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# Digital Vision: COP26

Global opinion paper



**Atos**

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We would like to thank all of the contributors. If you wish to send feedback, please tweet using **#DVCOP26** or email: [atosdigitalvisions@atos.net](mailto:atosdigitalvisions@atos.net)





**Clay Van Doren**

Chief Executive Officer, Atos UK & Ireland and Northern Europe

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# Foreword

Later this year global leaders will gather in Glasgow for the 26th United Nations Climate Change Conference, COP26. This event will be the most important milestone in the global fight against climate change since the Paris Climate Agreement was signed in 2015. In the six years that have passed since the Paris Agreement was reached, it is fair to say that results have been mixed. While significant progress towards cutting emissions has been made, the pace of this change is far behind what is needed to avoid catastrophic climate change becoming a reality.

Ahead of the COP26 Summit, Atos has dedicated the latest entry in our Digital Vision series to examining the role digital can play in making net zero a reality. Bringing together contributions from Atos' own experts, as well as senior figures from the worlds of business and politics, this report shines a light on how digital solutions are essential to achieving a decarbonized future.

Businesses are rising to the challenge of delivering net zero by the middle of the century, with a growing number announcing plans to dramatically decarbonize their operations. Atos is at the forefront of these efforts, being ranked Number 1 in the IT services sector by the Dow Jones Sustainability Index (DJSI) for the last two years running. However, there is a need for businesses to accelerate the action they are taking. For Atos this has meant bringing forward our target for achieving net zero to 2028, seven years ahead of the 2035 target we previously

set. We have also committed to reducing the global carbon emissions under our control and influence by 50% by 2025 and to offset all our residual emissions by 2028. The decision has been motivated by the success of Atos' decarbonization plans, which have already materialised into a reduction of the Group's global carbon emissions by 15% in 2020 (from 3.3 to 2.8 M Tons CO<sub>2</sub>). However, action from individual businesses is not enough because we are all in this fight together. It will take a concerted effort from policy makers, businesses and the general public to ensure we successfully manage the threat of climate change.

Accelerating this progress towards net zero will mean transformative change across society, as well as within businesses and how they operate across their value chains. Central to achieving this will be using existing (and future) technologies to improve efficiencies and reduce emissions across all aspects of our lives. Covid-19 has already shown that global challenges not only require unified global action, and that we can successfully use the technologies we have available today to shift to a more sustainable way of living and working. As the world emerges from the shadow of the pandemic we must continue to look ahead to delivering on the promises made in Paris in 2015 and later this year in Glasgow, and recognise that the application of decarbonized digital technologies will be one of the most powerful tools we have to deliver on those goals and make net zero a reality.



**Rt Hon Alok Sharma MP**

President of the 26th United Nations Climate Change Conference

“

I am calling on the world to up its ambition. Because we are at a critical moment. The clock is ticking on climate action. Temperatures are soaring. Storms are raging. And crops are failing. And if we do not take this chance, every single one of us will be affected.

We all have a part to play. Countries, regions, businesses, people. Together, through our collective effort, we can make a difference in tackling the climate crisis. By shifting investment, spurring innovation, scaling up technologies and driving down costs.

”





**Nourdine Bihmane**  
Group's Chief Delivery Officer, Decarbonization and Marketing, Atos

## Seizing the net zero moment

With the 2021 United Nations Climate Change Conference only a few months away, it is time to step up the fight against climate change. This requires organisations of all sizes to look again at their strategies and roadmaps for achieving net zero.

Atos has been carbon neutral since 2018 and we have committed to reducing the global carbon emissions under our control and influence by 50% by 2025, as well as offsetting all our residual emissions by 2028. Our target to achieve net zero by 2028 is seven years ahead of the 2035 target we previously set ourselves, and 22 years ahead of the Paris Agreement's 2050 target. This acceleration reflects the success Atos has already had - reducing our global carbon emissions by 15% in 2020 alone.

Atos is also enabling our clients and partners to achieve net zero, leveraging our own experience together with industry-leading products and services. Digital tools are key enablers of decarbonization and Atos is helping organisations to digitalise, transform and transition to net zero. Through sharing our expertise and resources, our work generates a multiplier effect across different sectors and industries, meaning that we act as an enabler of the broader global ambition to reach net zero by 2050.

Atos's work has included creating dashboards that can turn data into decision-making tools and simplifying emissions reporting and data analysis across our clients' value chains. We have also developed Going4Zero, a digital one-stop shop powered by EcoAct, an Atos company, providing automated and personalised services to measure carbon emissions, track emissions reduction trajectories, and select and manage carbon offsetting activities.

Our involvement across multiple sectors, markets and industries underscores the vital role of digital technologies in making a net zero world a reality. Technologies as diverse as digital twin, blockchain and

AI are enabling a diverse range of businesses to make major strides in decarbonizing.

And while their use is growing, innovations in energy efficiency mean that the associated energy consumption has only risen slowly.

Yet we still now face a choice: we can continue as we are and risk dramatic and irreversible climate change; or we can transform and future-proof our economies by combining digitalisation with decarbonization. Governments, business leaders and citizens have already taken important steps towards the goal of the Paris Agreement; we now need to accelerate these efforts through innovation and collaboration. Those who act today, whether at COP26 or beyond, will be the leaders - economically, reputationally, environmentally - of tomorrow.

“

Those who act today, whether at COP26 or beyond, will be economically, reputationally, environmentally - the leaders of tomorrow.

**Nourdine Bihmane - Group's Chief Delivery Officer,  
Decarbonization and Marketing, Atos**

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# Decarbonization: The view from Atos' global industries

What can each industry do to accelerate decarbonization? Atos' industry heads give their views..



**Adrian Gregory**  
Acting co-Chief Executive Officer, Atos and Head of Financial Services & Insurance and Head of Atos|Syntel



**Robert Vassoyan**  
Head of Healthcare & Life Sciences

## Financial Services & Insurance

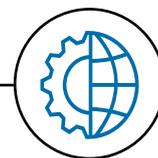
Financial services and insurance organisations can lead the development of more sustainable business models for their customers and drive progress on decarbonization across the whole economy, while at the same time using digital to dramatically decarbonise their own operations.

- Usage based insurance can help incentivise more sustainable operations and behaviours across a broad range of sectors.
- Smart technologies can provide insights that can better inform risk assessments directly impacted by climate change, such as flooding, storms and extreme weather.
- Smart carbon pricing policies can help drive investments that support the growth of sustainable businesses and enable established industries to lower their emissions.
- Big data, artificial intelligence, blockchain and the Internet of Things (IoT) now offer a range of ways in which access to sustainable finance can be expanded.

## Healthcare & Life Sciences

Healthcare and life sciences organisations have the potential to improve environmental performance while reaching more people at lower cost. Digital technology and data enable more personalised and efficient care; while helping reduce logistics costs and energy consumption.

- New AI-enabled technologies allow service providers to make more informed decisions, reducing waste while improving health and wellbeing outcomes.
- Connected devices and real-time data facilitate telehealth and virtual care, improving patient experience while reducing carbon footprints.
- Digital twin technology enables service providers to precisely assess and predict the benefits of waste management versus infection control.
- Design and testing to develop and deliver more sustainable products means that a larger amount of natural resources can be more easily reused.



### **Pierre Barnabé**

Acting co-Chief Executive Officer, Atos  
and Head of Manufacturing

## **Manufacturing**

The global manufacturing sector is under high pressure to accelerate its transition towards zero-carbon products with a minimal environmental footprint throughout the entire lifecycle. Because of intertwined value chains the sector needs to team up with other industries and make use of advanced technology to gather and exchange information.

- The design of products needs to consider renewable resources, lower material usage, higher durability, sustainable production processes and end of life treatment. Advanced simulation and data exchange platforms support companies to act on such information and take the right decisions.
- Efficient use of energy and minimal waste during production can be achieved by correlating energy management and production management data.
- Prediction and optimisation of energy consumption at a granular level (per part / per process) can increase the amount of renewable energy used and reduce fossil-based sources.
- The shift towards a more circular economy demands new business models, digital marketplaces and digital services as well as the ability to flexibly adapt production capacity to repair, refurbish and remanufacture existing products.



# Decarbonization: The view from Atos' global industries



**Beth Howen**  
Head of Public Sector &  
Defence

## Public Sector & Defence

Public sector organisations are uniquely placed to lead the development of new business models that are not only sustainable but can also reverse the adverse impact of the historic over-consumption of fossil fuels and other natural resources.

- New citizen experiences should be developed to transform urban transport with active travel solutions and resource optimised public transport. Such innovation can improve health and wellbeing outcomes and help build stronger communities.
- Public sector organisations should seek to use digital technologies to increase efficiency, lower costs, reduce emissions and streamline services across their value chains. The cost of carbon needs to be fully understood.
- Public sector organisations need to provide leadership for resource optimisation, both through compliance with regulatory interventions and by demonstrating best practices to support the circular economy.
- Investment in innovation must continue, incentivising new technologies and business models that will help accelerate the transition to a fossil-fuel-free economy, benefiting all of society.

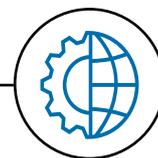
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Technology and firms like Atos have a huge role to play. At heart this is a challenge of using the world's finite resources in the best possible way. So whether that is smarter cities, data-driven government, or even quantum powered computer algorithms, digital technology is a huge enabler.

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**Andrew Griffith MP,**  
UK Net Zero Business  
Champion



**Giuseppe Di Franco**  
Head of Resources  
and Services

### Resources & Services

For the resources and services sector, sustainability is already a key focus, with innovation and new business models fast-evolving and traditional boundaries blurring across the transport and energy ecosystems.

- Service providers can actively encourage their supply chains to prioritise the re-use of natural resources by incorporating sustainability principles into their business models.
- Leveraging big data from smart-metering initiatives can facilitate responsible consumption in homes and workplaces and reduce the carbon footprint at the prosumer level.
- Platformisation can optimise transportation fleet operations and vehicle/vessel performance, maximising available transport capability and routes, enabling predictive maintenance and delivering significant sustainability gains.
- The Internet of Things (IoT) and video analytics can be used to make the most efficient use of energy in stores, particularly in food stores which rely heavily on energy for refrigeration.



**Jean-Philippe Poirault**  
Head of Telecom, Media &  
Technology

### Telecom, Media & Technology

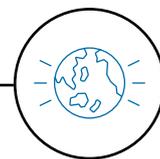
Telecoms, media and entertainment companies have opportunities to use digital technology to decarbonize their own operations and supply chains, support the sustainability goals of other industries such as energy, transport, agriculture and construction, and also help shift public awareness and behaviour towards a more innovative, inclusive and green society.

- Artificial Intelligence, supercomputing, cloudification and 5G will facilitate rapid, high volume data transfers allowing better analysis and decision-making on climate crises and the environment. This will support better corporate management decisions and public policy.
- The 'production office of the future' will enable teams around the world to collaborate virtually, while the transition of gaming technologies to film means that whole worlds can be created without leaving the studio.
- Virtual and augmented reality and other advancing eSports technologies will become mainstream, creating new immersive experiences and reducing the need for travel by participants and fans.
- Additionally, the power of the media can help shift perceptions, creating public demand for sustainability and the regeneration of cities, habitats and ecosystems.

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# Decarbonization: The view from Atos' global partners





Whenever we partner with a client, we're doing our part not only to develop reliable, scalable cloud strategies for companies, but also ones that create a more sustainable digital future for everyone as we push closer and closer to net zero emissions.<sup>1</sup>

**Brian Farrar, Founder & Partner Maven Wave**



...we are committed to live, work and develop sustainably, in a safe and secure information space by addressing the challenges of climate change and fulfilling our carbon intensity targets...<sup>2</sup>

**Rakesh Khanna, Chief Executive Officer, Atos Syntel**



Atos Unify is deeply committed to environmental care and protection, and through the use of creativity, technology and skills, is actively helping to set new standards in environmental sustainability. Our ideas, technologies and activities, through which we strive to ensure a sustainable existence, benefit people, society in general, and the environment<sup>3</sup>

<sup>1</sup><https://www.mavenwave.com/blog/positive-effect-cloud-computing-climate-change-decarbonization/>

<sup>2</sup>[https://atos.net/en/2020/india-pr\\_2020\\_12\\_15/atos-awarded-with-the-best-csr-project-for-environment-and-sustainability-in-india](https://atos.net/en/2020/india-pr_2020_12_15/atos-awarded-with-the-best-csr-project-for-environment-and-sustainability-in-india)

<sup>3</sup><https://unify.com/en/about-us/green-enterprise/going-green>



# COP26 at a glance

## The history

For nearly three decades the United Nations (UN) has been bringing together almost every country on earth for global climate summits - called COPs - which stands for 'Conference of the Parties'. In that time climate change has gone from being a fringe issue to a global priority.

One of the first steps made by the UN in this area was the UN Framework Convention of Climate Change. This entered into force in 1994 and the 197 countries that have ratified the Convention are called 'Parties to the Convention'. It commits its members to preventing dangerous human interference with the climate system.

The Paris Agreement in 2015 was a seminal moment as for the first time all nations were brought together in a legally binding treaty to undertake ambitious efforts to combat climate change and adapt to its effects. Signed by 197 countries, the Paris Agreement focused on three key areas:

- Limiting temperature rises to 1.5°C
- Reviewing countries commitments to cutting emissions every five years
- Providing climate finance to developing countries

## The event

This year will be the 26th annual summit - giving it the name COP26. With the UK as President, COP26 takes place in Glasgow, 1-12 November 2021. Glasgow was chosen by the UK to host COP26 due to its experience, commitment to sustainability and world class facilities.

The summit will bring parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention of Climate Change. The Summit has set itself the following goals:

- Securing global net zero by 2050
- Adapting to protect communities and natural habitats
- Mobilising finance to support steps towards net zero
- Working together to deliver to accelerate climate action

## Pre-event

Each COP is preceded by a preparatory meeting held about a month before, called Pre-COP. The Pre-COP will be held in Milan, 30 September-2 October 2021.

Milan also hosts the Youth4Climate Summit which will see young people from across the world come together to elaborate concrete proposals on topics that affect the negotiation process of Pre-COP26 and COP26.





“COP26 brings the world together in the midst of a global pandemic, but with the world still focused on ensuring that generations to come will be healthy and live sustainably. That ambition demands net zero is achieved faster and with every nation playing its part. This event will be a landmark occasion, the biggest for the UK since London 2012, and I know we are all aiming to leave an even greater legacy for future generations.”

**Kulveer Ranger, SVP Strategy & Communications UK&I; former Environment Adviser to the Mayor of London and former London 2012 Olympics Environmental Champion.**



“Glasgow is a truly global city that Atos is proud to have invested in for many years. This November, Scotland, the UK and the whole of the world will come together to make decisive progress and real change in advance of our environment. As the leader in secure and decarbonized digital, we are committed to playing our part in this endeavour by being a net zero business by 2028.”

**Clay Van Doren, Chief Executive Officer, Atos UK & Ireland and Northern Europe**



“We are delighted that Milan will host Pre-COP. Atos Italy is playing a major role in our global business's moves towards increased sustainability. It is through the collective action of businesses in Italy and throughout the world that we will achieve the results that we all demand. I am proud that Atos continues to be a global leader in decarbonization.”

**Giuseppe Di Franco, Executive Vice President Atos, CEO Atos Italy**



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# Converging paths to COP26

## Glasgow



“

As hosts of COP26, Glasgow has an opportunity of global significance to promote and accelerate our efforts to secure a just transition to carbon neutrality. Economic growth, improving the quality of life of all of our citizens and carbon neutrality are entirely compatible, but we all must begin planning for it now.

Susan Aitken, Leader, Glasgow City Council

”





# Milan



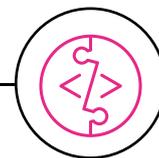
“ Un anno cruciale in cui l'Italia, partner del Regno Unito, si impone sulla scena globale con l'organizzazione della COP 26... Una discussione sul futuro del Pianeta non può svolgersi senza la partecipazione e il contributo dei giovani, per questo motivo è nato “Youth4Climate”, l'evento che precede la Pre COP 26 di Milano.

A crucial year in which Italy, a partner of the United Kingdom, imposes itself on the global scene with the organisation of COP 26... A discussion on the future of the planet cannot take place without the participation and contribution of young people, which is why “Youth4Climate” was born, the event that precedes the Pre-COP 26 in Milan.  
Roberto Cingolani, Minister for Ecological Transition - Italy

”







# How digital is powering progress toward net zero

The climate crisis has never been more evident; the need to address the world's carbon emissions and energy consumption is urgent. Complex systems transformations are required to meet decarbonization targets, with digital technologies playing a critical role.

## Building the net zero society

Digital tools such as the Internet of Things, machine learning, artificial intelligence, automation and digital twins all have great potential to help accelerate decarbonization across numerous sectors and industries.

Research shows that deployment of existing digital technologies can cut global emissions by 15-20%<sup>1</sup>. Analysis by Deloitte for a recent techUK report<sup>2</sup> found that digital technology already deployed can enable a reduction of 7.3 million tonnes of UK carbon emission by 2030 - that's 15% of what's needed to deliver on the Paris Agreement. The Royal Society<sup>3</sup> has also concluded that digital technology is vital to unlocking the net zero transition, pointing in particular to the potential of smart energy systems, supercomputers, weather modelling and AI ad digital twins.

Governments are increasingly aware of this potential. The COP26 Presidency, for example, recently launched Tech For Our Planet, a challenge programme through which digital innovators from across the globe are invited to pilot their digital and data technology solutions for tackling important climate challenges and pitch them in front of an international audience at COP26.

At techUK, our focus is around working with the energy and mobility sectors; we are increasingly working on homes and the built environment, and in the area of green finance. In all of these domains, it's increasingly clear that digital is going to be fundamental.

Smart grid systems can intelligently link the generation, distribution, storage and use of renewable energy, dramatically improving efficiency and optimising energy use. In mobility and logistics, digital technologies can support the decarbonization of transport systems by supporting

multi-modal travel, intelligent supply chains, transport optimisation and demand planning. Advanced analytics and cloud computing are helping climate scientists better understand the challenges facing the planet, from biodiversity loss, food supply chains, ocean acidification and helping. And the list goes on.

## Realising digital's promise

So, what is now needed to realise the promise of digital tech in supporting climate action?

techUK has called for more challenge-led innovation, support for innovators beyond initial proof of concept, stronger market incentives to invest in green tech, and, vitally, a strong skills base to have the bandwidth to support sectors' net zero transition.

We also believe there needs to be trusted data infrastructure for net zero to enable digital innovation to flourish. And we would welcome a global approach to developing international data-sharing agreements to support abatement of greenhouse gases, climate adaptation and ecosystem monitoring.

Governments, industry, climate specialists need to work together to drive digitalisation of the net zero transition to identify priorities across sectors, and work with digital partners to ensure that systems can be scrutinised, are secure, and benefit communities.

As sectors' net zero transition plans mature, we are seeing increasing desire to work with digital innovators to explore how digital tech can help them. And with more and more use cases emerging, the true power of digital technologies to enable emissions reductions is still emerging.

<sup>1</sup>Proceedings of EnviroInfo and ICT for Sustainability 2015

<sup>2</sup>Making the UK a digital clean tech leader, Deloitte and techUK, 2020

<sup>3</sup>Digital Technology and the Planet: Harnessing computing to achieve net zero, Royal Society, 2020



**Nikki Kelly**  
SVP Public Sector & Defence, Atos Northern Europe



# Delivering on changing expectations

When it was first published in 1962, Rachel Carson's *Silent Spring* helped ignite the modern environmental movement. Nearly 60 years later, the salience of the issues it raised around sustainability have never been greater, intensified more recently through the increased understanding of climate change. Figures such as Sir David Attenborough and Greta Thunberg enjoy international followings and the global environmental movement exerts a huge influence on political and business leaders.

## Understanding the decarbonization movement

The impact of this movement is also being felt at an individual level, with some consumers seeking to minimize their own contribution to climate change through reducing their own carbon footprints. This can take the form of switching to renewable energy sources, choosing low carbon forms of transport and opting for products associated with brands recognized as sustainable. Apart from directly emitting CO<sub>2</sub> into the atmosphere, it is widely recognized that levels of consumption of materials and goods contributes to climate change. Research conducted by GlobalWebIndex in 2020 found that 71% of consumers are making substantial efforts to recycle more waste and 51% reuse products and materials, meanwhile half of UK consumers are making a conscious effort to unplug devices when not in use.

## How digital is driving change

Technology has been a key enabler of these changing behaviours, equipping consumers with information around how best to reduce their own carbon emissions and providing them with the tools to achieve this. Today consumers can use apps like the 1% for the Planet account that gives an on-demand view of the potential environmental impact of purchases; and resources like Cool Effect or Trip Zero enable holiday makers to opt for trips with the smallest environmental impact. Google Maps will soon default to showing users the route with the lowest carbon footprint.

Consumers do not expect to be the only ones using digital tools to reduce their environmental impact. There is now clear evidence that many choose to buy from businesses based on an assessment of their sustainability and their commitment to tackling issues such as climate change.

Businesses have recognized the power of this, with firms as diverse as Unilever, Lloyds Bank and Marks and Spencer actively promoting the steps they are taking to support the transition to net zero.

The test for businesses ahead of COP26 and beyond is whether they can match strong rhetoric with concrete action. There is reason to think that public demand to tackle climate change will only grow stronger. Backlashes against those seen as operating in an unsustainable way and moves by investors to divest from carbon-intensive sectors demonstrate the impact that changing attitudes are already having. There is then an implicit commercial risk for any organization that is seen as falling short of consumers' expectations. The businesses that flourish in the future are likely to be those able to demonstrate that they are utilizing the same innovative tools as their customers to mitigate their environmental impact.



# Unlocking new value across FS&I by accelerating the journey to net zero

Financial service and insurance providers are in a unique position to make significant strides towards decarbonization within their own operations, while also supporting decarbonization through their investments.

Indeed, the Financial Times<sup>1</sup> recent listing of Europe's Climate Leaders found financial services to be the top performing sector. For many in the sector, the starting point has been to analyse and change what the enterprise can most closely control. This can involve setting targets for reducing paper, energy and water consumption, along with efficiency goals for our buildings and data centres.

## Enabling decarbonization across the economy

Harnessing digital finance, big data, artificial intelligence (AI), mobile platforms, blockchain and the Internet of things (IoT) to deliver products and services, offers ongoing opportunities for decarbonization. More can be done to pioneer decarbonization along the value chain, such as through Decarbonization Level Agreements to set measurable targets with suppliers and partners. In addition, companies in the sector can learn the lessons of the pandemic to move their operations further towards a lower-carbon way of operating, embedding some of those changes adopted rapidly in response to Covid-19 to deliver ongoing sustainability benefits.

Yet still, at face value, it may seem that the sector has less to do around decarbonization when compared with sectors such as energy and manufacturing. However, given the nature of the role that financial services and insurance institutions play in most people's lives, the sector has huge potential to drive progress towards delivering net zero. This is an exciting opportunity to lead change in decarbonization, responding to changing public expectations, regulatory requirements and the needs of investors.

Institutions can become part of a wider decarbonization ecosystem, with mutual value around integrating environmental, social and governance (ESG) criteria into business or investment decisions. Again, digital technologies and data have a role to play, for example with the

application of artificial intelligence algorithms to identify more sustainable investment strategies.

At Atos, for example, we have worked with DreamQuark, a French start-up specialising in AI applied to the finance and insurance sectors. Together, we've launched the Sustainable Investment Brain, the first digital platform for banks and insurers that is both dedicated to socially responsible finance and compliant with the principles of transparent artificial intelligence as set out in new proposed European regulations.

## Leading the transition to net zero

Supported by a growing interest in ESG issues, global sustainable fund inflows were up 88% in the fourth quarter of 2020 to more than \$152bn. Their success has since continued to build, supported by the growing demand for meaningful investments during the health crisis. The Sustainable Investment Brain helps to accelerate this trend by combining AI and deep learning, leveraging financial and extra-financial data, including accurate and standardised ESG data. This can be used to identify potential investors most interested in responsible investment and to recommend the most suitable assets and investment products, taking into account their individual profile and objectives.

The sector can build on the progress made in recent years by embracing new digital tools to become a key enabler and catalyser of a greener society. The combination of digitally-enabled financial services and innovative sustainable finance can help to power economies while supporting the transition to a net zero future.

<sup>1</sup><https://on.ft.com/3fp2aWN>



# Global decarbonization by numbers

**1.1°C**



The Earth is now 1.1 degrees warmer than before the Industrial Revolution and the warmest it has been for more than 11,000 years.<sup>1</sup>

**11.7%**



The global rate of decarbonization needed to reach net zero by 2050. This is five times higher than the current rate of 2.4%.<sup>2</sup>

**25%**



The level of which global energy demands are expected to increase by 2040.<sup>3</sup>

**\$26 trillion**



The UN estimated global economic benefit of a shift to a green economy compared with business-as-usual.<sup>4</sup>

<sup>1</sup> <https://news.un.org/en/story/2020/12/1078612>

<sup>2</sup> <https://www.pwc.co.uk/services/sustainability-climate-change/insights/net-zero-economy-index.html>

<sup>3</sup> [http://www3.weforum.org/docs/WEF\\_The\\_Net\\_Zero\\_Challenge.pdf](http://www3.weforum.org/docs/WEF_The_Net_Zero_Challenge.pdf)

<sup>4</sup> <https://news.un.org/en/story/2020/12/1078612>





**121**

The number of UN member states (out of 193) that have formalised Net Zero targets prior to COP26. Before the COP25 conference, that number was 67.<sup>5</sup>

**3/4**

Three quarters of global companies have already developed some form of a strategy and targets to decarbonize their business<sup>6</sup>

**21%**

Many go further than this - of the world's 2,000 largest public companies, one-fifth have set 'true' net zero commitments.<sup>7</sup>

**\$13 trillion**

Combined market cap of the 538 companies worldwide signed up to the SBTi 'Business Ambition of 1.5 degrees' initiative.<sup>8</sup>

### Atos: The leader in secure and decarbonized digital

**#1** in Dow Jones Sustainability Index (IT services sector)



Industry leadership recently enhanced by EcoAct advisory and offsetting



Carbon neutral since 2018 - offsetting the operational scope of our emissions



Ambition to achieve net zero by 2028

<sup>5</sup> [http://www3.weforum.org/docs/WEF\\_The\\_Net\\_Zero\\_Challenge.pdf](http://www3.weforum.org/docs/WEF_The_Net_Zero_Challenge.pdf)

<sup>6</sup> <https://home.kpmg/gm/en/home/insights/2020/12/climate-change-and-corporate-value-what-companies-really-think.html><sup>8</sup> <https://sciencebasedtargets.org/companies-taking-action>

<sup>7</sup> <https://www.edie.net/news/6/One-fifth-of-world-s-largest-corporates-have-set-net-zero-targets/>

<sup>8</sup> <https://sciencebasedtargets.org/companies-taking-action>



## Kulveer Ranger

Global Head, Strategy & Communications for Financial Services and Insurance, and SVP Strategy & Communications for UK&I. Former Environment Adviser to the Mayor of London and former London 2012 Olympics Environmental Champion.

# To net zero and beyond

My generation's journey to net zero began in the 1980s when as a society we became truly aware of the impacts we were having on our planet. Having been told about the hole we had created in the ozone layer, we followed the science and stopped using CFC gases in our fridges and deodorants.

Then, having found roll-on deodorants rather annoying, and an alternative to CFCs, this global issue faded into the background. Yet it does mark a defining period in our history: it demonstrated to us all that when we act together, we can succeed in living more sustainably and in harmony with our planet.

Since then, human understanding has grown around the complex issues of consumption, pollution, the plastic in our oceans and the destruction of biodiversity. So too has people's desire to play their part in halting the damage. There has also been another seismic change - an explosion in the use of technology, from early personal computers, mobile phones and games consoles, to cryptocurrencies, super smart devices and powerful supercomputers driving our thirst for liking, sharing and commenting via global social media platforms. We are managing to generate 2.5 quintillion bytes of data a day<sup>1</sup> and need a huge amount of energy to process and store this data.

### Balancing rising demand with growing awareness

Today, we see the convergence of these two societal shifts: greater understanding of our impact on the environment and escalating demand for energy and resources. The urgent need for action to protect our planet has moved from being the message of protest from a few, to a broader acceptance of the collective responsibility of the many. The corporate agenda is no longer led by the quizzical 'can we...?', but by the determined view that 'we can', and 'we must'. And if technology is powering our lives, it should be instrumental in accelerating our progress, not just to net zero but beyond, in the way we shape the future through the prism of sustainable design.

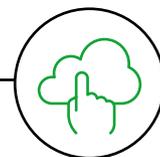
Industries are converging with tech partners across supply chains and in ecosystems, both to decarbonize and to innovate without increasing carbon emissions. Businesses can use technologies to understand the carbon footprint of products and services across whole value chains. We can map, track and visualise energy data in order to manage and reduce usage. We can use these insights to make the right design decisions for in-built zero-carbon. And we have all recognised the need to work in collaboration - because no one organization, or sector, or country has all the answers.

### Sustainability as the new business-as-usual

We are on the cusp of sustainability becoming corporate business-as-usual; but decarbonization must be managed continuously in alignment with science. Many businesses have adopted science-based targets (SBT), validated by the independent Science Based Target initiative (SBTI), so that they can map out their emissions reductions against a route map aligned to the scientific consensus on limiting global warming. The recent Financial Times listing of Europe's Climate Leaders provides one illustration for how businesses cannot just look at the top line when it comes to assessing their carbon footprints and must instead examine both the direct and indirect emissions their operations generate and track this over time against their growth.<sup>2</sup>

<sup>1</sup>How Much Data Do We Create Every Day? The Mind-Blowing Stats Everyone Should Read, Forbes (21.05.2018)

<sup>2</sup>Europe's Climate Leaders 2021: interactive listing, Financial Times (18.05.2021)



If I looked back now to how ambition can become reality, I think of my time a decade ago when leading the Mayor of London's transport, environment and digital portfolios, Boris Johnson set the target for London to become the electric vehicle capital of the world. That ambition had an eye on the future at a time when EV's were not readily available, technology and charging infrastructure had yet to mature, and there was huge scepticism from the public. A decade on and every mass manufacturer has electric vehicles as part of their offering, we have national and home-based charging infrastructure, and the future has arrived. We have already gone beyond our ambition.

Those who experienced the 80s climate awakening have been joined by a new generation who want to pick up the baton and go faster and deeper into every aspect of our lives. From Sir David Attenborough to Greta Thunberg, the generational divide has unified and as a global community, we are committed to change. This time, it's not about simply relacing a deodorant spray with a roll-on: there is much more to be done. Let's look back and learn, then think forward to the journey and what our world can be after net zero is achieved. Corporate leadership has now stepped forward on this issue, and its alignment with both political will and a new generation's passion and determination for the cause of decarbonization has created a tipping point for businesses and us all to be able to lead to a new sustainable world.





**The energy sector has a key  
role to play in creating a  
carbon-neutral energy system,  
supporting a green recovery  
post Covid-19, and delivering a  
cleaner future for everyone**



**nationalgrid**

**Shannon Soland**

Global Head of Infrastructure & Operations, Commercial & Vendor Management, National Grid.



# Shaping the clean energy future

Climate change is one of the greatest challenges facing our world right now. That's why we're determined to reach net zero, achieving a balance between the amount of greenhouse gases emitted into the atmosphere with the amount removed. As well as our own direct emissions, we're also committed to working with government and regulators in the UK and US to help them meet their own carbon reduction targets.

## The role of data

Access to accurate data and the deployment of digital tools can help organisations to develop emissions reductions strategies that enable them to accelerate their progress towards delivering net zero, at the same time as delivering broader benefits through their value chains.

National Grid has developed a comprehensive plan to deliver Net Zero by 2050. For example, we are working hard to increase the use of renewable energy within a 21st century grid. Large-scale renewables resources, including solar, onshore wind and offshore wind, will play an essential role in the low-carbon future. Use of these abundant, clean and cost-effective natural resources needs to be increased by connecting them into communities. With investment required in effective transmission system, transformational technology is critical in helping to remove bottlenecks and unlock significant network capacity.

## Connectivity and collaboration

It is also crucial to connect multiple renewable energy sources to the grid. Distributed generation (DG) means that electricity can be generated from renewable energy sources near the point of use, such as solar panels in people's own homes, instead of from centralised power stations. With high amounts of DG coming onto the energy network, digital transformation is essential to create the intelligent grids of the future, alongside investments in advanced meter infrastructure.

Harnessing the potential of new innovative technologies to enhance benefits for customers and consumers is at the heart of everything we do at National Grid. The energy sector has a key role to play in creating a carbon-neutral energy system, supporting a green recovery post Covid-19, and delivering a cleaner future for everyone.

# Combining climate action with commercial sense

Working with national governments, businesses will play a critical role in the rapid transition to a net zero economy. Businesses are often seen as torn between their environmental responsibilities and the drive to deliver commercial returns. Yet at the same time, commercial organisations around the world are committing to increasingly ambitious emissions reduction targets. This begs the question: how are they reconciling this bold action with continuing to look after the bottom line?

## Drivers of change

In the first instance, businesses are responding to investors and stakeholders who place increasing value on climate change action and will invest more in firms committed to being accountable for this. Environmentally conscious consumers are also looking for companies based on their track record on sustainability.

There are other commercial incentives that push the private sector to play its part in tackling climate change. By embracing the challenge to deliver on net zero, businesses are making a bet that the right strategy to decarbonise by transforming their operating models and ways of working will pay dividends in the long run, through lower costs and access to higher growth markets at home and abroad.

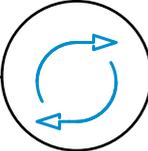
There is huge power in collaboration between public and private sector communities to shape and deliver climate action plans, such as the global Race to Zero initiative. Governments can also help organisations to scale up the innovation taking place in their supply chains, for example by introducing incentives that enable businesses to collaborate despite the risk of losing competitive advantage, just as they have in the health & safety domain.

Key opportunities exist for governments and business to work together to address challenges and variables that are outside of business' direct control; examples include sector roadmaps and R&D investment from government that brings together original equipment manufacturers (OEMs) and supply chains, making an attractive environment for capital investment. This joint working can help deliver decarbonization and the regional investment that governments are trying to achieve.

## Where next for climate action?

In the future, with digital infrastructure ubiquitous and regulatory frameworks encouraging sustainability and penalising unsustainable practices, the enterprises that thrive will embrace both digitalisation and decarbonization.

Central to the business case for delivering net zero is the fact that operating in a digital economy enables organisations to free themselves from traditional, carbon-intensive practices. There is therefore a clear investment case for businesses to take the lead in this area, with many already successfully combining significant steps towards delivering net zero with safeguarding and enhancing their commercial futures. In a wider sense, by engaging in this fight, businesses are sending a clear signal that a world with a stable and predictable climate is one that is good for growth, good for innovation and, ultimately, good for business.



# International action on climate change

Since 2010, Atos has supported its customers in their journey towards more sustainable operations and has offset set each year the total carbon emissions of all its data centres. In 2018, Atos has expanded this program to cover 100% of residual emissions of its data centres, offices, and business trips.

## United Kingdom

A **reduction in energy consumption** for NatWest through a data-driven approach and £2.4 million in savings and cost-avoidance.

Implementation of an **energy management program** at Harvey Nichols, delivering a substantial reduction in carbon emissions

The Berkeley Group, in partnership with EcoAct became the **first carbon positive housebuilder**, reducing operational costs by 22%.

## Germany

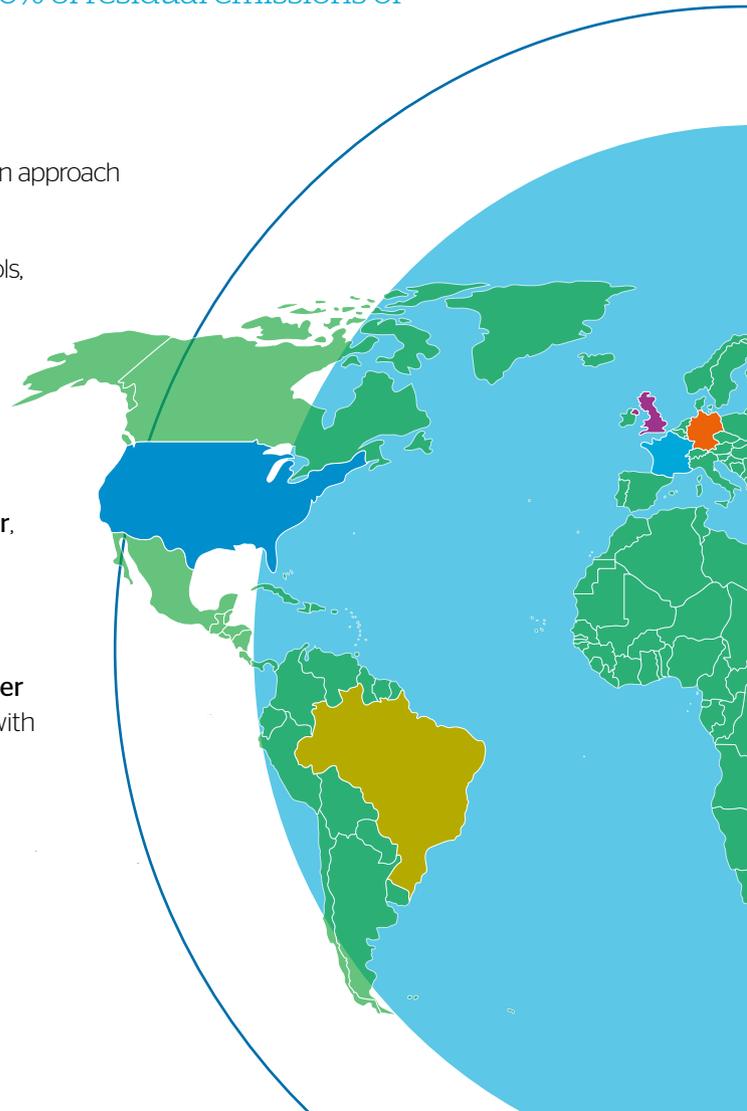
In Jülich, Germany, **Atos powered Europe's fastest supercomputer**, which was the most energy-efficient system in the HPCG Top100.

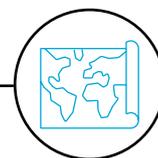
## France

In Grenoble, France, **Atos built an EcoCite for tomorrow, with better energy management and consumption**. 500 homes were fitted with new generation smart meters and eco displays.

## Sudan

In Sudan, an EcoAct project provided access to 11,900 low smoke cookstoves. **This carbon offsetting project has saved over 230,000 tCO<sup>2</sup>**.





# 45%

how much global net human-caused emissions of carbon dioxide (CO<sub>2</sub>) need to fall by from 2010 levels by 2030 to reach 'net zero' around 2050.

## India

In India, Atos has **promoted the development and use of renewable energy** through installation of 137 wind turbines, providing clean electricity for 40,000 houses.

## Ethiopia

In Ethiopia, Atos invested in a REDD+ forest preservation project in Ethiopia, as climate science and market trends have demonstrated **the importance of preserving and developing carbon sinks like forests or mangroves.**

## Brazil

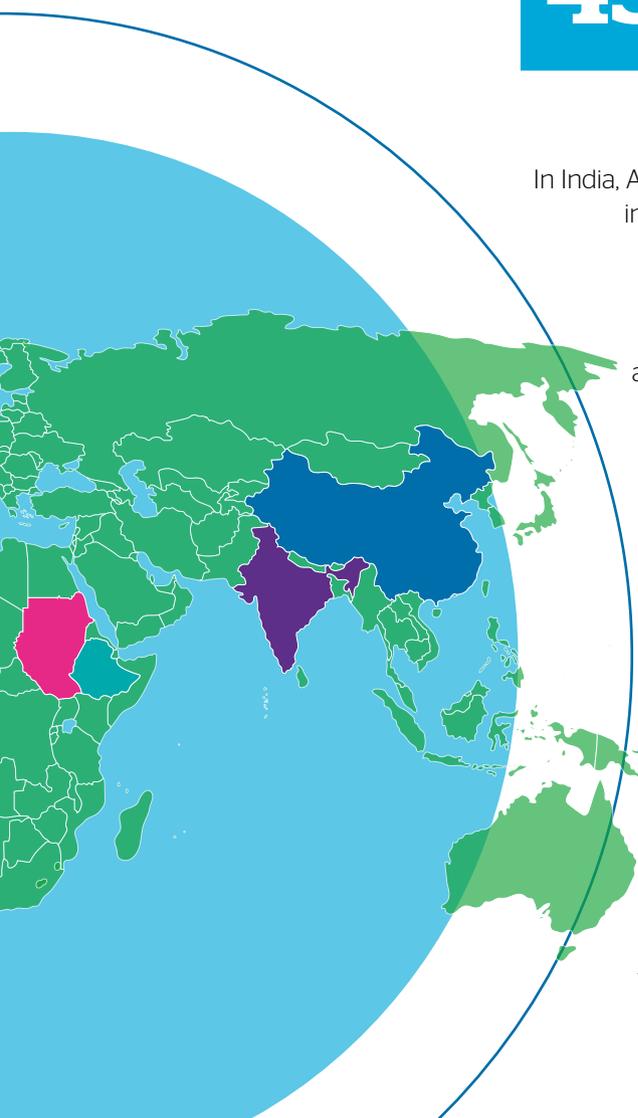
Atos invested in a preservation project of native forests in Brazil, **providing security to prevent deforestation due to illegal logging.**

## United States

In EcoAct American Carbon Registry Hardwoods Offsetting Project is **helping to bend the climate curve,** restore species habitat, clean the water, reduce GHG emissions and support the local and global economy.

## China

In Jialing, China, EcoAct have supported a carbon offsetting project **which helps in install more than 400,000 biogas units providing a cleaner and more renewable source of fuel** for rural communities.





**William Theisen**  
Chief Executive, EcoAct North America

# Why data is key to successful net zero transition

At the start of 2021 BlackRock, the world's largest asset manager, wrote its annual letter to corporate CEOs. The letter, penned by Blackrock CEO Larry Fink, asked companies to disclose a plan for how their business model will be compatible with a net zero economy and achieve net zero emissions by 2050. It is important as this shows a huge shift in expectations from investors for corporate Boards of Directors to consider, report and plan for the risks of climate change.

And CEOs are listening. Over 2,000 businesses globally have joined the United Nations Race for Zero campaign, that asks companies to commit to achieving net zero carbon emissions by 2050 at the latest. Climate action is becoming mainstream and momentum towards net zero is accelerating.

## Data and climate action

One thing the BlackRock letter highlights is the vital importance data plays in devising plans and ultimately meeting the milestones on the road to net zero. Data clearly shows us the need for urgent climate action to avoid the worst catastrophes of climate change, but data also has a role to play in the solution. It is key to successful net zero transition because it facilitates action and change, beyond just a commitment.

Having data that is comprehensive, precise, trustworthy and secure is the foundation for companies to confidently communicate with stakeholders, deliver on climate ambitions and effectively transition to net zero.

Selecting the right systems and processes is essential for collecting, analysing and reporting the right data to fully understand where emissions are generated and the opportunities to reduce them. Using carbon data systems enables users to compare and integrate datasets, accurately forecast emission reduction scenarios and visualize results to inform stakeholder engagement and decision-making. I see establishing the right business specific system as critical to optimising budgets and achieving an organization's specific objectives; aligning with existing systems and databases is an important consideration.

## Data and climate action

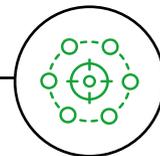
But managing data is often cited as one of the pain points of sustainability directors. For example, assessing the emissions of the value chain,

which could contain thousands of suppliers and related numbers of datapoints, can be hard to navigate. This is where devising a data strategy up front optimizes success in the transition to net zero.

There are three important things that I think need to be considered when devising a data strategy for net zero:

Firstly, be ambitious. For many companies, the myriad data collection systems and processes already in use can sometimes be a challenge in itself. But developing insight across the different emissions scopes, climate change trajectories and emissions reductions initiatives allow organizations to fundamentally understand their progress in a holistic way. Atos has designed a Digital Decarbonization Platform that allows enterprises and organizations to leverage digital to simplify and automate emissions collection, calculation,





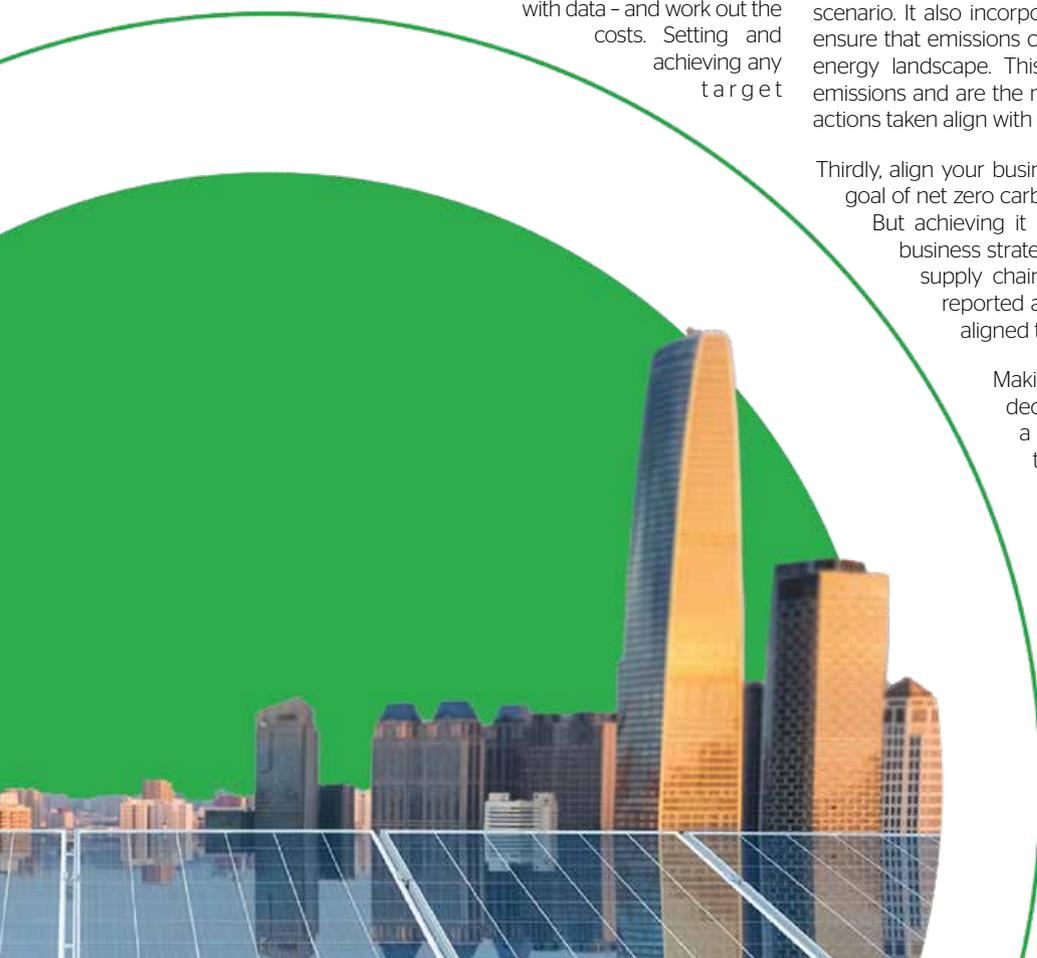
reporting, data analysis and visualization across the value chain. Targeting the reduction of manual effort and pain points of emissions data collection and aggregation, this unique platform also provides new data insights to optimize business data-driven decisions and predictability.

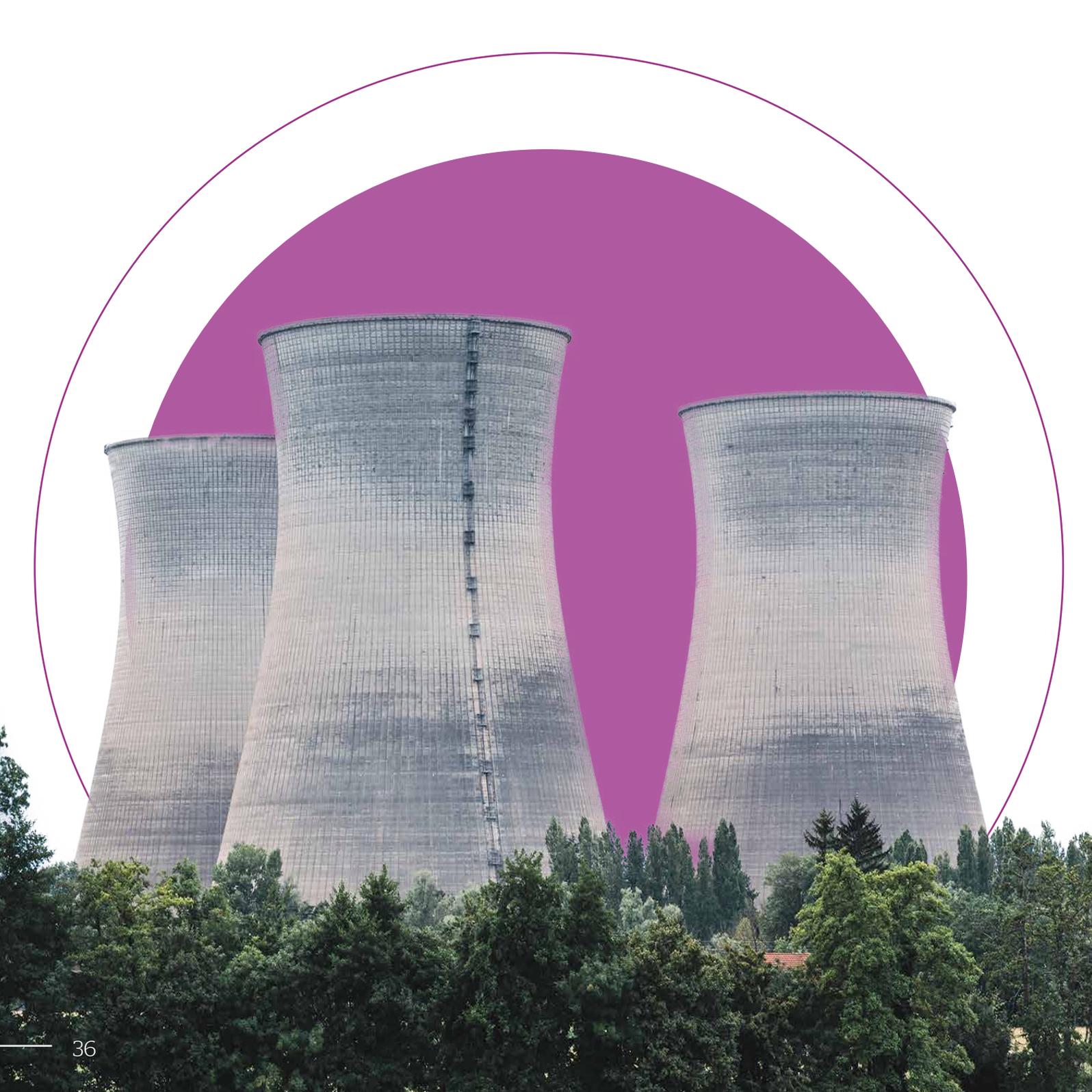
Secondly, define the net zero roadmap with data - and work out the costs. Setting and achieving any target

involves a wide range of initiatives and a certain amount of financial investment. EcoAct, an Atos company, has developed an innovative visualization tool that clearly summarises your options and presents the best course of action. CRaFT holds data for all emissions-generating activities such as energy usage, business travel and supplier interactions to provide a full picture of baseline emissions and a business-as-usual scenario. It also incorporates the latest emissions factor projections to ensure that emissions calculations accurately account for the changing energy landscape. This allows a view as to what initiatives reduce emissions and are the most economically feasible - helping ensure the actions taken align with commitments made.

Thirdly, align your business objectives with your net zero objectives. A goal of net zero carbon emissions by 2050 is vital for all businesses. But achieving it will require a full-scale review of a company's business strategy, including products, operations, vendors and supply chains. Ensuring that the emissions data collected, reported and used within the organisation is relevant and aligned to business objectives is key.

Making a data strategy a central requirement to decarbonization is more important than ever in a world where there is an ever-closing window to limit emissions output and global heating. Companies need integrated emissions data management systems and expertise to quickly and seamlessly analyse data, transparently communicate environmental results and accurately forecast reduction scenarios. By using data to drive decisions, business leaders across all sectors can significantly reduce their carbon emissions as well as improve efficiency, reduce costs, and drive innovation. More than ever, I believe climate action makes commercial sense and those businesses that act today, will thrive tomorrow.







Murli-Mohan Srinivas, Digital Twin Business Lead/Head Industry 4.0, Atos Germany & Sue de Wit, Senior Vice President Atos/Syntel UK&I and Chief of Staff Atos UK&I



# How digital twin technology drives industrial decarbonization

For too long, manufacturing enterprises have focused on productivity centred around the economics of cost and profitability, to the detriment of sustainability.

Very few industries and manufacturers have traditionally given much attention to areas such as resource productivity, decarbonization and energy optimisation; and if they did, it was limited to fulfilling compliance and regulatory conditions. Now, thanks to global leadership, these areas are emerging as top business priorities; and forward-looking nations are starting to require enterprises to make firm commitments in this area.

Globally depleting raw material will continue to make finished products more expensive in the future. In addition, demographic changes have shifted demand for finished products towards emerging markets, forcing manufacturers to realize that traditional approaches and measures to maintain productivity are becoming obsolete. The fundamental premise that resource productivity is subordinate to other operational priorities will no longer be valid.

## Industrial carbon generation

Industries have historically been heavily dependent on fossil fuels across the product and service lifecycle. Conversely, decarbonising product development, production and service processes can lead to higher costs. Some of the key measures to accomplish decarbonization are efficiency improvements, energy optimisation or the use of renewable energy sources, changes in demand by increasing reuse, remanufacturing or recycling, modifying production process and carbon capture and storage or usage.

Other factors which are often ignored when businesses consider how best to approach decarbonization include the cost of prematurely replacing industrial assets and products. For example, in petroleum refineries, even relatively small equipment changes require part of the site to be redesigned and rebuilt, because the processes are highly integrated within a small, optimised area.

## Acting on insights

Addressing these challenges requires social and structural transformation coupled with technological innovations. Often, the causes are multiple and solving them involves integrating multiple data and knowledge sources and putting them in context to understand the conditions for industrial decarbonization

One of the most potentially revolutionary technologies shaping the future of manufacturing is the digital twin: a live, evolving digital model of a physical asset, process or system that is complete at any scale. Using digital twin technology manufacturers can model scenarios for strategic and operational planning; and when the digital twin is connected to real-time data, they will have a live operational view of exactly how process and assets are performing.

## Digital twin platform

Over the last three years, Atos has been working on creating a shared digital twin platform with a key focus on improving efficiency of industrial assets and reducing energy consumption. This platform can be put to work for a specific business domain and process improvements to enable reduction of a plant's carbon footprint.

The digital twin captures a 360-degree data view of a physical asset, incorporating field OT data, service life data, enterprise data and expert knowledge of service engineers or operators. Contextualising this data creates a decision support system that is not limited to switching on or off industrial systems to optimize energy and drive decarbonization.

This is just one part of a concerted decarbonization effort across manufacturing. At a global level, we are at a tipping point where we must act together, at a scale and pace never imagined. Tackling the most complex and integrated problems, where our global economic system is hardwired to meet challenges such as atmospheric pollution, overconsumption and waste should be our top priority.

# Roadmapping the net zero transition

As global momentum towards net zero grows, businesses have a key role to play in helping society to achieve the transition.

Those that don't take action could soon find themselves at risk of non-compliance, of losing investment and being left behind in their market. There are also the challenges associated with extreme weather events and consequent threats to supply chain stability.

Business-as-usual may mean no business at all; and future-proofing any organisation today means adopting a net zero strategy. With legally binding targets pushing decarbonization up the leadership agenda, a number of themes have emerged for roadmapping organisations' journeys to net zero.

## Identifying achievable targets

For businesses to be credible around decarbonization, targets must be aligned with climate science. And those science-based targets must be a focus, not just for a business' own operations, but also for their full value chains. Meeting government targets requires organisations to reduce their carbon emissions every year by at least 4-5%. Rather than just incremental change, this demands significant transformation across business strategy and operations.

Navigating that transformation requires businesses to unpick their activities and work out exactly how they generate emissions. They need to test scenarios to improve environmental performance and appraise and prioritise the necessary short- to long-term strategy and investments. Our experience is that for many, the first few years are relatively clear: businesses know what to do and where to act. Further down the line, more is unknown and pinpointing how and where to make change requires careful consideration.

Digital technologies are at the heart of decarbonization strategies in two key ways. Firstly, through the ability to replace or transform physical processes with digital operations and move the physical location of data into net zero cloud solutions. And secondly, with the huge power of digital and data to provide detailed analysis and new insights to drive transformation.

## Understanding and measuring

Critical for any roadmap is to understand, baseline and regularly measure all carbon emissions. While that might sound straightforward, it's a huge

and ongoing challenge. Organisations need to establish and integrate the right dataflows to get a complete real-time picture of climate impacts. From here, they can use those to drive performance, using machine learning and artificial intelligence to model scenarios and inform decision-making and planning.

Culturally, the critical shift is away from a core focus on financial returns, to one that includes businesses' responsibilities for protecting the planet. On top of that, a comprehensive, data-driven and evolving decarbonization strategy is essential for directing businesses' efforts to reach net zero endpoints while remaining profitable and sustainable in the long term.



## Scottish Water targets net zero by 2040

Scottish Water have set themselves an ambitious challenge to achieve net zero emissions by 2040, in line with the Scottish Government's broader goals for the country.

Atos helped Scottish Water to develop and validate a roadmap to net-zero by running a one-day StratHack event on the problem statement: 'How can Scottish Water deliver beyond net zero by 2040 across its operational and capital activities, and how can it be delivered sooner?'

We brought together a diverse audience of engineers and managers from the workforce, Scottish Water's digital partners, academic niche vendors and other water companies to explore the challenge and develop innovative solutions. After the StratHack event, we worked with the General Manager for Zero Emissions at Scottish Water to prioritize the key target areas for emissions reduction.

We discovered opportunities to apply AI to existing asset data to provide early-identification of excessive energy consumption and a proactive response. This led to an initial proof of concept where Atos provided a skilled team to deliver the use case on an initial set of pump stations resulting in significant energy efficiency savings.





Franck Freycenon, Head of E&U Solutions, Atos

# How to forecast green energy production

One of the main challenges holding back the growth of renewable energy sources such as solar PV and wind power is their inherent variability. Effective management of the energy grid requires a constant balance between electricity production and consumption. So, how can forecasters and energy specialists manage to predict green energy production?

## Knowing how to balance the energy mix

The variability of renewables has a direct financial impact along the whole value chain. It affects the energy producers, who are constantly at risk of either over-producing (and having to somehow get rid of the surplus so as not to overload distribution infrastructures) or under-producing (and losing potential revenues). So producers have to factor that uncertainty into their financial and operational models.

This affects the aggregators, who buy electricity from smaller producers to resell wholesale and play a key role in this balancing process on the networks. It also affects distributors, who need a highly accurate and up-to-date picture of current production in order to offer a high-quality service and that's even before you take into account so-called 'prosumers', customers who actually generate some of their own electricity.

Being able to forecast production accurately is therefore crucial for the economic viability of the renewables sector, as well as for its ability to compete with other sources of energy and contribute to the fight against climate change. The European Union, most notably, has set itself the target for renewables to provide 32% of end-user energy consumption by 2030 (compared with 18.9% in 2018).

## Putting the theory into practice

Forecasting energy production is a complex process. The French national meteorological service, Météo-France, has taken a major step forward by developing models for both wind and solar generation. The models - known as WF Wind and MF Solar - facilitates simulations that can be used to assess a potential energy production site. However, the energy produced by a wind turbine is directly proportional to the wind-speed cubed, so errors very quickly get amplified.

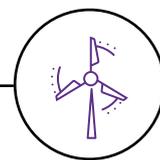
If you're looking for more accurate forecasts, you have to go much further than these theoretical models will allow. Here is where machine learning

comes in to play. By comparing historical production data with current measurements, taken moment by moment, an algorithm can build an extremely precise forecasting model which is unique to each particular installation.

## Learning to correct

Of course, as with any approach based around data, everything depends on the quality of that data. If there is a problem with one element (perhaps a single solar panel), this needs to be removed from the dataset. That's why the models that Atos has designed adapt and can relearn from cleaned data if it has detected a divergence in the trend.

It is by combining high-quality weather forecasts, proven physical models and expertise in algorithms that we can take out the uncertainty attached to renewable energy. This can not only provide direct assistance to those managing renewable energy networks, but can also lessen many of the barriers to further investment and expansion. By providing energy providers with greater certainty in a more timely way, these data systems can play a key role in driving the future growth of renewables.



“

The UK's energy innovators have been vital to us becoming a world-leader in clean green technology, helping us to go further and faster as we tackle climate.

”



Rt Hon Anne-Marie Trevelyan  
MP, Minister for Business,  
Energy and Clean Growth, UK  
International Champion on  
Adaptation and Resilience for  
the COP26 Presidency



Department for  
Business, Energy  
& Industrial Strategy

Mark Fox, Chief Executive, The Business Services Association

# Working in partnership to expand the scope of net zero action

Everyone will need to contribute in full if the UK is to recover quickly, sustainably and equitably. That means the public sector, the private sector and VCSE organisations large and small, together in harness, working towards the same common goals.

Not least amongst those shared goals is Net Zero. Work to arrest climate change and its effects cannot be delivered in isolation. All organisations will continue to require access to information, expertise and guidance from others on how best to decarbonise their operations.

The business services sector has an important role to play both in reducing its own environmental impact, and also in delivering energy projects and services to clients across the private and public sector - helping them to do the same.

## The importance of partnership

Partnership working between sectors, and also between different sizes of organisations, is key. At the BSA, our recently published Statement of best practice on partnership working between larger businesses or VCSE organisations and SMEs outlines examples of what has been achieved through equitable supply chain relationships, and what more can be done.

This is a win-win. Larger organisations benefit from a healthy and diverse supply chain and may be able to draw on distinct areas of knowledge or expertise, including on sustainability. Meanwhile, SMEs can often benefit from the experience, capacity and reach of larger organisations in setting out Net Zero plans, targets and reporting.

Understandably, up to now businesses have tended to focus on reducing emissions under their direct ownership or operational control - Scope 1 emissions. However, this is not enough to achieve sufficient collective progress towards Net Zero. Some 80 per cent of an organisation's environmental impact can lie in its value chain - Scope 3. Further action is therefore required by organisations large and small, working together to reduce the emissions they generate, both directly and indirectly through their value chains.

## The central role of data

Access to accurate data, and use of the most up-to-date digital tools, both play a central role. Without a good understanding of

the underlying source of emissions, it is impossible for organisations to develop a strategy to reduce them. The more diverse, complex and global a supply chain is, the more challenging it can be to access the data required to understand and monitor it.





Furthermore, many of those involved have not yet been able to develop a clear view of their own carbon footprint.

Technologies such as data analytics, the Internet of Things and Blockchain are increasingly helping organisations monitor and tackle the Scope 3 impacts across wider - and often complex - value chains. As these technologies become more widely adopted, this process will become ever easier. Broadening access to these technologies must therefore be a priority.

Creating effective partnerships is an important way of doing so. Working together is the only way we can deliver Net Zero for the benefit of our organisations and of society as a whole.

### The Business Services Association - BSA

The BSA represents large and small business, VCSE providers of services and infrastructure projects across the private and public services. Members deliver ICT, BPO, facilities management, construction and infrastructure services, managed public services and some professional services. Some BSA members are micro, small or medium-sized enterprises; others work closely with thousands of SMEs as supply chain partners or in other ways.



NatWest

### Developing a data-driven approach to energy management for NatWest

#### Challenge

In 2016, NatWest Group (formerly RBS) needed a comprehensive way of managing its energy performance and environmental reporting. Key objectives were to reduce energy consumption and costs while enhancing environmental engagement with internal and external stakeholders.

Involving multiple suppliers, data sources and a reliance on spreadsheets, the company knew that its reporting was slow, with problems around the integrity of data. It wanted a more robust approach, using digital tools and a complete repository of reliable data.

#### An innovative partnership

Embedded within the NatWest Group's own team, EcoAct was uniquely placed to understand the day-to-day challenges and work closely with the company to engage with stakeholders and achieve its goals. The team implemented a data and analytics platform that captures, integrates and analyses data from over 5,000 locations in 57 countries, facilitating and driving expense management, reporting and energy management activities.

#### The results

The NatWest Group's foresight in deploying an innovative embedded service and digital platform has balanced climate action with improvements in efficiency and significant commercial returns:

- £2.4 million in savings and cost avoidance delivered during the first 11 months
- A more efficient billing validation has generated over £1.8 million in cost avoidance
- Energy consumption is lower, keeping the bank on track with its energy reduction targets
- Insightful exception reporting has realised at least £128,000 of energy savings beyond business-as-usual energy savings so far.

# Building tomorrow's city

## Engaging householders and communities in action towards net zero

As smart cities evolve, they are valuable testing grounds for anyone who wants to get involved in shaping a more sustainable society and while digital innovations are key, the real challenge is a human one – how to engage populations in making sustained positive change.

Change is most powerful when it starts with something relatively simple that is highly visible and in high demand, such as transport and energy use. Experience shows that people are most likely to use tools that are accessibly designed, secure and have an obvious benefit to them. That's the thinking behind new initiatives to harness and share data with city decision-makers and householders.

### Gathering and using data

As France's largest urban area, the Aix-Marseille-Provence Metropolis has been gathering and using data from sensors and systems across its territory to help enhance quality of life. In this context, it launched the Digital Alliance for Aix-Marseille Sustainability project, deploying a digital platform for exchanging and using data on air quality to enable everyone (city leaders, experts, partners and householders) to be involved in developing coordinated action plans at individual, regional and national levels. To make this a reality, 2,000 mobile sensors are being made available to citizens and public service decision-makers, who can each become actors in pollution monitoring and control in the city. Air quality data is collected through a digital platform, using Atos' Urban Data Platform, and made available as open data to enable and promote the creation of new applications.

### Empowering citizens

As part of another smart city initiative across the Grenoble Metropolis, a portal called Métroénergies enables citizens and local authorities to track – and reduce – consumption of natural resources aimed at citizens and local authorities. It shows citizens, among other things, their consumption of gas, electricity, water and wood. Built in collaboration with Gaz Electricité de Grenoble, using an Atos data platform, dashboards give every householder an up-to-date picture, not only of what their current consumption is, but also where they can reduce it, and how they can set about doing so and there are links to online communities and forums with practical advice, help and support to implement actions for saving resources and improving comfort within their homes.

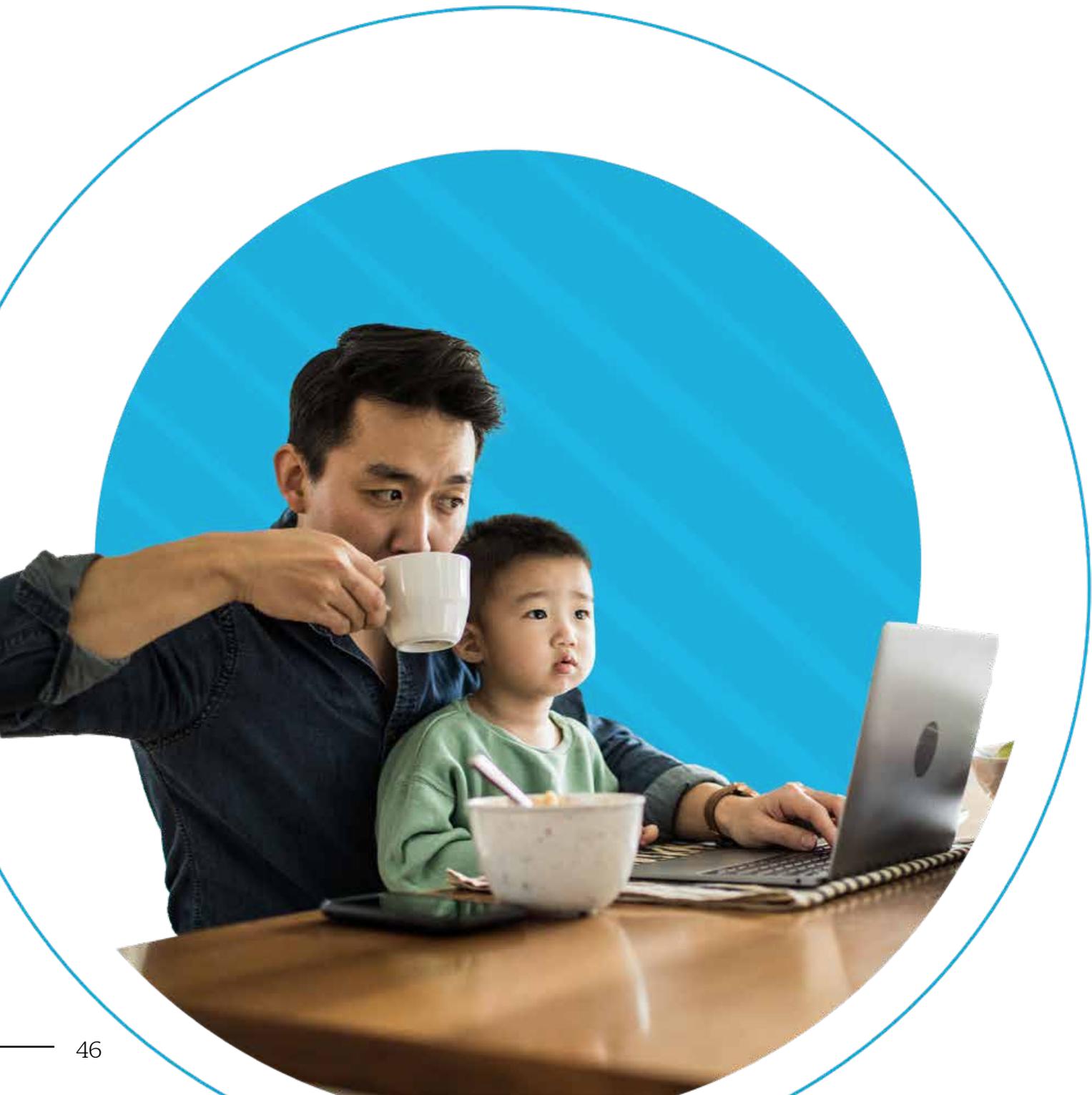
Platforms like those in Marseilles and Grenoble have a critical role to play in speeding up the transition to net zero. Utilities, cities, public authorities and other agencies can deploy them in combination with other initiatives, such as smart metering or mobility, to encourage and enable positive action. Crucially, any initiative like this needs the trust and confidence of citizens if they are to take part. They need to understand and provide their consent for how their data will be stored and used.

Accelerating early success with urban data platforms will build confidence and create an appetite to expand and diversify citizen engagement. Most importantly, initiatives like this help to connect citizens and inspire communities into action, with a shared vision of the future and ways to learn and work together for a more sustainable future for all.

### Five lessons for effective citizen engagement

1. Citizen engagement is essential not only from the political and change management perspective, but also because citizens are a key source of ideas and innovation. Take advantage of existing community groups, with their direct knowledge and experience of local need.
2. Open data is a powerful driver for innovation and the creation of new services where the local authorities have a fundamental role to play, both as a major supplier of data and as a regulator.
3. Avoid over-complicated consultation: this can be difficult to initiate and is often frustrating. Instead, work with focus groups, for example, to beta-test systems and validate ergonomics.
4. Apply the principle of 'Privacy by Design' and ensure continuous needs analysis around data use to anchor the initiative in clear governance and trust of citizens.
5. Identify early quick wins and use confidence in those to gradually build functionality and complexity.







# Embracing the new normal

For several years, NS&I's sustainability performance has been ahead of government targets for reducing carbon emissions, energy and water consumption. We continue to take steps to improve our performance, and year on year have been lowering our carbon emissions.

## Embracing the new

We can lead from the front thanks to renewable energy sources at our Blackpool and Durham sites, this means that net carbon emissions from electricity at both locations are minimal. As a UK employer, we can make decisions that encourage sustainable attitudes across all of our sites across the country. We take great pride in doing this, given the importance of sustainability to our people, our customers and our stakeholders.

Reducing business travel - this approach had been a conscious decision pre-pandemic and when we were met with restrictions on travel in 2020, it meant we could adapt. We had made Directors personally responsible for encouraging reduced travel in their teams and supporting the use of videoconferencing where appropriate and our approach to flexible and remote working meant we could adapt quickly and effectively.

## Delivering for customers

During the pandemic, we have been able to encourage more online use, freeing up telephone lines for the most vulnerable. Feedback for

our digital customer service was extremely positive on social media, as we worked to ensure customers needs were met and business continuity was maintained, despite extremely high demand.

By working to define digital-first processes we are able to invest in system changes that will make our operation leaner and greener, which will benefit all of our customers for years to come.

“

As a major employer in the UK, we can make decisions that encourage sustainable attitudes across all of our sites across the country.

Jill Waters, Retail Director NS&I

”

National Savings and Investments (NS&I) is one of the largest savings organisations in the UK with 25 million customers and more than £179 billion invested. NS&I is both a government department and an Executive Agency of the Chancellor of the Exchequer. Its origins can be traced back over 150 years to 1861. When customers invest in NS&I products, they are lending to the Government. In return, the Government pays interest or prizes for Premium Bonds.



**Sophie Proust**  
Group Chief Technology Officer, Atos

# Decarbonization and the ‘race to Exascale’

The challenges of climate change - together with those in other domains - can be met with the help of the next generation of exascale supercomputers.

Exascale is a milestone in computing that refers to systems with such power that they can perform a quintillion (a billion billion) calculations per second. But with sustainability high on almost everyone's agenda, will supercomputers ever really fit with low-carbon ambitions? After all, scale means you're going to have more servers, nodes, network and storage, each requiring more energy... doesn't it?

With the finishing line of the ‘race to Exascale’ in sight, the reality is that high-performance computing can help to radically cut both costs and emissions.

## Innovations enhance sustainability credentials

Supercomputers also get super-hot: keeping them cool will require inordinately large amounts of electricity, meaning you can use as much power cooling a system as you do running it; every megawatt amounts to an average of one million euros a year.

If that thought is making you sweat, Atos has taken the heat off. Its liquid cooling uses warm water - up to 40°C - to keep systems up and running at the right temperature. Liquid cooling is now a very mature technology that can be deployed in a very large configuration in a very efficient way. Without it, Exascale couldn't realistically be applied to everyday uses in healthcare, defence, maintenance, transport - and virtually every industry you can think of.

## Grasping the merging and converging

Understanding how technologies such as artificial intelligence (AI) and the cloud are evolving is particularly critical. Why? Because they are starting to merge (and converge) with supercomputing technologies.

Firstly, bringing HPC and AI together means problems can be solved more sustainably. Solving a supercomputing problem can take months of processing numerical simulations. Bring in AI to solve part of the problem for you in the first instance before running the numerical simulation, making it much faster whilst using less energy. This new approach also gives the means to handle problems that were previously out of reach.

Secondly, merge HPC and the cloud to compute some problems at the right place for the right usage and it will help with sustainability, too.

## How close is the finishing line?

Before discussing the timeline, we have to acknowledge that Exascale is a moving target, meaning that once you've solved one step, the next one comes along. Currently, the systems in the field are what is known at a European level as ‘pre-Exascale.’ From a European perspective, there is a series of calls under EuroHPC for the procurement and operation of three pre-Exascale systems, which were to be installed toward the end of 2020.

But Exascale systems that are 10x or even 100x more powerful than the Petascale systems we have today still have to be developed. This is the next milestone for HPC, and we know that Exascale will eventually arrive. In the meantime, the key is to focus on developing technology for real applications in the real world, where reducing power consumption is essential for a sustainable future.

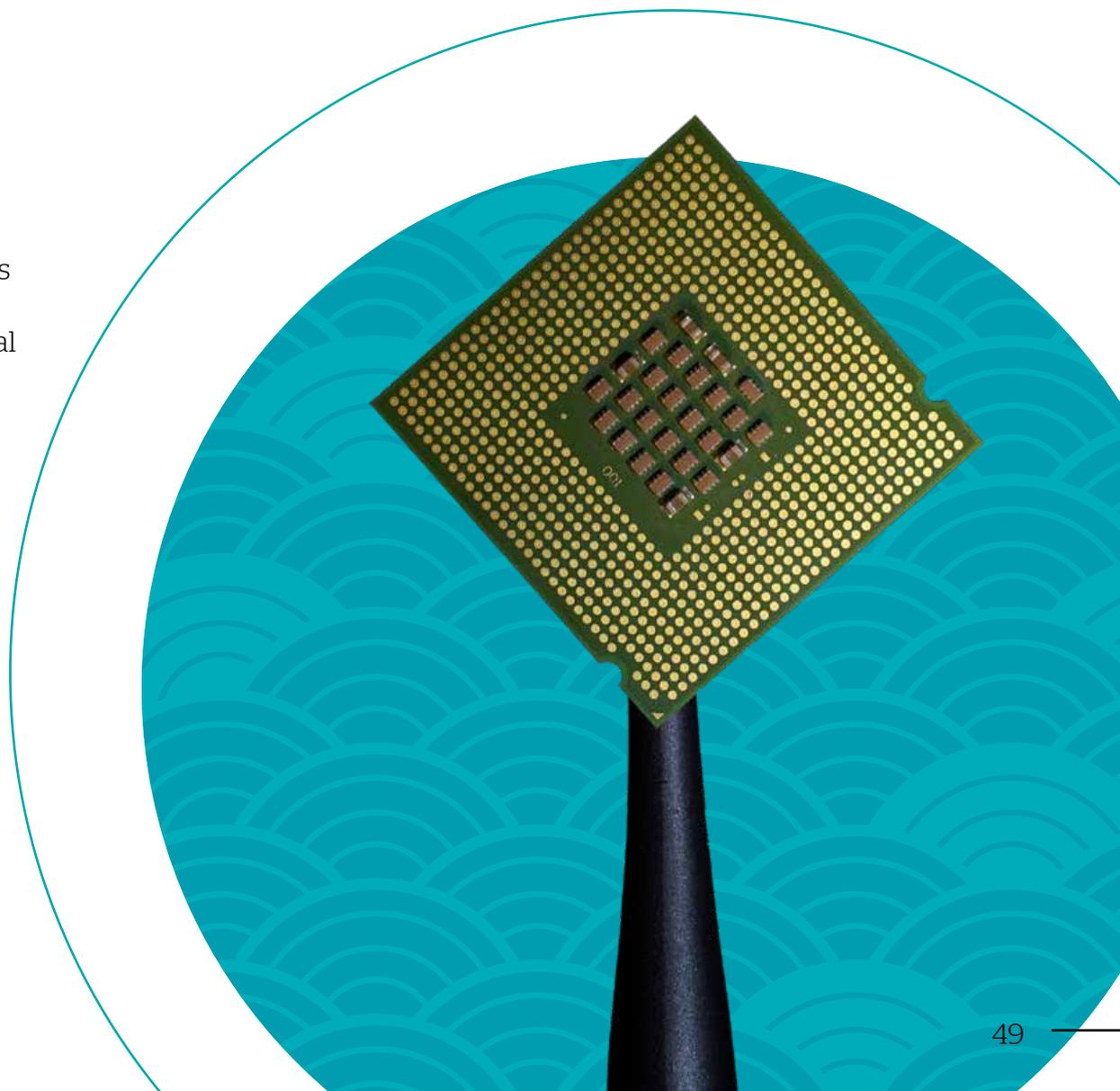


“

The key is to focus on developing technology for real applications in the real world, where reducing power consumption is essential for a sustainable future.

Sophie Proust  
Group Chief  
Technology Officer,  
Atos

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Nourdine Bihmane  
Chief Delivery Officer, Decarbonization and Marketing, Atos

## A shared vision for the future

When COP26 was first announced, the expectation was that the lead-up to the United Nations Climate Change Conference in 2020 would see a 'race to net zero'. Then the pandemic hit, throwing many of these aspirations into confusion as countries responded to the most significant global health crisis in over a century.

Yet despite this disruption, the push to combat climate change and future-proof economies has only intensified. As governments come to thinking in driving the post-pandemic recovery, tackling climate change and, crucially, accelerating digital transformation needs to be at the forefront.

### The scale of the challenge

Achieving net zero requires fundamental transformation of our economies and industries, something that can only be achieved by deploying new technologies on an unprecedented scale. Digital tools have already upended many sectors by substituting carbon-intensive activity with virtual alternatives. Indeed, during the Covid-19 pandemic, it was these tools that not only sustained essential services and enabled millions to continue working, but also allowed many of us to reduce our carbon footprints at the same time. Technologies including AI, IoT and blockchain have the potential to unlock even greater efficiencies for individuals and businesses, delivering less waste, significantly reducing the use of resources, and cutting carbon emissions further.

By 2030, global carbon emissions must be cut in half; yet between 2009 and 2019, average emissions rose by 1.5% each year. Faced with this challenge, governments are legislating, investors are asking tougher questions, and society is demanding action. Raising ambitions is the easy part; the aim now should be to apply the technologies to deliver on these goals. There is a broad consensus around the need to act and an increasingly common vision for the type of future we can create through net zero.

### Looking beyond COP26

It is humanity's genius for innovation which has time and time again come to its rescue. This was the case with the Information Technology Revolution at the end of the last century and the Industrial Revolution before that: human ingenuity unlocked possibilities for growth and a better quality of life in the face of challenges that at first seemed insurmountable. This is the spirit in which we should approach the 2021 United Nations Climate Change Conference in Glasgow, setting out a shared vision for how we can use our innate capacity to invent and create - not just to overcome climate change, but to build a safer, fairer and more sustainable world for future generations.

**By 2030, global carbon emissions must be cut in half; yet between 2009 and 2019, average emissions rose by 1.5% each year.<sup>1</sup>**

<sup>1</sup> <https://www.pwc.co.uk/services/sustainability-climate-change/insights/net-zero-economy-index.html>



## Working together to achieve decarbonization



Atos worked with DreamQuark, a fintech start-up and member of its Atos Scaler accelerator programme, to create the Sustainable Investment Brain, an investment solution that utilises deep learning and AI to encourage green finance initiatives.

*"By combining data management, AI and ethics, the Sustainable Investment Brain solution from Atos and DreamQuark will enable our clients to maximize their returns, while respecting their environmental and social commitments, and taking into account regulatory changes. It is both a decarbonization and a competitiveness tool."*

Isabelle Warnier, Head of Atos Scaler



Working with the Danish Port of Esbjerg, Atos is creating a leading Carbon Neutral Harbour - utilising cutting-edge IoT and artificial intelligence technology to provide the greenest possible routes for cargo passing through the port.

*"The Danish government has its eyes fixed on how we can push the green agenda forward and reduce the carbon footprint through public-private cooperation. This collaboration holds the potential to make a huge difference for Europe's leading port for shipping of offshore wind turbines. At the same time, it will bring green jobs to Denmark. I hope this combination of green transition and sustainable business will serve as inspiration for other ports across Europe."*

Jeppe Kofod, Minister for Foreign Affairs of Denmark



Through the use of new sensor technologies, data analytics and an Atos-developed app, Dolomiti Energia increased the efficiency of their technical assistance and maintenance work, while reducing fuel consumption and emissions.

*"Atos has been a strategic partner for us for over ten years, and once again it is at our side in this fundamental challenge. The projects we are implementing together are extremely important not only to support the development of our business but also to make a contribution to the sustainable growth of our country."*

Edoardo Fistolera, Head of Information & Communication Technology, Dolomiti Energia





Atos created the first green hydrogen datacentre in partnership with HDF Energy – leveraging its expertise in supercomputing to predict the datacentre’s power consumption needs and adapt resource use accordingly.

*“We are very excited to develop the first-of-its-kind green datacentre with Atos. This further development into the digital industry, where energy consumption is increasing every day, opens up a considerable worldwide market for us. The HDF-Atos partnership offers the first unique and sustainable infrastructure for this huge market.”*

**Damien Havard, CEO at HDF**



Atos was selected by Ørsted, a global leader in offshore wind recognised as ‘the most sustainable company in the world’, to implement mission-critical communications solutions for a fast, secure system to aid Ørsted in its goal of delivering clean, reliable energy for the environment and local East coast communities in the United States.

*“We are proud to support Ørsted in its production of green electricity, and in securing its offshore wind turbines in the United States, in addition to its farms in Europe and Asia. Atos puts safety and decarbonization at the heart of its business approach, with strong commitments, and is proud to support companies that have chosen to develop renewable energies.”*

**Cyril Dujardin, Atos Senior VP, Mission-Critical Systems, Big Data & Security**



Through its critical communications solutions Atos is supporting Ailes Marines, an Iberdrola company, to build a new offshore wind farm in the Bay of Saint-Brieuc, France. Atos technology will ensure that all helicopters, ships and operations teams can communicate seamlessly 16km offshore, and monitor marine traffic throughout the construction process.

*“Extreme environments call for extremely reliable communication solutions and we were looking for a French specialist to help coordinate and secure our first offshore wind farm in France. The experience of the Atos teams, their knowledge of offshore and the very specific digital and OT technologies associated with this area are very valuable to us.”*

**Javier Garcia Perez, President of Ailes Marines and International Offshore Director of Iberdrola.**



# Lexicon

**Annex I countries:** The industrialised countries (and countries in transition to a market economy) which took on obligations to reduce their greenhouse gas emissions under the Kyoto Protocol. Their combined emissions, averaged out during the 2008-2012 period, should be 5.2% below 1990 levels.<sup>1</sup>

**Annex II countries:** Countries which have a special obligation under the Kyoto Protocol to provide financial resources and transfer technology to developing countries. This group is a sub-section of the Annex I countries, excluding those that, in 1992, were in transition from centrally planned to a free market economy.<sup>2</sup>

**Carbon footprint:** The amount of carbon emitted by an individual or organisation in a given period of time, or the amount of carbon emitted during the manufacture of a product.<sup>3</sup>

**Carbon neutral:** A process where there is no net release of CO<sub>2</sub>. For example, growing biomass takes CO<sub>2</sub> out of the atmosphere, while burning it releases the gas again. The process would be carbon neutral if the amount taken out and the amount released were identical. A company or country can also achieve carbon neutrality by means of carbon offsetting.<sup>4</sup>

**Carbon offsetting:** A way of compensating for emissions of CO<sub>2</sub> by participating in, or funding, efforts to take CO<sub>2</sub> out of the atmosphere. Offsetting often involves paying another party, somewhere else, to save emissions equivalent to those produced by your activity.<sup>5</sup>

**Clean Energy:** Clean energy is energy that comes from renewable, zero emission sources that do not pollute the atmosphere when used, as well as energy saved by energy efficiency measures.<sup>6</sup>

**COP:** Conference of the Parties. The supreme body of the Convention. It currently meets once a year to review the Convention's progress. The word "conference" is not used here in the sense of "meeting" but

rather of "association". The "Conference" meets in sessional periods, for example, the "fourth session of the Conference of the Parties."<sup>7</sup>

**COP26:** The 2021 United Nations Climate Change Conference, also known as COP26, is the 26th United Nations Climate Change conference. It is scheduled to be held in the city of Glasgow from 1 to 12 November 2021 under the presidency of the United Kingdom.<sup>8</sup>

**Digital Twin:** A digital twin is a virtual representation of an object or system that spans its lifecycle, is updated from real-time data, and uses simulation, machine learning and reasoning to help decision-making.<sup>9</sup>

**Emissions:** The release of a substance (usually a gas when referring to the subject of climate change) into the atmosphere.<sup>10</sup>

**Exascale:** A processing benchmark in supercomputing referring to systems that can perform a quintillion calculations per second.<sup>11</sup>

**Flexible mechanism:** Instruments that help countries and companies meet emission reduction targets by paying others to reduce emissions for them. The mechanism in widest use is emissions trading, where companies or countries buy and sell permits to pollute. The Kyoto Protocol establishes two flexible mechanisms enabling rich countries to fund emission reduction projects in developing countries - Joint Implementation (JI) and the Clean Development Mechanism (CDM).<sup>12</sup>

**Fossil fuels:** Natural resources, such as coal, oil and natural gas, containing hydrocarbons. These fuels are formed in the Earth over millions of years and produce carbon dioxide when burnt.<sup>13</sup>

**Green Finance:** Green finance is any structured financial activity that's been created to ensure a better environmental outcome.<sup>14</sup>

**HPC:** High Performance Computing most generally refers to the practice of aggregating computing power in a way that delivers much higher performance than one could get out of a typical desktop computer or

<sup>1</sup> <https://www.bbc.co.uk/news/science-environment-11833685>

<sup>2</sup> <https://www.bbc.co.uk/news/science-environment-11833685>

<sup>3</sup> <https://www.bbc.co.uk/news/science-environment-11833685>

<sup>4</sup> <https://www.bbc.co.uk/news/science-environment-11833685>

<sup>5</sup> <https://www.bbc.co.uk/news/science-environment-11833685>

<sup>6</sup> <https://www.twi-global.com/technical-knowledge/faqs/clean-energy>

<sup>7</sup> <https://unfccc.int/process-and-meetings/the-convention/glossary-of-climate-change-acronyms-and-terms#/>

<sup>8</sup> <https://ukcop26.org/uk-presidency/>

<sup>9</sup> <https://www.ibm.com/blogs/internet-of-things/iot-cheat-sheet-digital-twin/>

<sup>10</sup> <https://www.epa.gov/ghgemissions/overview-greenhouse-gases>

<sup>11</sup> <https://kb.iu.edu/d/aapeq>

<sup>12</sup> <https://www.bbc.co.uk/news/science-environment-11833685>

<sup>13</sup> <https://www.bbc.co.uk/news/science-environment-11833685>

<sup>14</sup> <https://www.weforum.org/agenda/2020/11/what-is-green-finance/>



workstation in order to solve large problems in science, engineering, or business.<sup>15</sup>

**LT-LEDS:** To better frame the efforts towards the long-term goal, the Paris Agreement invites countries to formulate and submit by 2020 long-term low greenhouse gas emission development strategies (LT-LEDS). LT-LEDS provide the long-term horizon to the NDCs. Unlike NDCs, they are not mandatory. Nevertheless, they place the NDCs into the context of countries' long-term planning and development priorities, providing a vision and direction for future development.<sup>16</sup>

**NDCs:** NDCs are national climate plans highlighting climate actions, including climate related targets, policies and measures governments aims to implement in response to climate change and as a contribution to global climate action. Central to the NDCs is the concept of national determination.<sup>17</sup>

**Net Zero:** Net zero refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. We reach net zero when the amount we add is no more than the amount taken away.<sup>18</sup>

**Paris Agreement:** The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at COP 21 in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century.<sup>19</sup>

**Pre-COP:** Preparatory meeting held around 1 month before COP26 - allowing participants to set up and discuss political aspects of the forthcoming negotiations. This year held in Milan.<sup>20</sup>

**Pre-industrial levels:** Referring to emissions levels prior to the start of the Industrial Revolution. The IPCC Special Report on Global Warming of 1.5°C uses the reference period 1850-1900 to represent pre-industrial temperature.<sup>21</sup>

**Renewable energy:** Renewable energy is energy created from sources that can be replenished in a short period of time. The five renewable sources used most often are: biomass (such as wood and biogas), the movement of water, geothermal (heat from within the earth), wind, and solar.<sup>22</sup>

**Smart City:** Smart cities put data and digital technology to work to make better decisions and improve the quality of life. More comprehensive, real-time data gives agencies the ability to watch events as they unfold, understand how demand patterns are changing, and respond with faster and lower-cost solutions.<sup>23</sup>

**TCFD:** Task Force on Climate-related Financial Disclosures; Financial markets need clear, comprehensive, high-quality information on the impacts of climate change. This includes the risks and opportunities presented by rising temperatures, climate-related policy, and emerging technologies in our changing world. The Financial Stability Board created the Task Force on Climate-related Financial Disclosures (TCFD) to improve and increase reporting of climate-related financial information.<sup>24</sup>

**UNFCCC:** United Nations Framework Convention on Climate Change; sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change. It recognizes that the climate system is a shared resource whose stability can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases. The Convention enjoys near universal membership, with 189 countries having ratified.<sup>25</sup>

<sup>15</sup> <https://insidehpc.com/hpc-basic-training/what-is-hpc/#-:text=High%20Performance%20Computing%20most%20generally,science%2C%20engineering%2C%20or%20business.>

<sup>16</sup> <https://unfccc.int/process/the-paris-agreement/long-term-strategies>

<sup>17</sup> <https://unfccc.int/process-and-meetings/the-paris-agreement/nationally-determined-contributions-ndcs/nationally-determined-contributions-ndcs>

<sup>18</sup> <https://www.nationalgrid.com/stories/energy-explained/what-is-net-zero#-:text=Put%20simply%2C%20net%20zero%20refers,than%20the%20amount%20taken%20away,&text=Indeed%2C%20the%20UK%20became%20the,being%20net%20zero%20by%202050.>

<sup>19</sup> <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>

<sup>20</sup> <https://ukcop26.org/pre-cop/pre-cop-milan/>

<sup>21</sup> [https://www.ipcc.ch/site/assets/uploads/sites/2/2018/12/SR15\\_FAQ\\_Low\\_Res.pdf](https://www.ipcc.ch/site/assets/uploads/sites/2/2018/12/SR15_FAQ_Low_Res.pdf)

<sup>22</sup> <https://www.bbc.com/news/science-environment-11833685>

<sup>23</sup> <https://www.mckinsey.com/business-functions/operations/our-insights/smart-cities-digital-solutions-for-a-more-livable-future#part1>

<sup>24</sup> <https://www.fsb-tcfd.org/>

<sup>25</sup> <https://unfccc.int/process-and-meetings/the-convention/glossary-of-climate-change-acronyms-and-terms#l>



# Digital society podcast

In a rapidly changing world, technological innovation is transforming every aspect of society. The pace of this change has only accelerated in the wake of COVID-19, disrupting long-established patterns of living and working.

As a leading designer and provider of digital services, Atos has been helping organisations navigate shifting landscapes for decades. But we're not alone on this journey and, with technology more influential than ever, making sense of this change has never been more important.

The Digital Society Podcast, hosted by Kulveer Ranger, SVP Strategy & Communications at Atos, brings together journalists, politicians and key policy influencers to discuss how technology will shape our lives going forward and how decision makers can work to ensure it benefits all citizens by helping us achieve things once thought unimaginable.

Recent episodes of the podcast have featured a wide range of guests, including Polly Mackenzie (Chief Executive, Demos), Darren McCaffrey (Political Editor, GB News), Rachel Sylvester (Columnist at The Times) and the Deputy Speaker of the House of Commons, Nigel Evans MP.



Listen in to the latest podcast episodes [here](#).

## The Digital Society Podcast

Available on:   





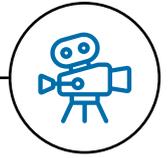
# Acknowledgements

We would like to thank the following contributors. If you wish to send feedback, please tweet using **#DVCOP26** or email: **atosdigitalvisions@atos.net**

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# About Atos

Atos is a global leader in digital transformation with 107,000 employees and annual revenue of over € 11 billion. European number one in cybersecurity, cloud and high performance computing, the Group provides tailored end-to-end solutions for all industries in 71 countries. A pioneer in decarbonization services and products, Atos is committed to a secure and decarbonized digital for its clients. Atos is an SE (Societas Europaea), listed on Euronext Paris and included in the CAC 40 ESG and Next 20 indexes.

The [purpose of Atos](#) is to help design the future of the information space. Its expertise and services support the development of knowledge, education and research in a multicultural approach and contribute to the development of scientific and technological excellence. Across the world, the Group enables its customers and employees, and members of societies at large to live, work and develop sustainably, in a safe and secure information space.

Find out more about us

**atos.net**

Let's start a discussion together



For more information: [atosdigitalvisions@atos.net](mailto:atosdigitalvisions@atos.net)

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