



**DIGITAL
FOR
PLANET**

RE-THINK YOUR DIGITAL HABITS

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digital4planet.org

A close-up photograph of a person's hands holding a dark blue smartphone. The person is wearing a blue shirt. The background is a lush field of green plants, possibly corn, with a soft, natural light. The text "DIGITAL FOR PLANET" is overlaid in white, bold, sans-serif font across the center of the image.

DIGITAL FOR PLANET

DIGITAL FOR PLANET – D4P

D4P IS A NON-PROFIT ASSOCIATION BASED IN SWITZERLAND THAT SUPPORTS THE **DEVELOPMENT AND ADOPTION OF GREEN DIGITAL TECHNOLOGIES AND SOLUTIONS** FOR SUSTAINABLE DEVELOPMENT OF OUR ECONOMY AND SOCIETY.

DIGITAL FOR PLANET - THE HUB TO GREEN DIGITAL INNOVATION

- > **D4P IS AN OPEN NETWORK** facilitating collaboration and promoting awareness about green digital initiatives
- > **D4P GATHERS KNOWLEDGE, EXPERTS AND TOOLS** to accelerate the green digital transition and save our planet
- > **D4P HELPS RESEARCHERS AND INNOVATORS** to acquire funding for green digital projects and initiatives



D4P aims to accelerate the green digital development of our society and economy, in line with the European Green Deal ambition and the UN Sustainable Development Goals

- › We help seek funds for green digital research and innovation
- › We help communicate and promote green digital innovation
- › We conduct research and studies, by engaging top experts
- › We organise events and co-creative sessions on selected topics
- › We develop roadmaps and strategic policy-driven agendas
- › We connect people, communities and green digital initiatives
- › We foster collaboration among our members and beyond
- › We gather and openly share tools and knowledge about green deal

A glowing lightbulb sits on a lush green lawn. The bulb is illuminated from within, casting a warm yellow glow. The background is a soft-focus landscape with green trees and a pale blue sky. The text "WHY GREEN DIGITAL" is overlaid in white, bold, sans-serif font across the middle of the image.

WHY GREEN DIGITAL

> DIGITAL WITH PURPOSE IS A NECESSITY

DIGITAL TECHNOLOGIES POTENTIAL IS HUGE

Across several sectors - *smart energy, smart cities, connected mobility, smart factories, smart buildings, smart farming, smart water*, digital technologies and solutions allow:

- > More efficient use of resources
- > Optimisation of processes
- > Environmental impact monitoring
- > Access to essential services, e.g., education, health care...



"ICT has the potential to maintain global CO₂ emissions at 2015 levels, decoupling the past pattern where each 1% of growth in GDP equated to an 0.5% increase in CO₂ emissions, and promote sustainable growth through 2030".

SMARTer 2030, GESI



...HOWEVER, AS WE KNOW



**DIGITAL TECHNOLOGIES
AND THEIR
OVERCONSUMPTION ARE
ALSO A BIG PART OF THE
PROBLEM**

Technology drives electricity demands

- › Estimates show that ICT could **consume 20% of global electricity by 2025**
generate 5.5% of CO₂ emissions
with up to 50 billion “connected things” by end 2021 (!)

Technology is damaging the environment

- › Production, use and disposal have direct effects
- › Mining rare minerals destroys natural ecosystems
- › **eWASTE - 53.6 million tonnes only in 2019 (!)**

Technology is inducing overconsumption

- › Enforcing culture of disposability
- › Replacement rather than repair approach
- › Software development vs. hardware upgrades



TECHNOLOGY DRIVES ELECTRICITY DEMANDS



Global annual internet traffic

Tracking Clean Energy Progress

1997
60 PB

2007
54 EB

2017
1.1 ZB

2022
4.2 ZB

KB	kilobyte	10 ³ bytes
MB	megabyte	10 ⁶ bytes
GB	gigabyte	10 ⁹ bytes
TB	terabyte	10 ¹² bytes
PB	petabyte	10 ¹⁵ bytes
EB	exabyte	10 ¹⁸ bytes
ZB	zettabyte	10 ²¹ bytes
YB	yottabyte	10 ²⁴ bytes

90% of the data in the world today
Were created over the past 2 years!

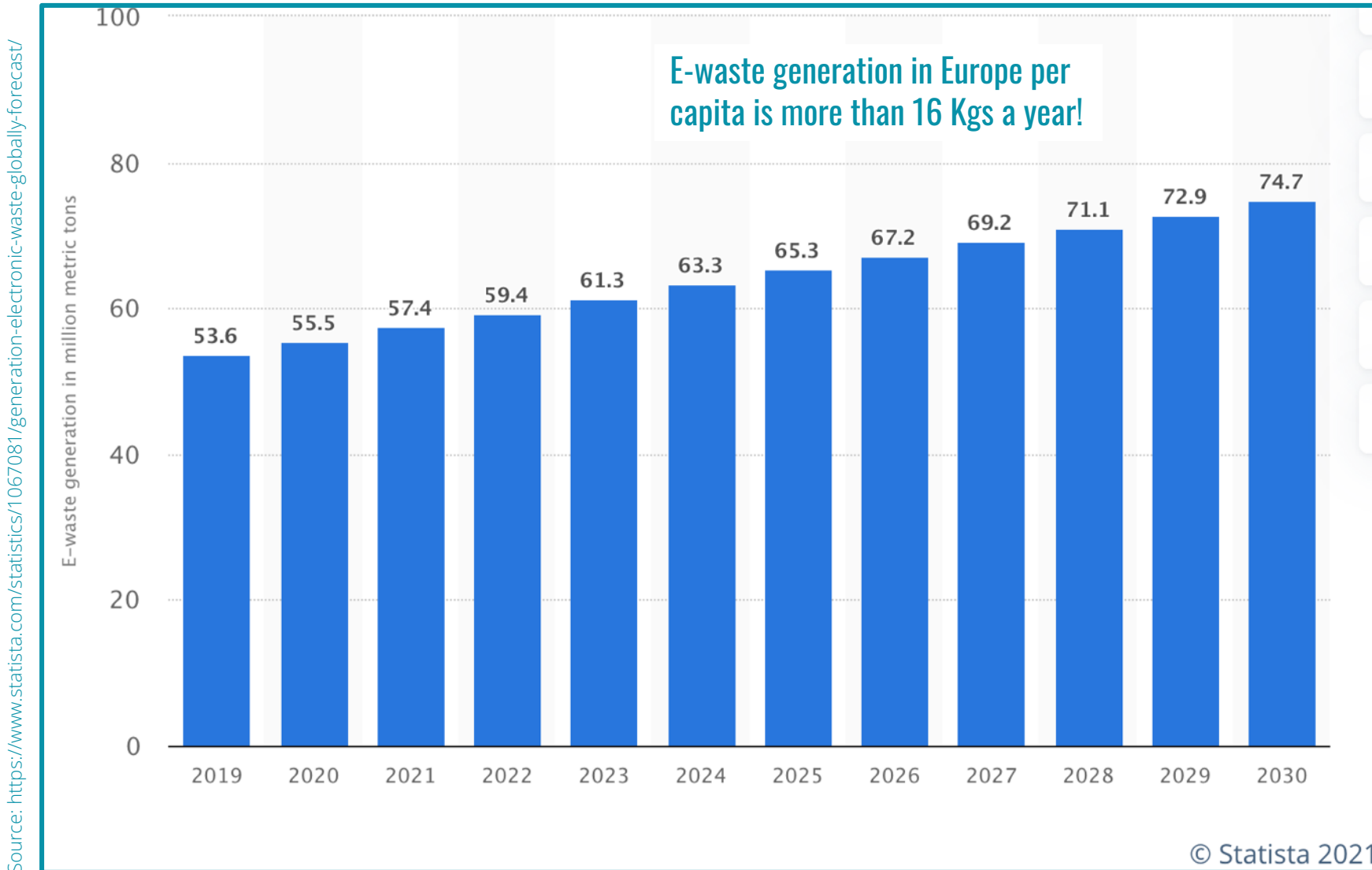
International
Energy Agency

Source: <https://www.iea.org/reports/digitalisation-and-energy>





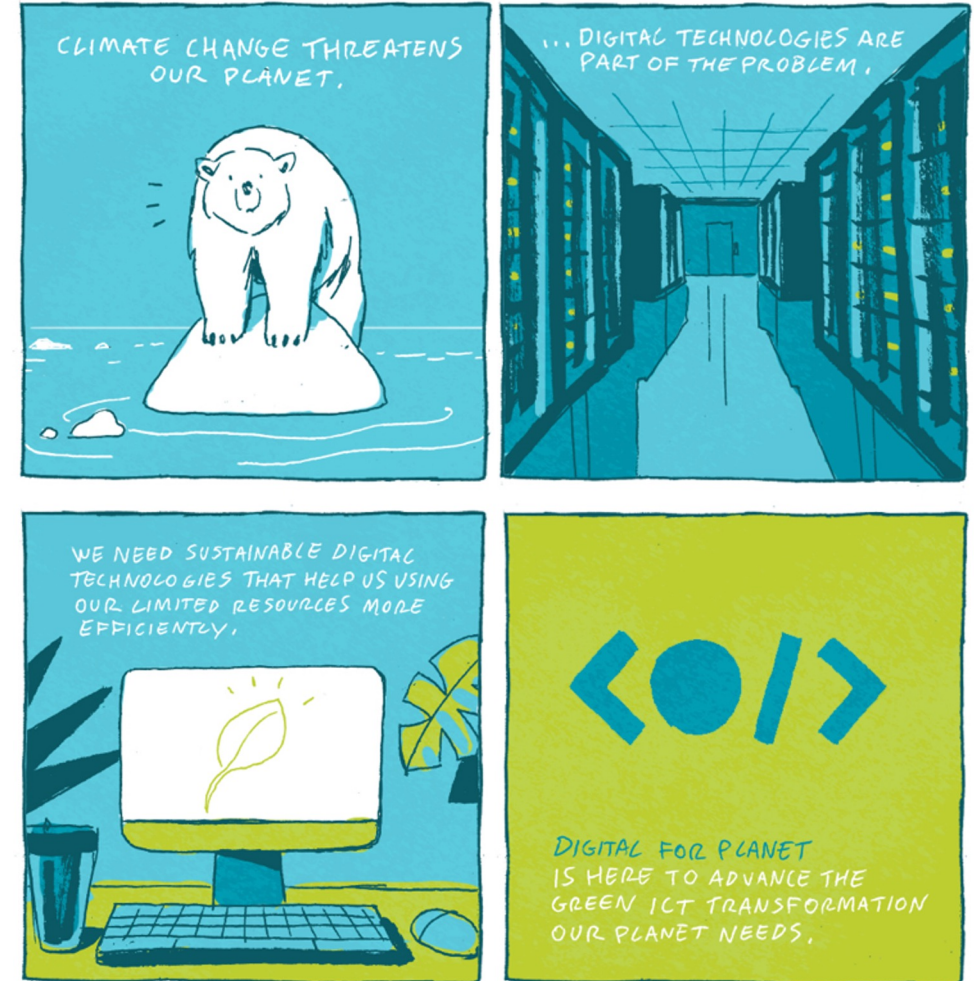
E-WASTE IS DRAMATICALLY GROWING



> OUR PLANET CALLS!

THE BALANCE OF POSITIVE VS NEGATIVE
OUTCOMES OF ICT DEPENDS ON INCENTIVES,
POLICIES, AND OUR DIGITAL HABITS

WE NEED GREENING DIGITAL TECHNOLOGIES
& HABITS FOR THE SUSTAINABLE
DEVELOPMENT OF OUR SOCIETY



> SMALL STEPS, BIG IMPACT

OUR DIGITAL BEHAVIOR HAS A DIRECT IMPACT ON EMISSIONS



The Information Communications and Technology (ICT) industry, which delivers Internet, video, voice, and other digital services, produces more than 830 million tons of carbon dioxide annually. **That's about 4% of global CO₂ emissions.**

Source: <https://www.sciencedirect.com/science/article/pii/S2214629618301051>



RE-THINK YOUR DIGITAL HABITS

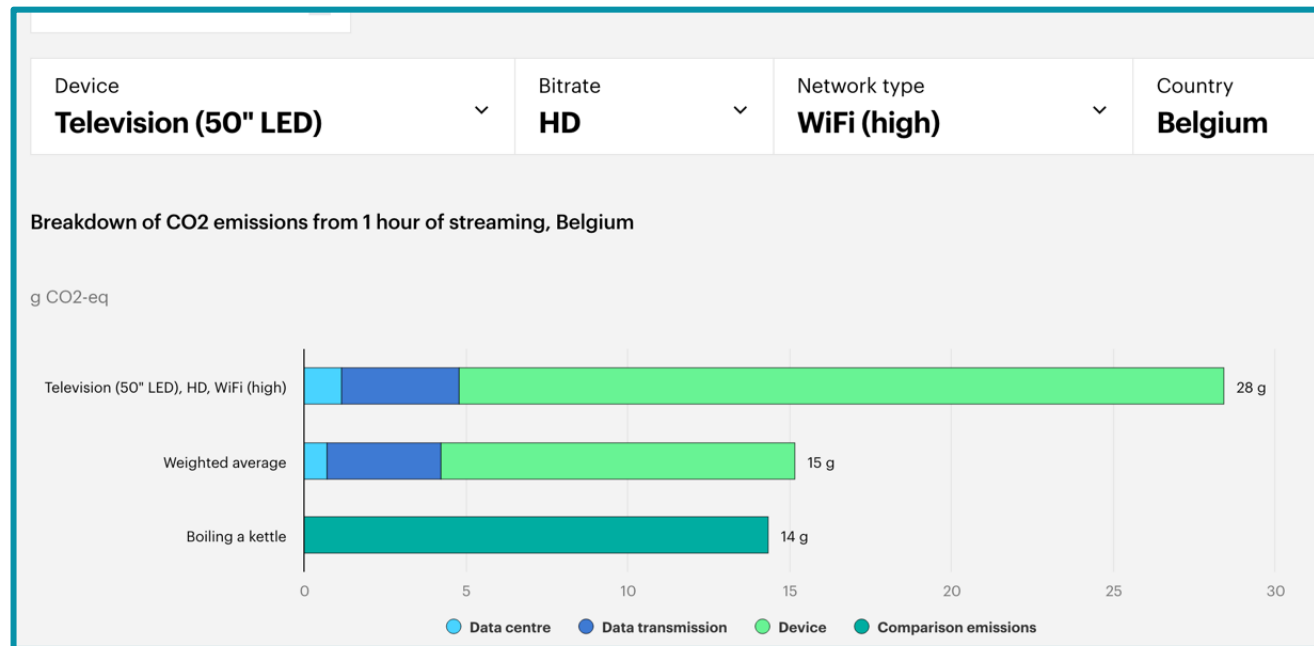
<https://digital4planet.org/re-think-your-digital-habits-white-paper/>

**BECOMING AWARE OF THE
IMPACT OUR DIGITAL
BEHAVIOUR CAN HAVE ON THE
ENVIRONMENT IS THE FIRST
STEP TO CHANGING OUR
DIGITAL HABITS.**



> DID YOU KNOW?

- > One hour of streaming video creates on average 36g CO₂ ([IEA, December 2020](#))
And **45% of people globally watch 1 hour** or more of online video content every day! *
- > Calculate your CO₂ emissions per time of streaming/video consumption

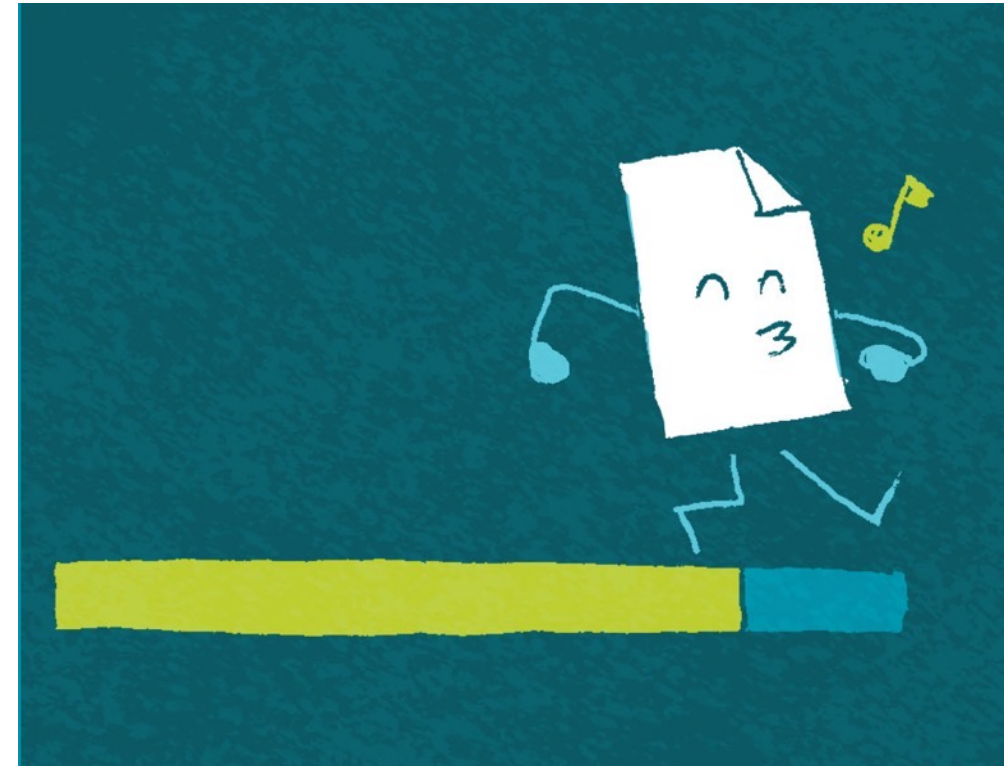


* <https://www.broadbandsearch.net/blog/internet-statistics>

➤ AND WHETHER FOR WORK OR FUN...

PREFER DOWNLOADING OVER STREAMING CONTENT ONLINE

- › Actual consumption depends on the device, network connection, and resolution
- › Choose a resolution that is sufficient for your screen / monitor
- › Download the media file on your hard drive whenever possible



**20 EMAILS A DAY PER USER PER YEAR GENERATE
SAME AMOUNT OF CO2 EMISSIONS AS A CAR
TRAVELLING 1000 KM**

**...EVERY HOUR 12 BILLION EMAILS ARE SENT...
EQUIVALENT TO 4,000 TONNES OF OIL
CONSUMPTION**



RECONFIGURE YOUR ONLINE SETTINGS

- › Send less emails, especially useless ones
- › Unsubscribe from unwanted emails
 - Go to your SPAM folder to start with!
- › Block video autoplay in your browser
- › Optimise the size of online images
- › Turn off social media notifications
- › Reduce the number of searches
- › Choose green ICT providers



**IN PROCESSING 3.5 BILLION
SEARCHES A DAY, GOOGLE
ACCOUNTS FOR ABOUT 40% OF
THE INTERNET'S CARBON
FOOTPRINT.**



I've chosen ecosia - <https://www.ecosia.org/>

> THE POLLUTING IMPACT OF ICT

THE PROBLEM

- > The electricity consumed by digital devices and infrastructures is growing faster (at 7% per year) than the global electricity demand itself (at 3% per year)
- > The main sources consuming maximum energy are networks (36%), datacentres (30%), and devices (34%)
- > Question: what kind of device do you have?



Source: <https://www.digitalinformationworld.com/2020/02/the-global-energy-consumption-of-informationtechnologies-infographic.html>



Overall Grades		ENERGY	RESOURCES	CHEMICALS
FAIRPHONE	B	B	A-	B-
	B-	A-	C	B
	C+	C+	B-	C+
	C+	B	B-	C+
	C-	C	C	D
	C-	D+	D+	C
	D+	C-	C-	D
	D+	D	C-	D+
SONY	D+	C-	C-	D
Google	D+	C-	D	C-
HUAWEI	D	D	D+	D
	D	D	D	D+
SAMSUNG	D-	D	D	D-
	F	D	D-	F
	F	F	F	F
	F	F	F	F
	F	F	F	F



Source: www.greenpeace.org/usa/wp-content/uploads/2017/10/Guide-to-Greener-Electronics-2017.pdf

THE POLLUTING IMPACT OF OUR DEVICES

DID YOU KNOW?

- › EU citizens replace their smartphones on average **every two years**, often long before their device breaks ([JRC, 2020](#))
- › Around **72%** of the lifetime emissions of a smartphone are created before the device reaches its owner



This is much higher than the proportion for other devices such as washing machines (25%) and vacuum cleaners (21%) ([European Environmental Bureau, 2019](#))



Source: <https://mk0eeborgicuyptuf7e.kinstacdn.com/wp-content/uploads/2019/09/Coolproducts-briefing.pdf>

> AND WHEN YOU CAN

CHOOSE “GREENER” DEVICES THAT...

- › Consume less energy
- › Use recycled materials
- › Can be repaired
- › Limit the use of materials that can damage our health



Check the label - there are a number of standards to certify the eco friendliness of devices

Source:
<https://ec.europa.eu/environment/ecolabel/>

➤ DON'T BECOME A SERIAL COLLECTOR

RECYCLE, IT'S MINIMISING THE MINING OF NEW MATERIALS

- › Don't keep your old devices at home unused, many materials can be recycled!
 - There is 50 to 100 times more gold in 1 ton of electronic cards than in 1 ton of raw minerals.
 - 54 to 113 million smartphones are abandoned somewhere on our shelves.



> YOU ARE IN THE DRIVER'S SEAT!

REDUCE YOUR DEVICES' ENERGY CONSUMPTION

- > 1 hours break? Switch off your devices instead of using sleep mode.
- > Switch off your devices completely during the night - including TV boxes, Wi-Fi routers, laptops, mobile phones, etc.

⚠ The average annual consumption of a TV box is equivalent to that of a refrigerator!

Source: <https://www.digitalinformationworld.com/2020/02/the-global-energy-consumption-of-informationtechnologies-infographic.html>



> THE AGAIN YOU HAVE THE CHOICE

BE MINIMALISTIC!

- > Limit the number of open (and unused) applications and documents on your devices - this consumes lots of energy!
- > Deactivate GPS, Wi-Fi and Bluetooth options when not needed – they consume lots of battery!

Source: <https://www.digitalinformationworld.com/2020/02/the-global-energy-consumption-of-informationtechnologies-infographic.html>

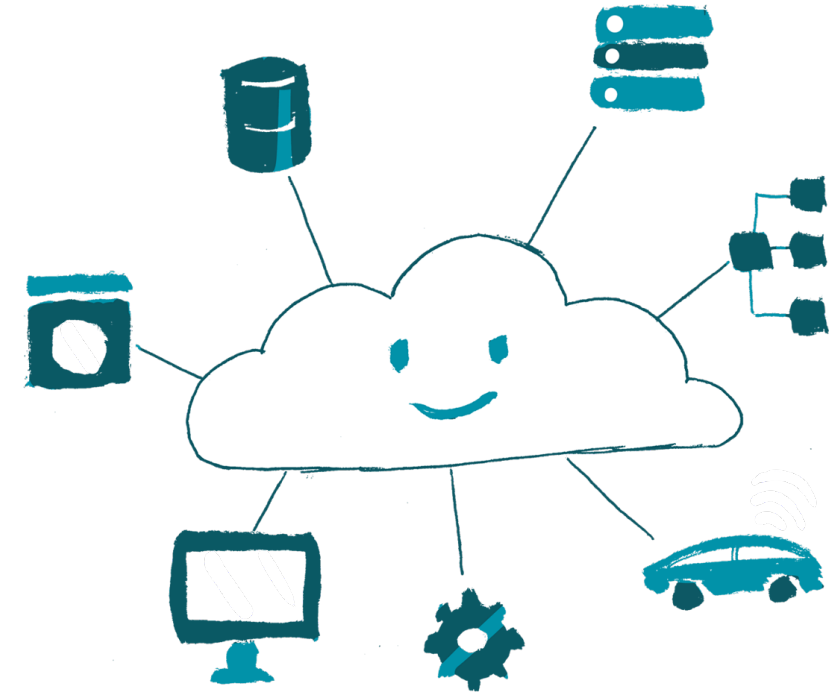




OUTLOOK
NEXT GENERATION CLOUD-EDGE-IOT
SOLUTIONS

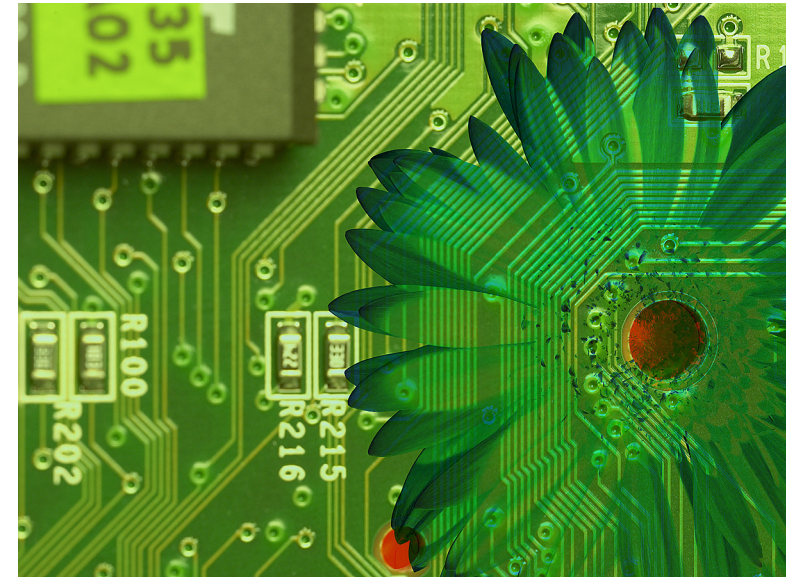
> GREEN CLOUD-EDGE-IOT COMPUTING

- + All sectors of business and society will increasingly rely on the **Cloud-Edge-IoT continuum**
- + **The Edge Computing promise:** decentralisation is inherently faster, greener, more private and secure
 - Reduced latency
 - Reduced energy consumption
 - Intelligence and data value creation closer to users
- + Is that all so easy?
- + Are we ready?
- + What is the European market space?



➤ THE SOURCE MAKES THE DIFFERENCE

- Actually, research has shown that ICT energy efficiency gains outpaced anything seen in other major sectors of the economy
 - As a result, while data centres now power more applications for more people than ever before, in 2018 they still accounted for about **1% of global electricity consumption** – the same proportion as in 2010.
- ➔ The source of energy fuelling the data centre makes the difference!



Source:
<https://science.sciencemag.org/content/367/6481/984>



DID YOU REALLY SAY GAINS?

IN SHORT

- [These massive efficiency gains](#) have mainly come from **processor efficiency improvements, reductions in idle power, increased storage drive density and slowing server growth.**
- The shift to cloud computing which relies on **hyperscale data centres, the largest and most efficient type of data centre**, has further accelerated efficiency improvements.
- Lately, [edge computing and intelligence at the edge](#) are promising further gains





D4P AT WORK ON THIS FRONT!

- + At work for development of technologies and policies to **ensure the development of an eco-friendly cloud-edge-IoT-empowered market** accessible to both public and private organisations
- + **A dedicated D4P working groups** is active on:
 - Roadmap and R&I agendas definition
 - Facilitate entry points for SMEs as key market players in Europe
 - Engage experts and stakeholders from multiple industries and disciplines
 - Inject in EU Green Deal objectives / EC policies as relevant
 - Facilitate liaisons and dialogue across relevant initiatives



DIGITAL SOLUTIONS TO GREEN THE PLANET

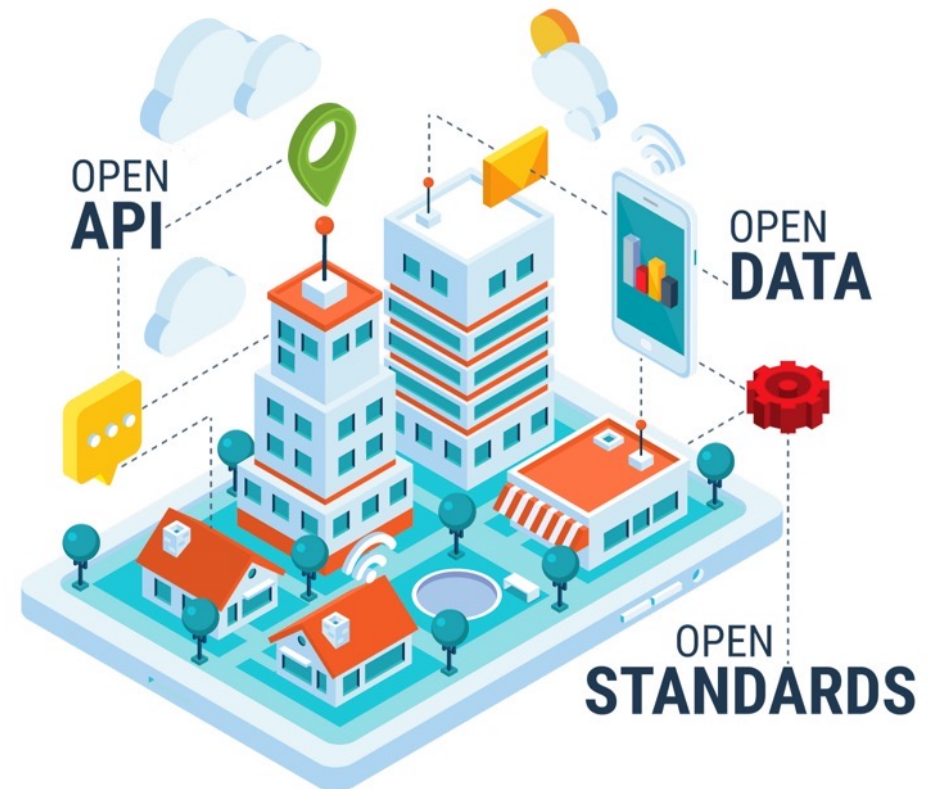


An open source platform for smart cities service provisioning, connecting citizens, data, devices and services

Through real-time data collection and elaboration, OC enables several applications scenarios addressing pollution

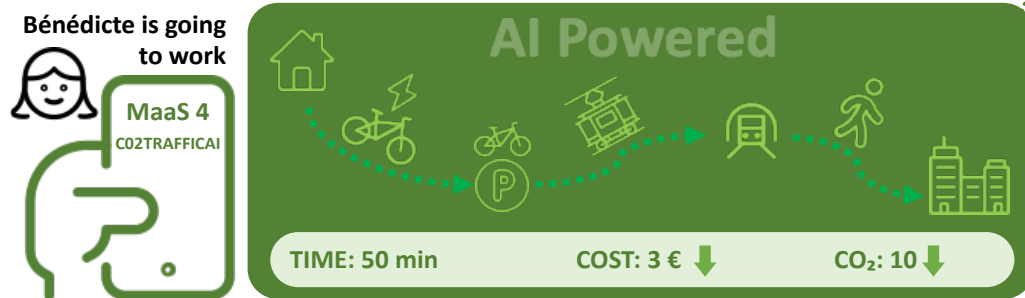
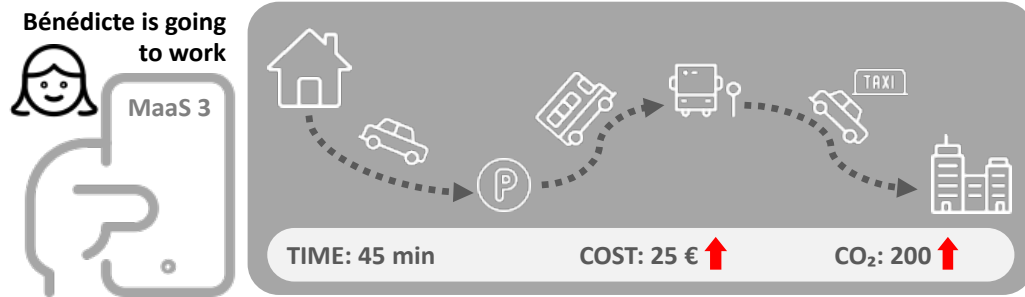
- › Air quality management
- › Waste management
- › Smart mobility
- › Infrastructure monitoring

orchestracities.com

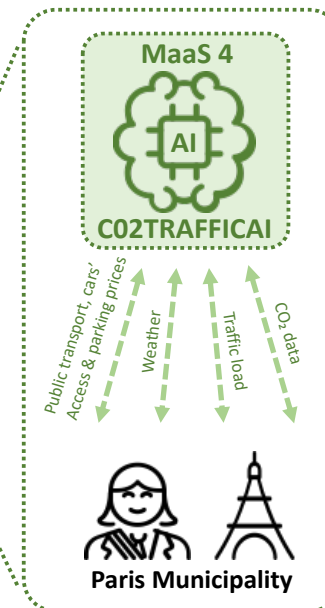


POSITION CO₂ TRAFFICAI

An open source solution for AI-powered Mobility Governance in Sustainable Cities



Linking CO₂ monitoring with mobility demand management



Road transport accounts for a significant air pollution in urban areas

- Public authorities struggles in implementing effective measures able to tackle pollution problems in a multi-actor environment
- New mobility models may strengthen individual behaviours
- AI-powered decision support
 - Advanced CO₂/GHG monitoring
 - Scenarios for policymakers
 - Recommendations and planning for mobility users

<https://www.martel-innovate.com/ec-projects/c02traffica/>

A top-down view of a person's hands typing on a silver laptop keyboard. The laptop is open and resting on a patch of green grass. The person's left hand is on the left side of the keyboard, and their right hand is on the right side. The person is wearing a pink sleeve and a pink and blue beaded bracelet on their right wrist. The text "OUTLOOK TOWARDS A SUSTAINABLE DIGITAL FUTURE" is overlaid in white, bold, sans-serif font across the center of the image.

OUTLOOK
TOWARDS A SUSTAINABLE DIGITAL
FUTURE

> THE EUROPEAN GREEN DEAL

The European Green Deal is a top EC priority. It is the plan to make the EU economy sustainable by ensuring:

- > There are no net emissions of greenhouse gases by 2050
- > Economic growth is decoupled from resource use
- > No person and no place is left behind

THE EUROPEAN GREEN DEAL INVESTMENT PLAN

The European Green Deal Investment Plan is based on 3 dimensions:

- FINANCING**
Mobilising at least €1 trillion of sustainable investments by 2030.
- ENABLING**
Providing incentives to unlock and redirect public and private investment.
- PRACTICAL SUPPORT**
The Commission will provide support to public authorities and project promoters in planning, designing and executing sustainable projects

#EUGreenDeal

European Commission

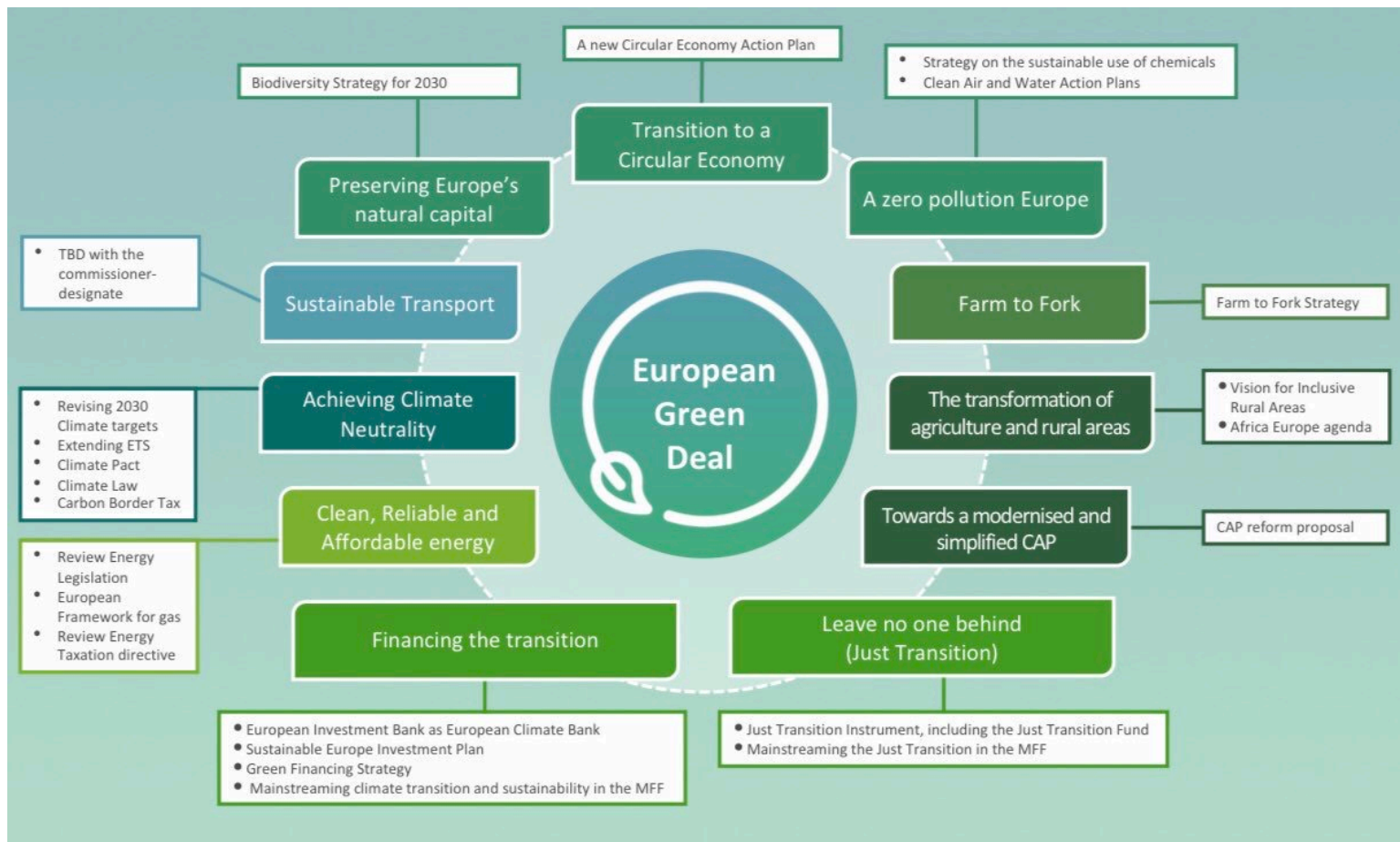
THE EUROPEAN GREEN DEAL

HOW TO GET THERE?

- › Investing in environmentally-friendly technologies
- › Supporting industry to innovate
- › Rolling out cleaner, cheaper and healthier forms of private and public transport
- › Decarbonising the energy sector
- › Ensuring buildings are more energy efficient
- › Working with international partners to improve global environmental standards
- › A European Climate Law has been proposed - a legally binding target of net zero GHG emissions by 2050
- › Just Transition Mechanism establishes a set of financial tools/mechanisms for most affected regions in Europe - mobilising at least €100 billion over the period 2021-2027



THE EUROPEAN GREEN DEAL PRIORITIES



FIRST HORIZON EUROPE CALLS ARE EXPECTED TO BE PUBLISHED END OF JUNE 2021 – DRAFT CIRCULATED
CLOSING END OF Q3 2021



UN SUSTAINABLE DEVELOPMENT PRIORITIES

SUSTAINABLE DEVELOPMENT GOALS

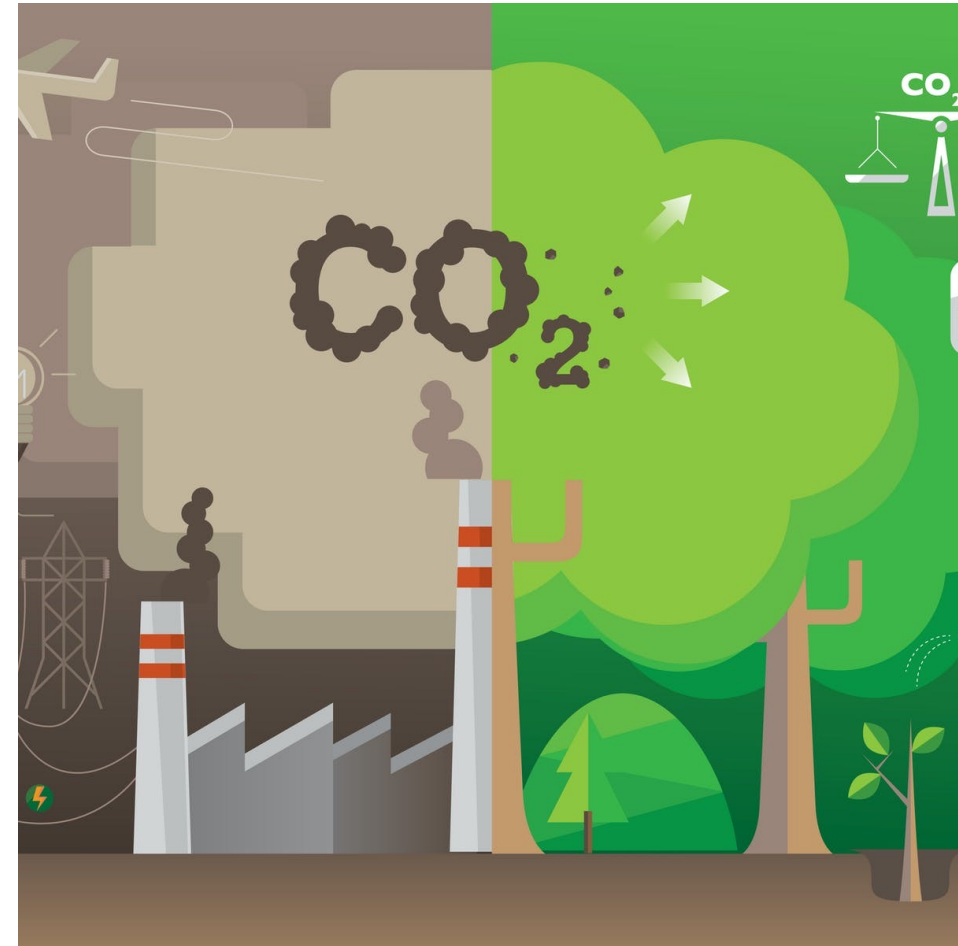


TRENDS

NET-ZERO EMISSIONS COMPANIES

- Develop corporate digital responsibility
- Put in place metrics to measure and assess negative / positive impacts
- Investing on energy efficiency
- Transition to a circular economy
- Shifting supply chains
- Sustainable finance – ESG investments
- It's not only a business for business owners!

<https://carbon.ci/insights/companies-with-net-zero-targets/>
<http://datadrivenlab.org/climate/net-zero-beyond-the-buzzword/>
<https://sciencebasedtargets.org/resources/legacy/2020/09/foundations-for-net-zero-full-paper.pdf>



> KEY ASPECTS – CHOOSE WHAT APPLIES

HOW DID SE EARN THE TITLE?

- > Running operations on renewable energy
- > Provisioning of climate change advisory service to clients
- > Helping their clients to become carbon neutral
- > Boosting circularity of production materials
- > Modernising facilities (e.g., ICT infrastructure) in a sustainable way
- > Training employees on sustainability and responsibility



Source: <https://www.se.com/ww/en/assets/564/document/201117/schneider-sustainability-impact-first-quarterly-2021-results.pdf>

A person is captured in a dynamic running pose, moving from the bottom left towards the top right. The entire image is monochromatically tinted in a vibrant green. The background consists of a cloudy sky, and the foreground shows some tall grass. The text 'CALL TO ACTION' is centered horizontally and vertically in a bold, white, sans-serif font.

CALL TO ACTION

➤ TOWARDS A SUSTAINABLE DIGITAL FUTURE

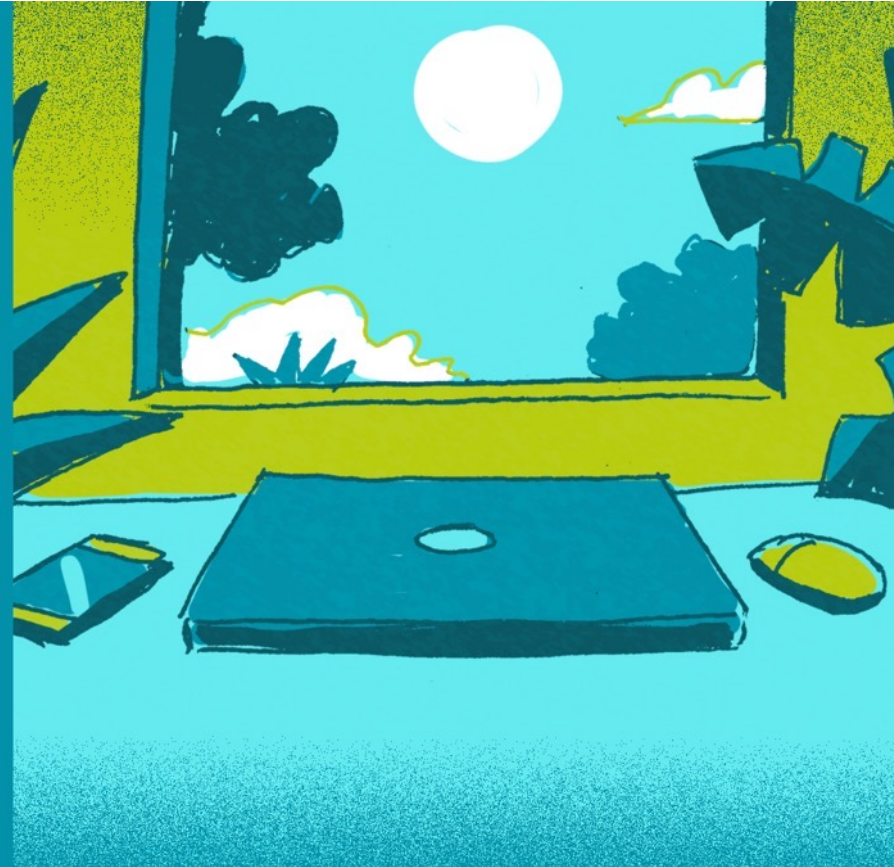
A SUSTAINABLE COMPANY FUTURE

- Develop a strategic roadmap to achieve sustainability
 - It's a step-based approach that needs to align on key priorities
- Opt for green materials, devices, energy sources
- Limit the need to travel, but mind on ICT energy footprint
- Invest in CO₂ reduction projects
- Provide training and incentives to your employees/colleagues
- Join Digital for Planet to learn, share, grow synergies



> PRACTICE DIGITAL DETOX

GO OFFLINE
AS OFTEN
AS YOU CAN



RE-THINK YOUR DIGITAL HABITS

- > Become aware of your digital carbon footprint.
- > Start today by greening your digital habits.
- > Share the information with your colleagues, family and friends the D4P [White Paper](#)



> STAY CONNECTED



digital4planet.org



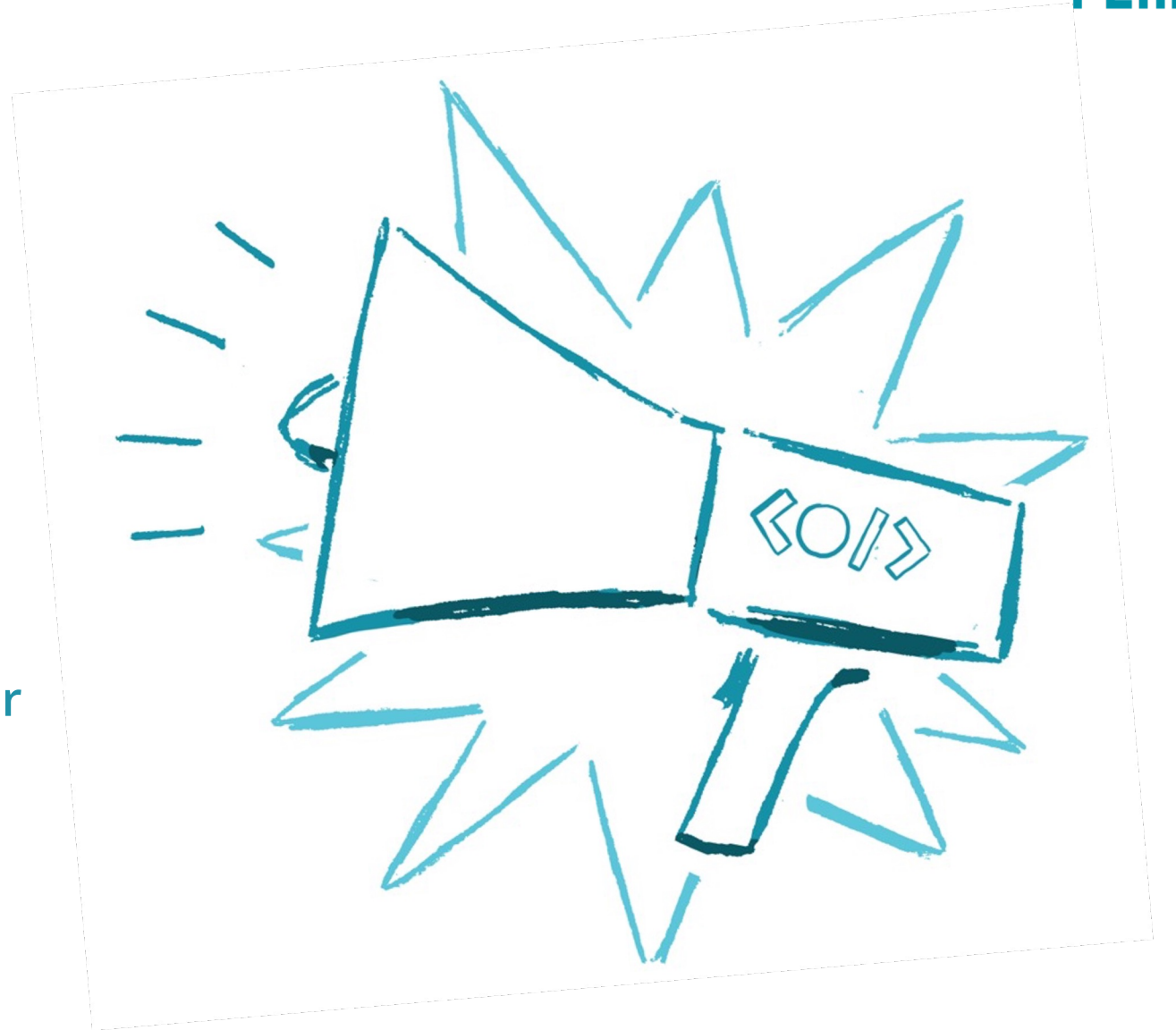
info@digital4planet.org



[@Digital4Planet](https://twitter.com/Digital4Planet)



digital4planet.org/newsletter



THANK

YOU

FOR YOUR

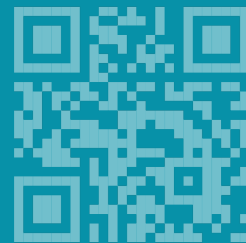
ATTENTION!



DIGITAL
FOR
PLANET



@Digital4Planet



digitalforplanet.org

A close-up photograph of two hands clasped together in a firm grip. The hands are positioned in the center of the frame, with the fingers interlaced. The background is a soft-focus field of green grass and yellow wildflowers, suggesting an outdoor setting. The lighting is bright and natural, highlighting the texture of the skin and the vibrant colors of the flowers.

JOIN D4P

> MEMBERSHIP BENEFITS

AS A MEMBER YOU...

- > Get a chance to lead and shape D4P activities
- > Propose, join, contribute and eventually lead D4P Working groups
- > Get support to access relevant funding opportunities for green digital transformation
- > Collaborate with other members for joint research and innovation proposals/projects
- > Learn, contribute, influence and amplify policy and regulatory-driven efforts
- > Gain visibility across D4P online and offline communications
- > Obtain discounted/free passes at selected events
- > Participate as speaker / panellists to D4P events
- > Get privileged access to knowledge, tools and events





MEMBERSHIP PROGRAMME

D4P Membership Programme includes **Full Membership** and **Associate Membership**

FULL MEMBERS are entities with legal personality that can participate in all the activities of the Association, have full voting rights in the General Assembly, and propose representatives that can be elected to be part of the Executive Committee.

Full members annual membership fee:

- › Large industry: € 5'000
- › Research/academic institutions: € 2'000
- › SMEs/Start-ups: € 2'000
- › Municipalities/Public authorities: € 2'000
- › NGOs / Non-profit: € 1'200

ASSOCIATE MEMBERS are individuals that can participate in all the activities of the Association, including the General Assembly, without voting rights and are not eligible to be elected as part of the Executive Committee.

- › Associate members annual membership fee € 250
- › D4P annual membership fee for students is € 100

To apply for Membership, please fill in the form at:

<https://digital4planet.org/membership-programme>

Your Application will be sent to the D4P Executive Committee for approval and you will be informed about the status of your application within a short period.

> A GROWING PRIORITY FOR ALL CORPORATES



THE MOST SUSTAINABLE CORPORATION IN THE WORLD

Life Is On



Source: <https://www.corporateknights.com/reports/2021-global-100/2021-global-100-ranking-16115328/>





EXAMPLE: SCHNEIDER ELECTRIC

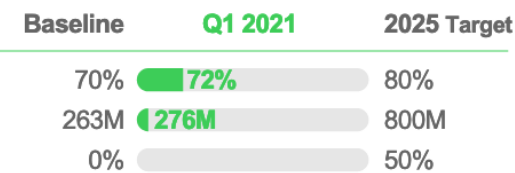


6 long-term commitments 11+1 targets for 2021-2025

CLIMATE



- 1 Grow our green revenues²
- 2 Help our customers save and avoid millions of tons of CO₂ emissions³
- 3 Reduce CO₂ emissions from top 1,000 suppliers' operations⁴



RESOURCES



- 4 Increase green material content in our products⁴
- 5 Primary and secondary packaging free from single-use plastic and using recycled cardboard⁴



TRUST



- 6 Strategic suppliers who provide decent work to their employees⁴
- 7 Level of confidence of our employees to report unethical conduct⁴



EQUAL



- 8 Increase gender diversity in hiring (50%), front-line management (40%) and leadership teams (30%)
- 9 Provide access to green electricity to 50M people



GENERATIONS



- 10 Double hiring opportunities for interns, apprentices and fresh graduates
- 11 Train underprivileged people in energy management⁵



LOCAL



- +1 Country and Zone Presidents with local commitments that impact their communities



Source: <https://www.se.com/en/assets/564/document/201117/schneider-sustainability-impact-first-quarterly-2021-results.pdf>