditional commerce. "Romance" packaging with plastic windows, used for displaying products on shelves, isn't necessary for ecommerce. Online shopping just needs a few high resolution images and minimal, recyclable packaging for delivery. On average, an Amazon delivery van carries 120 products and, in a city environment, will drive 72 kilometres. Assuming 5km per trip, 600 km of travel would be required to achieve the same with conventional shopping. Amazon is always looking at new opportunities for using technology to benefit customers, such as local pickup points, or "Amazon Day" in which all a customer's orders can be combined into a single delivery.

GREEN TRENDS & PANDEMIC PLANS

Nina Beebe, head of region, UK & Europe, Access Partnership, described the green agenda commitments of several of her clients: Salesforce has a target of net zero by 2030 (and has created a dashboard designed to help other companies achieve carbon neutrality), SAP by 2025, while Microsoft aims to be carbon negative within ten years.

Lessons from the pandemic. Internet use increased by as much as 50% with many people

working from home. The shift required the rapid adoption of new platforms, VPN and connectivity. Many of these changes could be permanent. Cloud technology enabled resilience and continuity, as well as greater work flexibility. It was vital to the continued delivery of public services, especially healthcare and education, including data sharing about COVID-19 itself. The internet didn't "break", but it's clear that in many parts of Europe broadband connectivity is behind where it should be. Another positive was the collaboration between governments and the private sector, pointing the way to the future delivery of critical public infrastructure.

Green governments. The pandemic has accelerated many trends, but decelerated others. The EU's post-pandemic recovery plan places great emphasis on the Green Deal and on connectivity – and is setting the benchmark. The UK's plans also aim to stimulate a zero carbon recovery. But there are different approaches elsewhere. In China, post-COVID growth demands have pushed environmental considerations off the top of the agenda. The US response is mixed, with the Environment Protection Agency suspending the legal enforcement of many obligations for an indefinite period for compliance issues deemed to be COVID related. There are also some changes to carbon targets but Congress may include clean energy measures in a forthcoming stimulus package.

International responses. Internationally, thirty UN agencies are working on new sustainability goals. The ITU has launched a new standard for emissions reductions for the ICT sector and created the REG4COVID platform² designed to pool experiences and measures resulting from the crisis, in order to inform future policy.

What regulatory frameworks will support the TMT industry whose largest members are implementing net zero policies? Other considerations include smart grids and smart cities, and spectrum allocation for 5G and the future 6G. Standards will also be important for achieving better efficiency for devices and data centres.

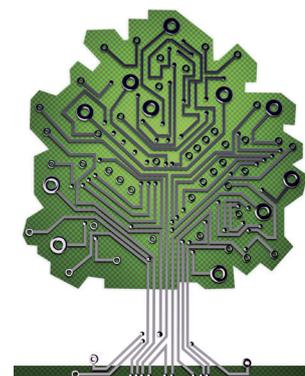
Governments will need to consider how high speed connectivity can be extended beyond urbanised spaces that may, in the future world of work, be less populated than at present. AI can help sustainability but requires a more open cloud regime. Countries focused on data localisation may be left behind. As governments impose digital taxes, they need also to consider how to incentivise greener policies.

CONCLUSION

When asked "What would you change?", the panellists gave their views as follows: Nina Beebe said that the retreat from multilateralism is concerning, and that she would ask countries to stick to a global order that could enable harmonisation in the field of technologies. David Scuderi emphasised the need for the greatest amount of regulatory alignment. Mats Pellbäck Scharp said that digital infrastructure should be treated as a national asset and there should be a stop to imposing huge costs through licence fees. Dorothee D'Herde said she would increase the pace of change in the digital economy, as everything needs to happen in the next ten years. In his final remarks, Daniel Mes acknowledged that it is very easy to put rules on paper, but things must happen on the ground.

REFERENCES ¹exponentialroadmap.org ²reg4covid.itu.int

SUSTAINABLE SCREEN SECTOR



The IIC closed workshop addressed the subject of sustainability in the online media and entertainment industries, against the backdrop of the EU Green Deal and other international sustainability initiatives. Participants included consultants in sustainability, policymakers from content providers and production and media companies, and specialists from academia and the International Energy Agency. The debate covered issues of green production, corporate sustainability, energy use, content “storytelling” and media coverage.

SUSTAINABILITY TRENDS

A panellist from the Cambridge Institute for Sustainability Leadership outlined some of the trends influencing the debate. Containing the threat of climate change requires reaching zero carbon emissions by 2050, with a 45 per cent reduction by 2030 – ten years in which to make fundamental changes. Environmental impacts including habitat and species loss are the second significant trend, along with the growth of inequality between and within nations. This represents a fundamental challenge to the current global economic model; an issue made more visible by the COVID-19 pandemic.

Businesses are at the centre of these changes; climate risk represents an investment risk and many companies, especially in the energy and manufacturing sectors, are having to make large write-downs in the value of their carbon related assets. The Task Force on Climate-related Financial Disclosures (TCFD) principles are becoming a global standard for climate-based risk disclosure, and climate and environmental issues are high on the agenda of many investment companies. Employees also want to work for environmentally aware companies and many say they are prepared to change their own lifestyles accordingly.

Company leadership. In response, companies are committing to evidence-based targets. Microsoft, for example, is promising to be “carbon negative” by 2030 and eliminate its “historical emissions” by 2050. Amazon’s climate pledge commits to net zero by 2040. Meanwhile the World Economic Forum has supported the goal of carbon neutrality by 2050. It is companies which are leading, pushing governments, suppliers and others in their industry to create the change needed. Set against the broader economic aims, COVID-19 has demonstrated that transformation can take place rapidly, but when forced involves greater disruption and cost.

CONTENT INFLUENCES

For the media industry, sustainably produced content is

important, but it was argued that the greater impact can come from ways in which the content itself is used to address aspirations and change, “inspiring audiences on screen”. As citizen activism grows, most recently Extinction Rebellion and Black Lives Matter, there is a chance to align content with these audiences. Climate scientists themselves are not necessarily the best storytellers and there is a need to connect the science to citizens. However, one contributor pointed out that sustainability storytelling doesn’t necessarily work as a production concept. A dedicated environmental channel launched on Discovery ten years ago had failed, but there had been some successes with biodiversity content, for example Blue Planet. Natural history programming is more accessible than “hardcore science”.

It was also pointed out that broadcasters are different in terms of studio capacity, the outsourcing of production and outputs.

Ideological bias. A panellist described how inaccurate stories that exaggerated energy and environmental impacts frequently gained traction and continued to circulate long after they had been disproved. Another scientific contributor explained how he had come under pressure from journalists and an environmental campaigning body to support inaccurate stories about the energy impacts of ICT. Although expert in the subject, some had refused to accept his assertion that the stories were wrong and sought other sources, while others accepted it and dropped the story altogether. Even among researchers and scientists, he said, there is an ideological bias. The industry should deal with this more aggressively by being fully transparent with visible tools for consumers.

SUSTAINABLE PRODUCTION IN PRACTICE

Sustainability impacts every stage of production, including social as well as energy issues, and there are sustainable production hubs in many countries. The need is to reduce carbon emissions and use resources more efficiently while having a positive social impact. Importantly, the media industry captures slices of many different sectors, from production, transportation, services, arts and data to distribution. A panellist described how her company approached sustainability in production. It was essential, she said, to get buy-in from the top of the company and to ensure that the commissioning mandate was clear. Relevant data gathering had to be put in place from the outset, and potential impacts, including less obvious ones, identified.

While corporate objectives and principles were

← important, actions would only take place if managers were trained and empowered. A workshop early in the production process is a good way to set targets, create plans and motivate staff. Communications throughout the project will keep the crew informed and engaged.

TOP DOWN PRODUCTION PRINCIPLES

- High level engagement sets the tone and drives priorities
- Set clear expectations of collaboration
- A commissioning mandate, including requirements from production service companies
- Accurate data gathering to inform decision making
- Consistent application, across regions and countries.

BOTTOM UP PRODUCTION APPROACH

- Engage and empower production staff
- Set meaningful and achievable targets
- A pledge agreed by all staff
- Act early to influence procurement and data streams
- Departmental action plans
- Think beyond the obvious
- Ongoing support and troubleshooting.

Developing the production ecosystem. In a debate about the challenges of improving the availability of sustainable production resources, it was emphasised that suppliers and partners needed to be challenged to step up, and that there was room for industry collaboration to tackle common problems. In Vancouver, a campaign supported by the film industry had resulted in a Council mandate to eliminate diesel generators. As a result, battery power stations were now more available at lower cost. Commitments from production companies had incentivised wider availability of electric vehicles for use in film projects. Film funds such as the Trentino in Italy have financial incentives for using their green tool, and half of the applications for support have opted for green certification. In Germany, two regions are making

certification obligatory.

IMPACTS OF STREAMING

Media headlines often suggest that the data consumed by streaming will result in a dramatic impact on global electricity consumption. However, the International Energy Agency (IEA) found a high profile claim to be greatly overstated as it was not based on accurate assumptions of bitrate, energy use by data centres and networks or device energy use (i.e. television set rather than mobile device viewing). The carbon impacts of streaming vary depending on the energy sources used in the country concerned. In France, where most electricity comes from nuclear power, the impact is almost zero. In a more coal-dependent network, such as that in Australia, the impact is much higher.

The IEA's broad conclusion is that the emission impacts from streaming, including data centres, networks and devices are small, although growing over time. A thorough international study has yet to be completed. The ICT industry is improving energy efficiency at a much faster rate than most other industries but can still take significant actions, including improved data collection, reducing default resolutions (for example, disabling video on music streaming), further improving video compression and energy efficient data centres. There are no single or simple solutions to reaching sustainable energy goals and a host of policies and technology innovations will be required across every industrial sector.

IEA RECOMMENDED ACTIONS

- Improved data collection
- Sustainable design and coding
- Energy efficient data centres
- New data centres as drivers for renewable energy
- Policies for more efficient data transmission
- R&D investment in efficient next-gen computing.

IIC ANNUAL GENERAL MEETING 2020

Addressing the AGM in September 2020, IIC president Chris Chapman outlined the success of the IIC's programmes, after touching on the "unimaginable adjustment to every facet of our personal, professional and civic lives, and in every corner of the globe, brought about by the COVID-19 pandemic".

- The IIC pivoted to its busiest year ever in response to COVID-19 and Chapman affirmed that "more online and 'hybrid' events are likely to be a key part of the IIC's future programmes".
- After investing significantly in new technical resources, the IIC has hosted 13 online events, involving 2,500 attendees and more than 700 post event viewings since March 2020.
- The move to online events, necessitated by the pandemic, has resulted in the IIC widening its reach of policy professionals and regulators across the world.
- Many of these popular events discussed the responses to the pandemic in different parts of the world, especially the acceleration of digital adoption as organisations moved to remote working. Other subjects included 5G and health misinformation, cybersecurity, artificial intelligence, platform competition and "green growth".
- The Institute also launched a series of podcasts featuring "one-on-one" discussions around key issues of communications policy.
- Chapman paid tribute to the leadership of the new director general, Lynn Robinson, who took over from the highly respected Andrea Millwood Hargrave in March this year, just as coronavirus restrictions were becoming widespread.
- The IIC AGM confirmed the re-appointment of the president and the current board and ratified the appointment of veteran policy professional, Andy Haire, as an IIC trustee following his recent retirement from the board. Haire joins an illustrious group of trustees including Dr Robert Pepper (Facebook), Michael Nelson, (Cloudflare), Peter Alexiadis (King's College London) and Dr Zhong Liu (Southwestern University of Finance and Economics, Chengdu).

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