

Digital decarbonization:

The key enabler
for corporate
decarbonization



Introduction

Decarbonization has long been a top priority for Atos, and we believe that through bold climate action a net zero future is possible.

With EcoAct's expertise now firmly embedded into Atos, we can more and more clients reduce their emissions and transition to net zero.

Across the world, the momentum to reach net zero is growing fast. Digital adoption is also accelerating rapidly, particularly in offering new solutions that facilitate net zero transition.

Our end-to-end service helps our clients and partners adopt digital technology that significantly reduces their carbon emissions so they can reach net zero. Digital decarbonization improves efficiency, reduces costs and drives innovation to achieve success. We believe climate action makes commercial sense.

Atos

“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, and also help shift public awareness and behaviour towards a more innovative, inclusive and green society.”

Jean-Philippe Poirault
Global Head of
Telecommunications,
Media & Technology
Industry



The increased relevance of digital transition in a reshaping world

Climate change and cybersecurity are identified by the World Economic Forum in the top 5 imminent global economic risks in terms of both impact and likelihood. Despite the far reaching impacts of the coronavirus pandemic, these two threats continue to dominate the economic outlook.

Global momentum towards a net zero future is growing fast. Defined net zero targets from governments and industry leaders have contributed to this growth, alongside stakeholder engagement and increased awareness of the risks and opportunities presented by climate change.

Digitization, fuelled by the pandemic, is happening at pace. Innovation and development of existing IT solutions have accelerated to meet the demands of rapidly changing work environments. With these changes comes an urgent need for heightened levels of IT security, support and maintenance. The digital sector already accounts for [1.4% of global emissions and 3.6% of global electricity use](#). Along with consumerization, increased digitization can present important

sustainability issues. The mobile phone industry is a relevant example, because new models are replaced every year and 75% of this sector's emissions are in manufacturing.

In parallel with digitization is the continued growth of data, forecast at [26% compound annual growth rate \(CAGR\)](#). This can also present a climate risk, because data requires storage, which requires power, all resulting in further emissions. To counteract these negative impacts, digitization needs to be intelligent and combined with sustainable practices such as life cycle assessments, reducing waste, improving efficiency and use of renewable energy sources. We can see this with “hyperscaler” public cloud providers all moving beyond carbon neutral to net zero services, and Microsoft committing to be carbon negative by 2030.

[The Exponential Roadmap 1.5 explains](#) how the quadrupled data traffic and number of phone subscribers increasing by 30% actually registered as a 15% decline in the emissions of the digital industry as a whole due to energy efficiency improvements and the increase in handheld devices over desktop and laptops.

Digitization and decarbonization need to move forward together to ensure that digitization acts as a driver for change in the next decade and beyond. Placing digital at the centre of your organization's decarbonization journey, and decarbonization at the heart of your digitization, will ensure that your company reaps the benefits of both transitions.

These and other factors are rapidly reshaping our global economy. Organizations need to act alongside governments to ensure future security and sustainability. Those that take action now, not only address these risks, but will also improve efficiency and benefit from reputational and competitive advantage.

The Atos ambition is to ensure clients have secure digital services alongside decarbonized operations. That is where we can have the biggest impact in terms of achieving the global net zero goal.

Digital technology has the potential to be an enabler for businesses to significantly reduce carbon emissions and achieve efficiencies.

Here we demonstrate the Atos portfolio of digital services and low carbon hardware as part of the digital decarbonization trend that is central to industry and economic development at this crucial time.

We offer end-to-end support to clients at all stages of their net zero journey. We have experience of corporate net zero strategy, emissions measurement and reporting and offsetting, and the tools, systems, platforms and reach to deliver meaningful decarbonization.

Our core belief is that rapid digitization and growth in digital activities provide an opportunity to embed decarbonization at the heart of digital growth.

Key principles of digital decarbonization

Digital decarbonization is a multi-faceted concept. For a complete overview of the ways digitization can enhance climate action, we have created four categories outlining the key principles



Digital for decarbonization

Determine Strategy: Effective decarbonization strategies have solid plans, based on accurate awareness of current baseline and an agreed target that is ambitious and achievable. (Digital Decarbonization Assessments, Science Based Target setting, net zero tools such as Atos CRaFT © -for emissions reductions trajectory and tracking...)



Reducing IT footprint

Decarbonized IT: Digital technology currently accounts for a large proportion of energy use for organizations and wider society alike. Reducing the impact of your IT will have huge decarbonization results. (Enterprise platform solutions, Data Centre consolidation and modernization, Public and Private Cloud solutions, Digital Workplace solutions, Products (both software and hardware...))



Digital for decarbonization of industry

Industry application of digital solutions: Digital solutions specific to industry sectors can decarbonize operations through efficiency, reduction of energy use and innovation. (Smart buildings, Smart cities, Digital Twins, e-health solutions, Digital Leakage, Connected vessels...)



Digital enhancement of offsetting

Innovative and efficient carbon finance: Cutting-edge technology combined with improved access to enhance project climate and socio-economic impacts. (Project development and management, forest health monitoring, blockchain, mobile data collection and monitoring)



Digital for decarbonization strategy

Atos

All effective net zero strategies start with a plan, built on an accurate understanding of your current climate impact

Establishing this baseline will allow you to make an informed decision on target level of ambition, aligned with your organization's wider objectives.

Having the right systems and tools in place to measure, monitor and manage the often large, complex data involved is essential for gaining an accurate understanding of impact. Starting from a solid baseline, you can then set appropriately ambitious but achievable targets and create a roadmap to get there. This is especially important when assessing the impact of increasingly digitized operations.

Digital Decarbonization Assessment

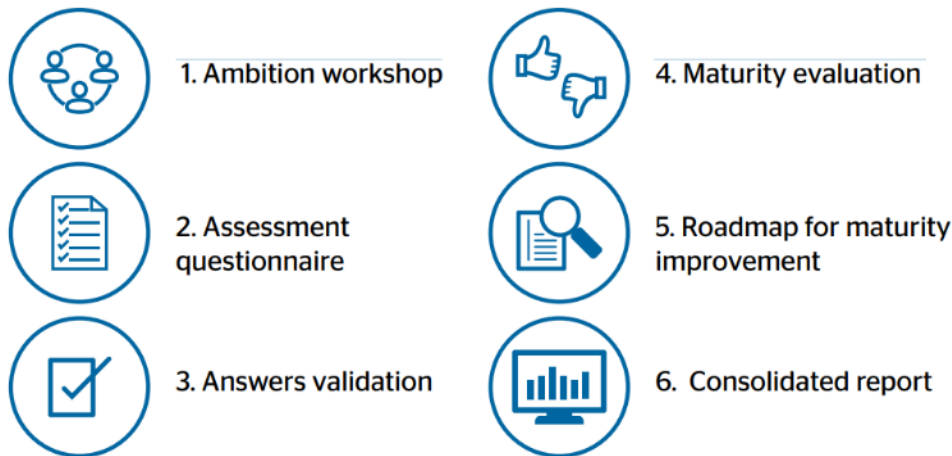
A Digital Decarbonization Assessment (DDA) takes an in-depth look at your IT carbon emissions, organizational goals, and carbon-reduction actions. Similar to an organization's carbon footprint, a DDA establishes a baseline and builds a roadmap, so you can move forward effectively on decarbonization towards net zero.

At the end of the assessment, you'll will:

1. Know your decarbonization maturity Each DDA begins with an Ambition Workshop and a full decarbonization maturity assessment.
2. Have clear goals and challenges DDA provides clarity on your organizational ambitions and hurdles in IT that have a carbon impact.
3. Receive expert advice on your best steps forward The DDA roadmap shows your low-hanging fruit, for quick wins, plus a structured action plan with longer timelines.

Establishing a baseline carbon footprint of your IT function is crucial to identifying emissions reductions initiatives and tracking your future climate progress towards the set emission target. It will also enable you to understand your full impact across all Scopes of your organization, which is vital for your sustainability reporting and essential to achieving net zero. Significant decarbonization is the cornerstone of a net zero strategy. Digital and decarbonization will go hand in hand as drivers for change in the next decade and beyond.

Understanding the baseline is fundamental to reducing, and a Digital Decarbonization Assessment measures current digital impact. The DDA uses a range of tools and workshops to establish both your organization's current decarbonization maturity state and your desired ambition. These include 6 main components:



Once validated and evaluated, a decarbonization maturity score between 1-5 is provided to benchmark the current position against which future initiatives can be measured. This outcome is necessary to move in a right direction to reduce the carbon footprint of the IT function in accordance with the set emissions target.

Decarbonization Level Agreement (DLA)

A Decarbonization Level Agreement (DLA) is a commitment made by Atos to our clients to help them build a sustainable business. Our large contracts include a CO2 reduction commitment. If we don't deliver the agreed emissions reductions, we commit to offsetting the remaining emissions with verified carbon credits.

This commitment is based in three core factors:

Measurable

Baseline agreed.
Baseline revised
after T&T.
Yearly review.



Binding

Atos will offset
the CO₂ not
reduced aligned
to the contract.



Auditable

External 3rd party
audit every
contract year.



Our approach is built utilising our own tools and methodologies, developed over the years thanks to our vast experience in capturing, reducing and offsetting CO2 across technology and business landscape built over several years

“As part of Atos’ ambition to unlock the carbon neutral economy with digital technologies, we recognize the need to develop a 360-degree approach to support our customers at all stages of their decarbonization process.”

Nourdine Bihmane
Head of the Net Zero
Transformation
Practice



The latest climate science states that global warming cannot exceed a rise of 1.5°C or well below 2°C compared with pre-industrial levels which is considered the ‘tipping point’. Limiting warming to 1.5°C requires reaching net zero emissions globally by 2050.

Science-based targets (SBTs) are long-term emission reduction targets that are aligned to the level of decarbonization required to meet this objective. They are increasingly seen as the ‘gold’ standard in carbon reduction.

The Science Based Target initiative (SBTi) is the organization tasked with defining and assessing best practice target setting, including the validation of organizations’ targets. For SBTi approval, SBTs are required to be ambitious whilst demonstrating a clear trajectory for the decarbonization initiatives to reach them. Setting an SBT puts your organization on track to meet this collective goal.

An SBT requires a certain level of maturity in terms of carbon data collection. To calculate emissions and monitor progress to a target, you will need robust processes and systems for climate data in place.

The right tools facilitate and simplify the required steps of data collection, target setting, plotting emissions reduction trajectories and active tracking of progress.

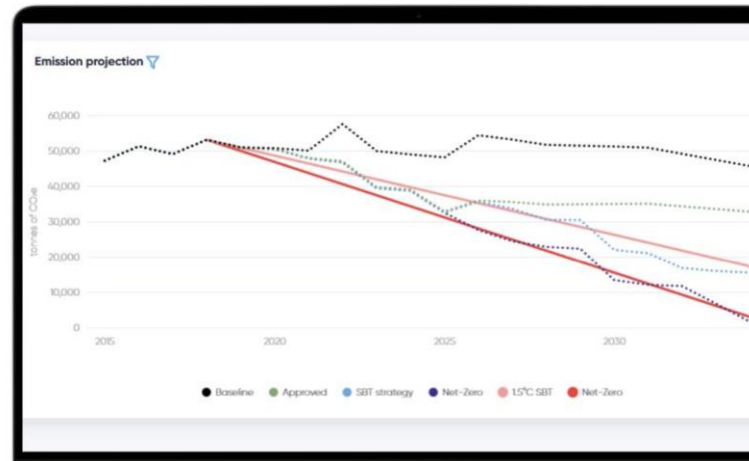
To support this process, we developed the Atos Carbon Reduction and Feasibility Tool (CRaFT®).

CRaFT helps to build visual outputs of possible scenarios to show your options and find the most effective route to your target, accounting for costs and other investments.

CRaFT has the capability to house and visualise:

- ▶ Emissions data by business unit or geography
- ▶ Specific service or product footprints
- ▶ Projected business growth
- ▶ The latest emissions factor projections
- ▶ Existing, planned and potential emissions reduction initiatives, including cost and the associated impacts to your emissions
- ▶ An SBT target trajectory
- ▶ Offsetting programmes to compensate for residual emissions and/or for a net zero target

CRaFT reflects our knowledge and experience helping a diverse range of clients across all sectors to meet the required SBT criteria and assisting over 25 companies in obtaining SBTi validation



"Intelligent tools for sustainability data management and forward looking scenario planning are essential for effective corporate climate action. Tools like CRaFT are vital for organisations to set appropriately ambitious yet achievable targets and supporting their progress to them."



Lindsay Ventress,
Principal Consultant, EcoAct Northern Europe

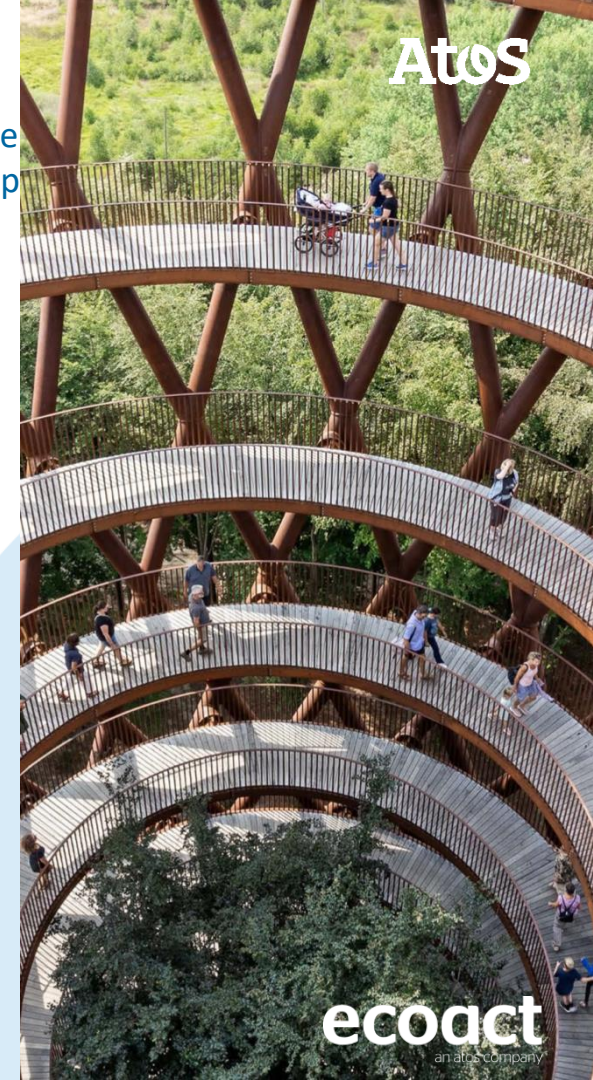
Reducing IT footprint

The digital sector is already well on track to reduce its own emissions, which represent 2% of global emissions. This could cut global emissions in half by 2030 while driving exponential growth in data processing.

The digital sector can take a strong lead in accelerating demand for 100% renewable energy; [digital technology can help reduce global emissions by 15%.](#)

Having measured and quantified an organization's digital carbon footprint, the obvious next step is to take initiatives to reduce the carbon footprint of IT operations. To simplify, this can be broken down into 3 areas:

1. Consolidation and efficiency of IT operations - consolidating and modernising data centres, using more efficient, specialised hardware
2. Digitization of IT operations - moving from hardware to software and 'cloud' / virtualization
3. Transition of IT operations energy source - moving to renewable energy sources for IT operations (this is easier to do with consolidated, digitalised operations required in steps 1 and 2).



Data Centres (DCs)

Data centres are locations that house the physical computer systems (hardware) and associated networking components that facilitate IT operations such as software and applications.

They can either be on-premise or off-premise where the latter is often in the form of “co-located” data centres, shared between multiple users. Many organizations opt for co-located, off-premise data centres with the advantages of managed locations and the cost benefits of scale. Larger scale data centres have efficiency benefits that result in energy and therefore carbon savings.

Atos can offer:

- ▶ Data centre services from over 80 locations in 30 countries
- ▶ Data centre with ~95% electricity from decarbonized sources
- ▶ Data centres that offset 100% carbon emissions
- ▶ Data centre cooling assessment
- ▶ Data centre monitoring with Atos' cognitive datacentre tech
- ▶ Build modern data centres that recuperate and repurpose waste heat

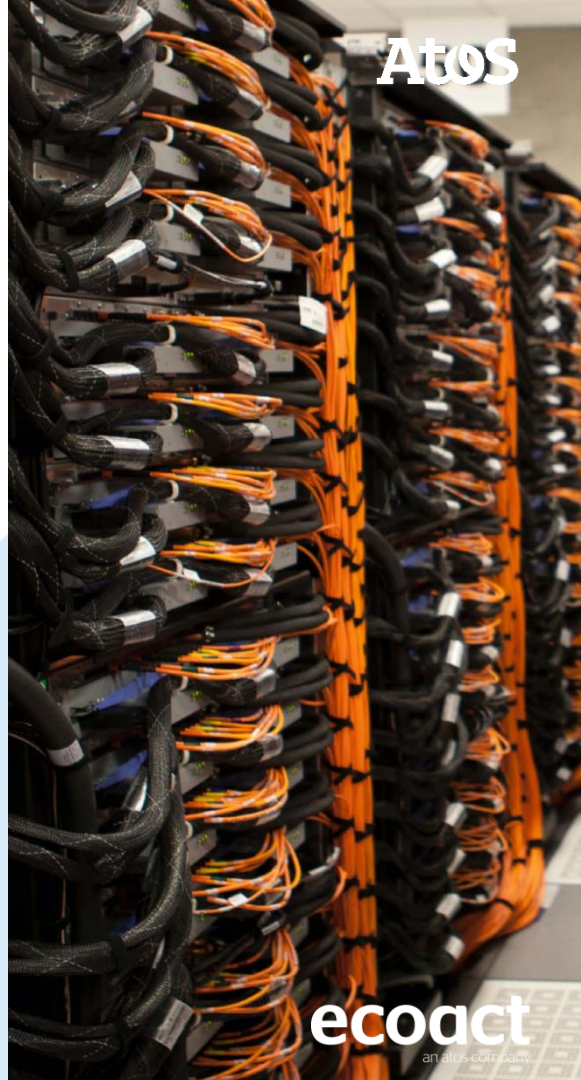
Once you have consolidated, it is much easier to move operations to renewable sources, which makes the decarbonization process easier and the net zero target more achievable.

In our own operations, we've seen tangible benefits from improved energy efficiency. This materialised as a 15% decrease of global energy consumption of Atos data centres in 2020 vs. 2019 and a switch to carbon-free and renewable energy, which now powers 55% of all Atos data centres in 2020 (versus 32% in 2019).

Cloud and virtualization

Cloud technology refers to virtual services, accessed via the internet, in the place of traditional physical components and operations, such as data storage. Similarly, cloud infrastructure is virtual infrastructure provided via the internet or a local network. Transitioning to cloud services has many benefits in the context of decarbonization, especially when considering that hardware is often the highest source of energy consumption in an IT environment. 'Digitization' of data centres and infrastructure from traditional physical hardware to software and cloud operations has significant impacts on the energy efficiency and the carbon footprint of an organization's IT.

The transition to cloud services has already contributed to decarbonization, and this contribution has accelerated during the Covid-19 pandemic. Prior to the crisis, a survey in January 2020 found that 88% of organizations used the cloud. During the pandemic investment in cloud infrastructure investment rose dramatically, with Synergy Research noting a [37% rise in Q1 of 2020 compared to Q1 of 2019](#) which continued throughout the year, with investment still at [28% higher year-on-year for q3](#).



Decarbonized workplace

Reducing the carbon emissions embedded in workspaces means moving from inefficient, low collaboration, local, individual and physical setups to intelligent care centres with self-service, high levels of intelligent collaboration and reduced physical location reliance.

Truly digital workplaces can not only reduce an organization's carbon footprint, but also increase user productivity and employee collaboration. Deloitte's sustainability-focused 'Edge' building in Amsterdam found it was able to significantly [improve the health, comfort and productivity of its employees](#).

Digital solutions can also help reduce travel requirements and the associated carbon cost. During the Covid-19 pandemic, a diverse range of industries adapted to remote working by using shared file drives, proxy networks, intelligent collaborative tools and video conferencing, all of which decrease the need to travel to and from a central location. All of these decrease the need to travel to and from a central location. Reduced necessity for office space has also led organizations to downsize, or to give up their workspaces altogether. This can also have a decarbonizing result, as long as [homeworking emissions are accounted for](#).

This same decarbonization through reduced reliance on travel can be extended to industries more traditionally reliant on location-based actions through innovations in mixed reality and VR for field services and training. E.g. 'telemedicine' which reduces carbon emissions by a factor of 40 to 70, and can be a 'significant contributor' towards decarbonization.

Smart offices incorporate many of these efficiency initiatives that simultaneously have decarbonization benefits. For example, reducing the need for support and operations through maximising automation and creating centralised, pro-active support systems, also leads to significant carbon footprint reduction.

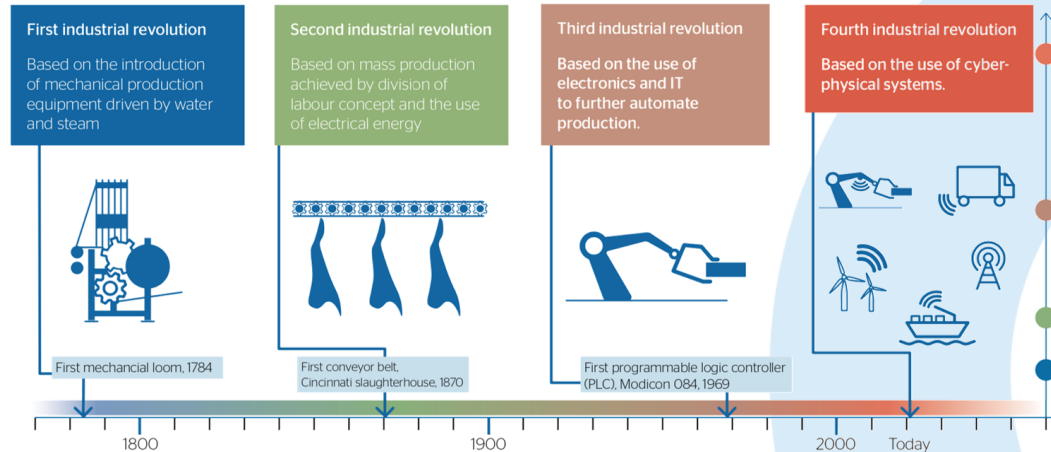
Automation in this case can be applied to both the actions and processes of business operations not only through the intelligent collaboration tools mentioned previously, but also the workspaces themselves. Buildings are responsible for 40% of global energy consumption and 33% of greenhouse gas emissions ([weforum 2021](#)). Automation can be used to adjust work environments to match the energy requirements of staff onsite at any given time.

Digital decarbonization of industry

5G, the Internet of Things (IoT), artificial intelligence (AI) and Machine Learning (ML) will allow wider industry to harness digital innovations and accelerate the pace of change

Digital decarbonization of industry can be broken down into two trends. It is both a shift in existing operations to embed lower carbon intensive methods and the use of digital as a catalyst for increased innovation, production and higher efficiency.

We are currently in the 4th industrial revolution, known as 'Industry 4.0', characterised by "cyber-physical systems". The enhancements of the 3rd industrial revolution saw IT as a central factor of modern industrial operations and has resulted in significant benefits including increased production, efficiency and reduced costs. Industry 4.0 builds on these benefits by providing real-time feedback from intelligent assets, collateral and components, again furthering efficiency, reducing waste, improving the lifecycle of machinery and reducing maintenance requirements and costs.



Internet of Things (IoT) is an example of an intelligent network of physical objects and devices that are fitted with sensors to communicate and exchange data with other devices and systems. In 2017, [27 billion devices were connected using IoT](#). This number is expected to increase to [125 billion by just 2030](#), which will put about 15 connected devices into the hands of every consumer. These devices provide useful real-time information to users and providers alike and their practical application can reduce waste and maintenance requirements.

A simple example that demonstrates this combined value is travel. Entering a destination in Google Maps and planning your best mode of travel is something we all do and we may choose to take public transport over driving due to the current level of traffic. This information is available to us partly due to the multitude of other users and devices feeding back the information of their travel. This information, when combined with other 'smart city' connected IoT and the historic information processed into regular patterns of movement, produces the final estimation of different travel options.

Assets and components that feedback information on their performance and issues can reduce costs associated with breakdown and periodic maintenance with targeted maintenance in response to known issues and even predictive maintenance when patterns emerge from the data of multiple units. These principles apply to the whole supply chain, where improved data communication increases supply chain resilience.

Further accelerating the uptake and impact of these technologies is the provision of 5G. 5G refers to the '5th generation' of mobile internet connection which superseded 4G as the latest and faster mobile internet in 2019. As well as being 10x the data speed of 4G, it also provides better reliability, lower latency, tighter security and lower energy consumption. This means the capabilities of smart technologies such as IoT or smart cities is exponentially greater than on 4G with applications like driverless vehicles for supply chains relying on consistent, secure networks.

However, we have to also be aware that whilst 5G will accelerate the adoption of digital capabilities and offers more power efficiency with devices and network traffic, the massive increase in data volumes will increase the need for storage. In turn, this will require more power and risk further increasing emissions.

Digital enhancement of offsetting

IT innovations for offset projects

Just as with wider industry, the carbon finance market greatly benefits from taking a smart approach to operations. Technology enhances nature-based solution development and management by improving project effectiveness, both through carbon offsetting and wider socio-economic benefits to local communities.

Drones and satellite imagery are now more advanced and accessible than ever, making surveying and monitoring large areas of land smarter, faster and more cost effective. This technology can be used to monitor the health of projects, enabling faster identification of ecosystem threats and quicker action to protect them.

Using satellite images and GIS (Geographical Information Systems), it is possible to track the progress of forest restoration projects from miles away and use intelligent mapping software to differentiate between tree types using the pigment of green in image pixels.

Combining large-scale monitoring through satellites with ground-level, individually collected information is fundamental for effective projects. Mobile device availability, affordability and infrastructure such as phone and internet reception can have significant implications for the speed and effectiveness of important data relay. Surveys conducted in 11 emerging and developing countries across four global regions found that 53% now have access to a smartphone capable of accessing the internet and running apps. Improved digital infrastructure has the potential to significantly accelerate the capabilities of projects.



Climate modelling such as Climate Scenario Analysis and Climate Risk Assessments can also be used to identify risks to important nature-based solutions in order to act early on their protection and prevent their degradation. Many nature-based solutions are fragile and complex ecosystems that are vulnerable to the impacts of climate change. For example, 'blue carbon' nature-based solutions like mangroves have the capacity to sequester large amounts of carbon if protected and restored. However, should they be allowed to deteriorate due to rising sea temperatures, they will release the embedded carbon in stored their soils.

Due to the international nature of projects, there are many challenges to efficient and secure operations. We use a specifically developed tool called the Atos EcoScore© which quantifies the appropriateness of offsetting projects using an UN Sustainable Development Goals (SDGs) evaluation model. We are also able to use Blockchain cryptocurrency for transactions to improve verification and transparency, reducing the risk of fraud or error.

Digital twins are a digital representation of a real object or subject. The concept can be used for design stages prior to the of the physical object but when combined with feedback data from 'smart devices' and IoT, it can be used for real-time intelligent maintenance systems, monitoring performance and tracking the whole life-cycle of a product. Many of the benefits of digital twins have decarbonization and sustainability factors including reduced waste and improved innovation through digital prototyping. The concept originated in engineering but has been applied to a range of industries, including renewable energy and carbon avoidance projects like windfarms. Atos uses digital twins to achieve predictive maintenance, advance telematics and product life extension for our wind farms. These have knock-on effects such as reduced downtime and operational costs.

"As accredited climate finance specialists and offsetting project developers, we've seen how technology has helped offsetting projects grow and develop significantly over our 15 years of operations."

Thierry Fornas
Co Founder and Managing Director at EcoAct - Vice President
Atos Group





Plan for zero

Act with ambition

Science Based Target setting
Boundary & Scope
Understand your impact
Strategy & timescales
Digital Decarbonization Assessments
Atos CRaFT© & other net zero tools



Forecast for zero

Act on scenarios

Physical & transition risk analysis
Opportunity analysis
Mitigation planning
Decarbonisation Level Agreement



Measure for zero

Act on the data

Engagement plans
Reporting
Data collection
Targets
Data & systems, analytics and compliance



Change for zero

Act on ideas

Governance & Communications strategy
Emissions reduction initiatives, smart offices & digital workplace, digitisation & cloud transition
Renewable energy management
Supply / value chain engagement and enhancement, IoT, predictive maintenance
Carbon pricing
Carbon offset and carbon neutrality
Innovation, AI, Digital Twin, Machine Learning



Contribute to zero

Act on commitments

Carbon Offset Project development
Nature-based solutions
Sequestration offsets
Atos EcoScore©

Credentials

Atos is a leader in the decarbonization space both through the industry-leading products & services we provide and also through our own record on decarbonization.

- ▶ Atos has committed to reach net zero by 2028, far ahead of the Paris Agreement's aim of achieving net zero by 2050.
- ▶ Atos is ranked Number 1 in the IT services sector by the Dow Jones Sustainability Indexes (DJSI) World and Europe indexes.
- ▶ Atos is on the CDP's A list, placing us in the top 2% of reporting companies world-wide.
- ▶ Atos is one of 838 companies worldwide to be formally endorsed by the Science Based Targets initiative, with a SBT that commits the business to an 86% reduction in CO2 emissions by 2050.
- ▶ Atos has been awarded EcoVadis Gold Status for our CSR performance, placing us in the top 1% world-wide.
- ▶ Atos has joined the Climate Neutral Data Centre Pact a Self Regulatory Initiative to make data centres in Europe climate neutral by 2030.
- ▶ Atos is proud to be a founding member of the European Green Digital Coalition (EGDC).

"I'm proud to be part of an organisation that has been supporting organisations with their climate action for over 16 years. We're not only climate and sustainability experts, but project developers and founding members of key industry bodies and institutes."

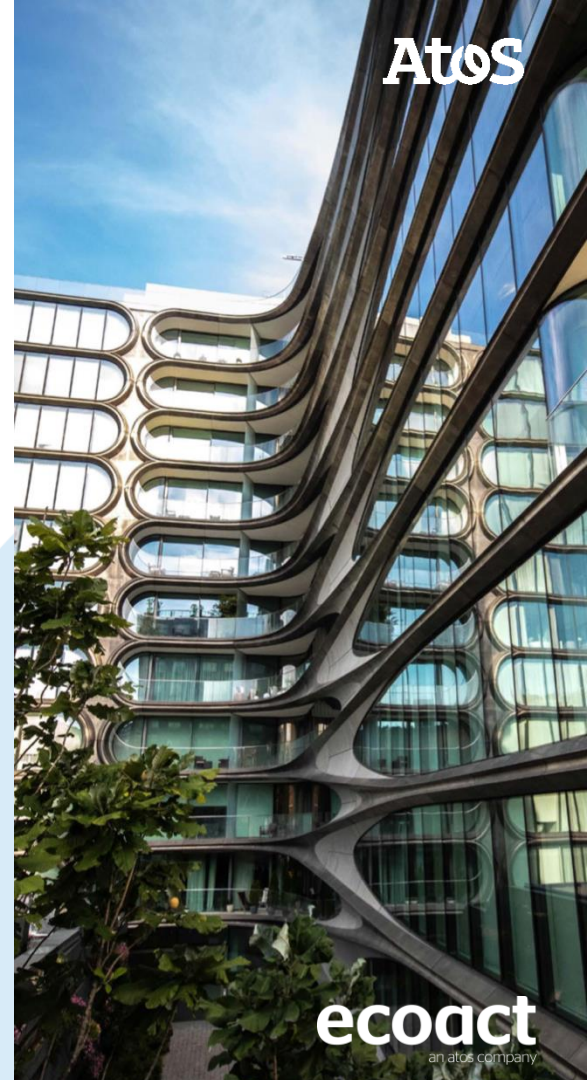
Rachel Skinner
Principal Consultant, EcoAct Northern Europe



Conclusion

The most important journey you'll make

- ▶ Taking your business from A to Zero is a journey. There is no doubt that undertaking transformative change to reach net zero will be a challenge but, with only this next decade left to limit global warming to relative safe levels, it is a challenge we must all face together.
- ▶ Our approach to net zero has been designed to make the pathway there clearer and to help you mitigate the risks and seek out the opportunities that you can uncover for your business along the way. It means investments in action but also returns. This is not just a pathway to net zero, it is also a pathway to commercial resilience and longevity.
- ▶ We believe that business has a particularly important contribution to make, to reduce its impact and, in so doing, help its clients and consumers to do the same. To take the lead on net zero.



- ▶ **Data centre (DC)** - Data centres are locations that house the physical computer systems (hardware) and associated networking components that facilitate IT operations such as software and applications. They can either be on-premises or off-premises where the latter is often in the form of “collocated” data centres, shared between multiple users.
- ▶ **Hyperscaler (data centres)** - The ability of technology to scale to meet vast, growing demand. Hyperscaler data centers are very large ‘collocated’ data centers that are public.
- ▶ **Hardware** - Physical computer systems such as motherboards, hard drives, RAM, etc. Hardware is used by software to perform the desired actions.
- ▶ **Software** - The programmes and data that direct the operations of a computer system such as applications and libraries. Computer software is all the information passed by computer systems. Software requires hardware to function.
- ▶ **Infrastructure (IT)** - IT infrastructure are the systems and services of physical hardware, software and the network resources that make up an enterprise IT environment. IT infrastructure facilitates the user’s IT solutions and requirements.
- ▶ **Digital Decarbonization Assessment (DDA)** - A Digital Decarbonization Assessment (DDA) is an in-depth look at your IT carbon emissions, organizational goals, and carbon-reduction actions. It establishes a baseline emissions level and builds a roadmap, so you can move forward effectively on decarbonization towards net zero.
- ▶ **Internet of Things (IoT)** - An intelligent network of physical objects and devices that are fitted with sensors to communicate and exchange data with other devices and systems

- ▶ **Science-based targets (SBTs)** - Long-term emission reduction targets that are aligned to the level of decarbonization required to prevent a rise of global temperatures above 1.5°C or well below 2°C compared with pre-industrial levels. This limit is widely considered the 'tipping point'.
- ▶ **Smart workplaces** - Workplaces that utilise intelligent design and technology such as automation and IoT to enhance the working environment for improved productivity, health-benefits and more. Features include increased collaboration, efficiency and and often produce less GHG emissions than traditional workplaces.
- ▶ **Nature-based solutions (NBS)** - Nature-based solutions address challenges such as climate change, access to water, social and economic development and disaster risk by putting nature and people at the heart of solutions. These are measures specifically focused on ecosystems, and designed to combat climate change and its consequences through their preservation and restoration.
- ▶ **Climate modelling** - The use of large-scale data and knowledge of physical laws to map and predict changes to the climate and its major components (atmosphere, land surface, ocean and sea ice).
- ▶ **Climate Scenario Analysis (CSA)** - The use of data to help develop climate simulations which hypothesise potential future climatic conditions and assess the associated impacts to an organization.
- ▶ **Climate Risk Assessment** - The process of understanding the implications of climate change on the operations of a business. They can be either physical; changes to the environment that impact production/performance such as increased heat that reduces workers capacity or causes crop failure. Or transitional; the impacts of changes to climate legislation such as increased carbon tax or costs associated with increased mandatory disclosure such as the TCFD.

- ▶ **Blue carbon** - Blue carbon refers to nature-based solutions that centre around coastal ecosystems, such as mangroves, salt marshes and seagrass beds (e.g. Posidonia, kelp forests). These ecosystems have exceptional carbon sequestration capabilities.
- ▶ **Carbon sequestration** - This is the capture and long-term storage of CO2 from the atmosphere through natural or technological carbon sinks.
- ▶ **Digital twins** - Digital twins are a digital representation of real object or subject. The concept can be used for design stages prior to the physical and once made, for real-time intelligent maintenance, performance monitoring and tracking the life-cycle of a product.

"As the world moves to increased digitisation in our work and home life, it is important to consider how this contributes to climate change and to take action to reduce our impact. We are doing just that."

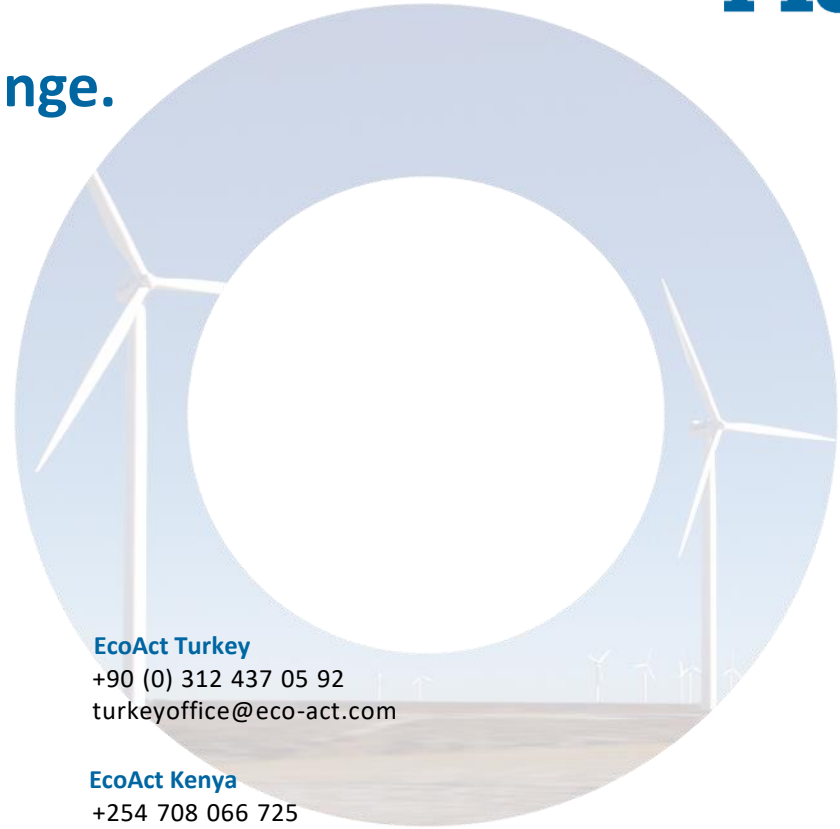
Anita Baranyi

Principal Consultant, EcoAct Northern Europe



Your climate experts. Your partners for positive change.

EcoAct, an Atos company, is an international advisory consultancy and project developer that works with clients to meet the demands of climate change. We work with many large and complex multinational organizations to offer solutions to their sustainability challenges.



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