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# NEXT GENERATION IoT FOR A SUSTAINABLE FUTURE

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MARTEL innovate


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# WHO WE ARE

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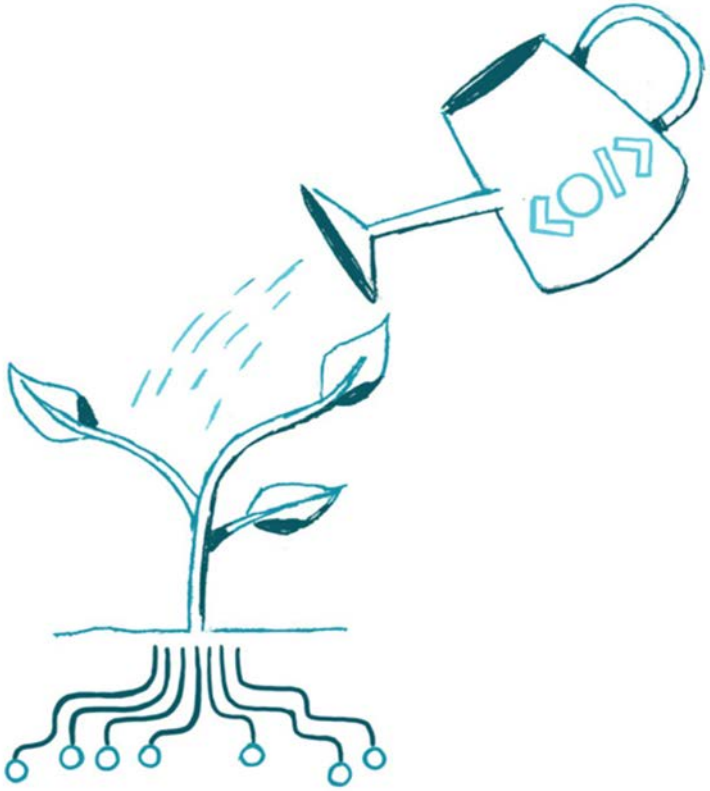
# DIGITAL FOR PLANET – D4P

**D4P IS A NON-PROFIT ASSOCIATION SUPPORTING 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



# DIGITAL WITH PURPOSE IS A NECESSITY

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## 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 $CO_2$ emissions at 2015 levels, decoupling the past pattern where each 1% of growth in GDP equated to an 0.5% increase in $CO_2$ emissions, and promote sustainable growth through 2030".* *SMARTer 2030, GESI*

# ...HOWEVER, AS WE KNOW

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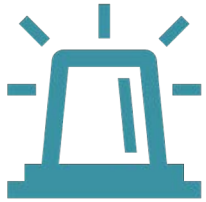


**DIGITAL TECHNOLOGIES AND THEIR OVERCONSUMPTION ARE ALSO A BIG PART OF THE PROBLEM**

## Technology drives electricity demands

- Estimates show that ICT could
  **consume 20% of global electricity by 2025**
  **generate 5.5% of $CO_2$ emissions**
  **with up to 50 billion "connected things" by end 2021** (!)

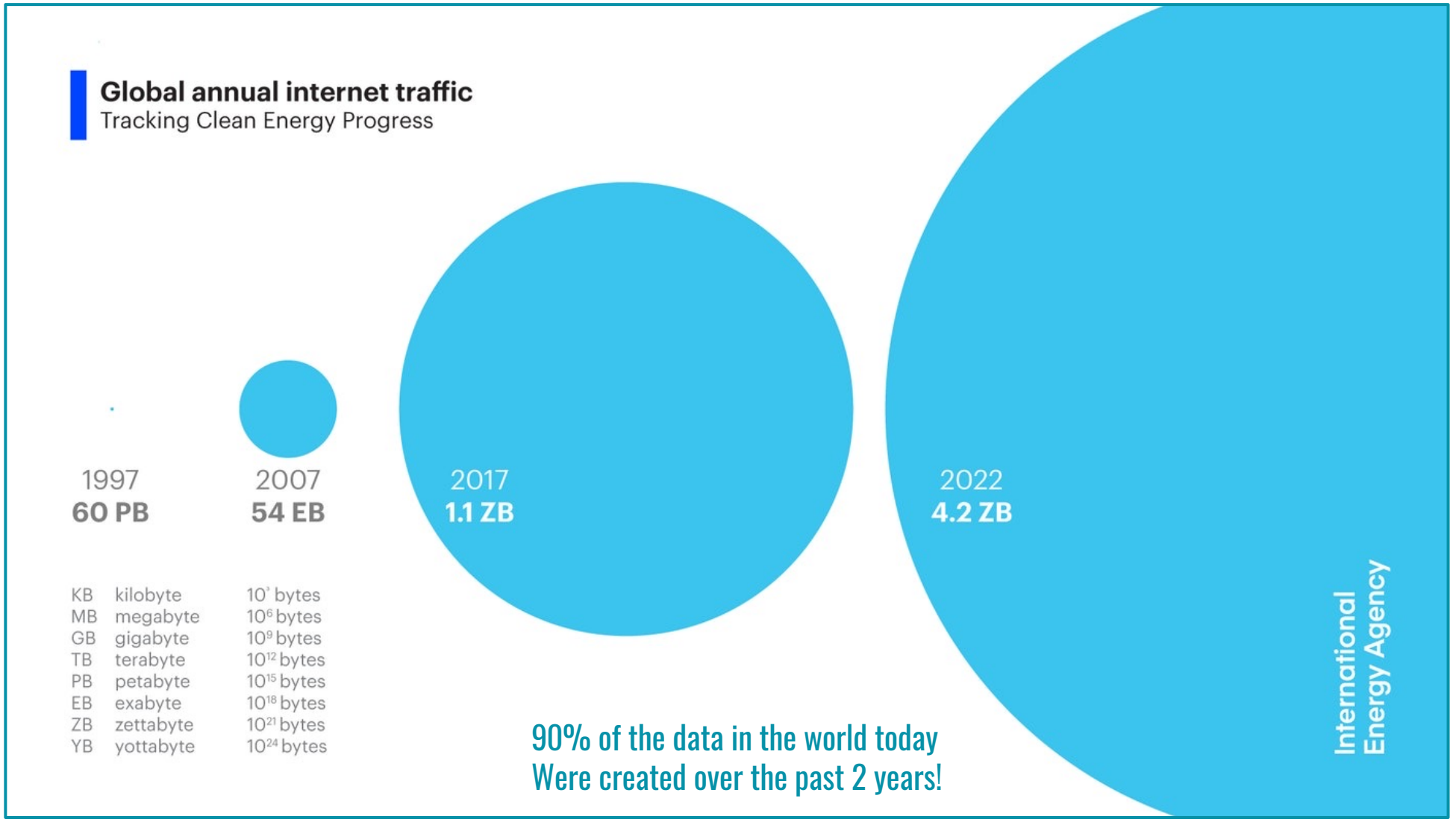
## Technology is damaging the environment

- 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

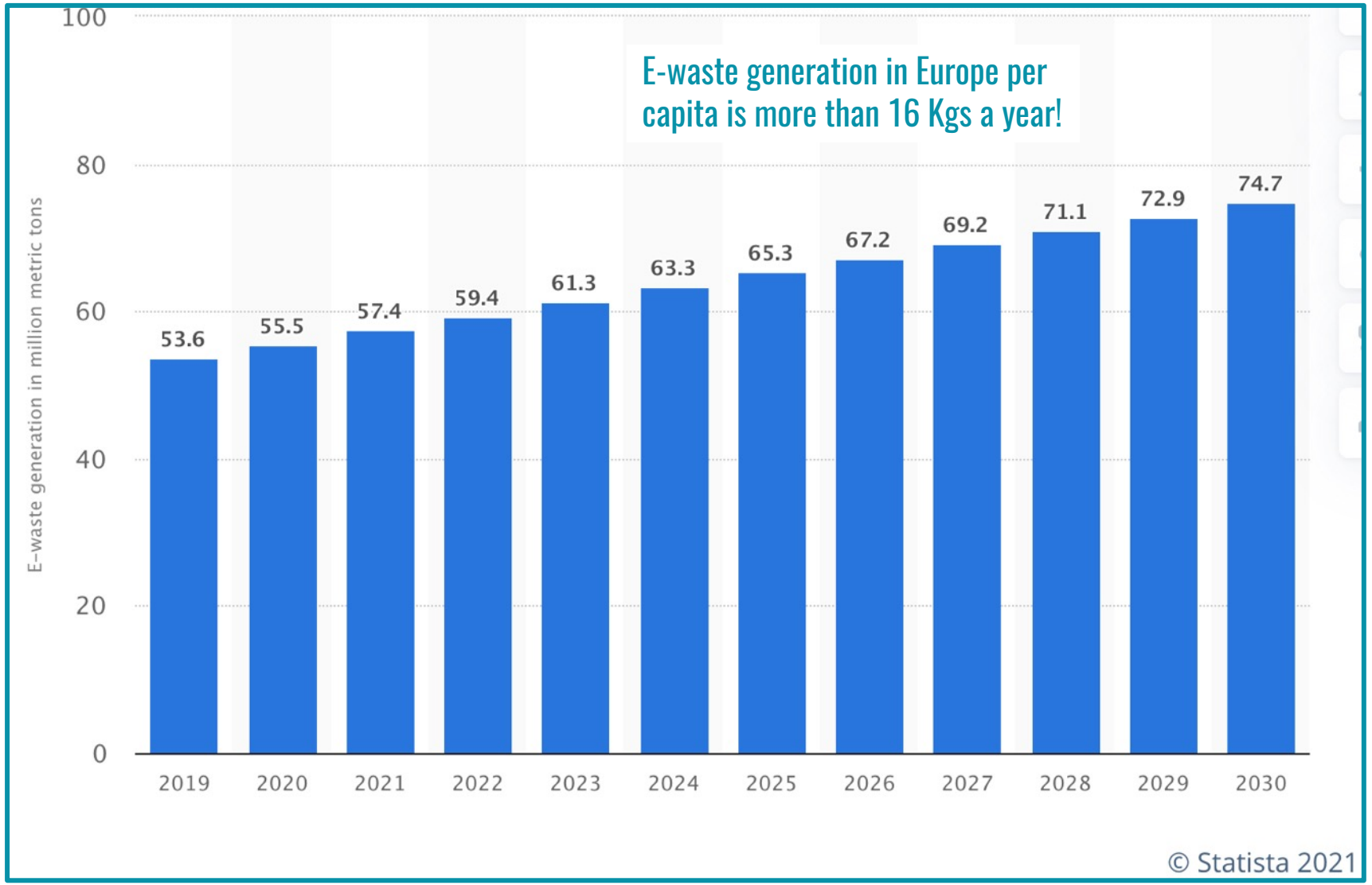
- Enforcing culture of disposability
- Replacement rather than repair approach
- Software development vs. hardware upgrades

# TECHNOLOGY DRIVES ELECTRICITY DEMANDS




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

# E-WASTE IS DRAMATICALLY GROWING




Source: https://www.statista.com/statistics/1067081/generation-electronic-waste-globally-forecast/

# OUR PLANET CALLS!

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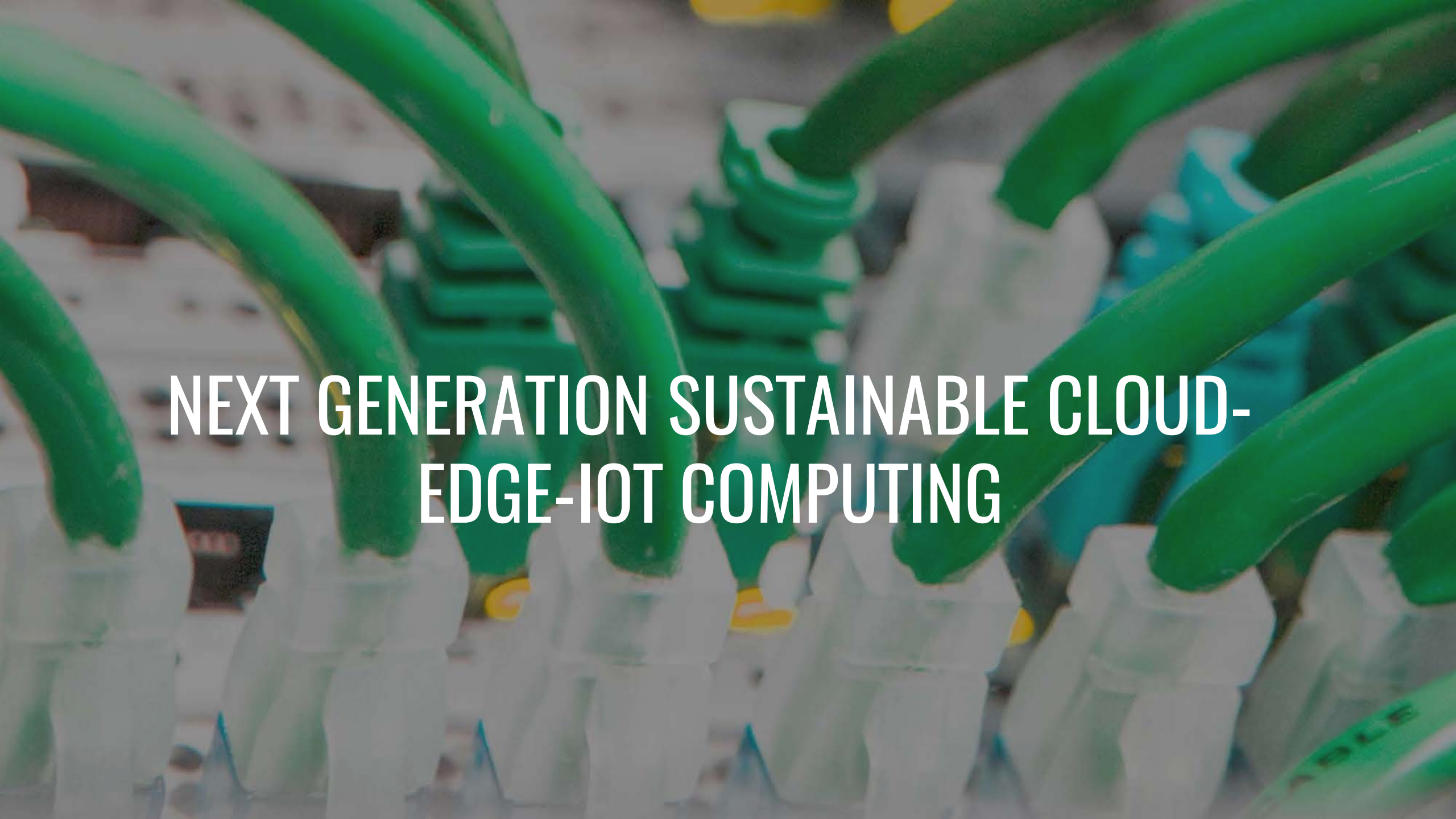
THE BALANCE OF POSITIVE VS NEGATIVE OUTCOMES OF ICT DEPENDS ON INCENTIVES, POLICIES, AND OUR DIGITAL HABITS

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



# NEXT GENERATION SUSTAINABLE CLOUD-EDGE-IOT COMPUTING

# GREEN CLOUD-EDGE-IOT COMPUTING

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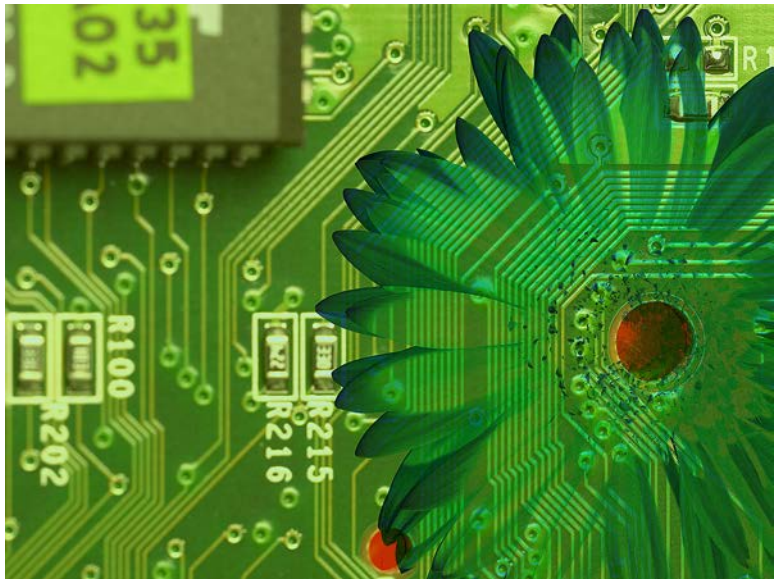
- All sectors of business and society will increasingly rely on the **Cloud-Edge-IoT continuum**
- **The Edge Computing promise**: decentralisation is inherently faster, greener, more private and secure
  - Reduced latency
  - Reduced energy consumption
  - Intelligence and data value creation closer to users
- **The power of IoT**
  - Energy Consumption Monitoring
  - Remote Asset Performance
  - Predictive Maintenance

# HOW TO MAKE THE DIFFERENCE

- 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 and their degree of intelligence make the difference!**




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

# DID YOU REALLY SAY GAINS?

## IN SHORT

- **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 hybrid cloud computing** which relies on **hyperscale data centres,** the largest and most efficient type of data centre, has further accelerated efficiency improvements
- **IoT/Edge computing and intelligence at the edge** are promising further gains

# IOT FOR SUSTAINABILITY AND CLIMATE

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## IoT GREENING POTENTIAL ACROSS SEVERAL DOMAINS

- Digitalisation for stable decarbonized energy grids
- Precision farming, digital for agri-food
- Climate smart cities & communities
- Smart mobility, energy efficiency of buildings
- Sustainable manufacturing and waste treatment
- Extreme weather and climate impact modelling


*IoT could help reduce greenhouse gas emissions by up to 63.5 gigatons, or 15 percent, across all industrial sectors by 2030.*
*https://www.iotforall.com/why-businesses-use-iot-to-achieve-sustainability-targets*

# D4P IS 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 group** 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


JOIN US!

# ...AND ACT NOW!

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## INCREMENTAL CHANGE STARTS TODAY

- Become aware of your digital carbon footprint.
- Start today by greening your digital habits.
- Go offline as often as you can!


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

# THANK YOU FOR YOUR ATTENTION

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