SUMMARY

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Brussels, 7th December

Background

Ever since its first work programme in 2019, the European Commission vowed to adapt the European economy to the challenges of our time and to reconcile the dual ecological and digital transitions. But, beyond the formula, how do we ensure that the European Green Deal and the *Europe Fit for the Digital Age* strategy actually work hand in hand for a sustainable digital future?

It is no secret that digital technologies have an environmental impact. However, data so far was non-existent, incomplete and lacking a harmonized format to present a clear picture of the situation in Europe. Knowing how and to what extent the digital sector weighs on environmental indicators is a prerequisite to being able to design the kind of technologies we want. The Greens/EFA commissioned this study to answer these important questions: what are the environmental impacts of digital technologies in Europe to date? What are the current trends in the digital sector and how do they affect our ability to respect our environmental targets?

The study establishes that digital technologies massively affect the environment, and their impact is predicted to grow exponentially within the next 5 to 10 years,
.
To shape green technology, the European Union needs to recognise that digital technologies have a huge environmental impact that needs to be mitigated. With this new study, the Greens/EFA provide key and up-to-date data on the real environmental impacts of digital technologies, as well as policy recommendations.

Methodology

The study includes two complementary parts:

(1) A life-cycle assessment of digital technologies in Europe

The first part quantitatively assesses the impacts of digital technologies on the environment: it takes an inventory of the stock of equipment in use in the EU-28 in 2019 and assesses their impact across their whole life cycle: the manufacturing, distribution, use, and end-of-life. To ensure that all environmental impacts are taken into account, the methodology follows a multi-criteria approach that accounts for several environmental indicators beyond climate change.

This approach ensures that so-called "impact transfers" – measures adopted to solve one environmental problem that eventually create another – or lesser-known harmful effects are not overlooked in the assessment.

This life cycle assessment is groundbreaking for research as it is the first to create a harmonised inventory across the entire EU.

(2) In depth-studies "Beyond the Numbers"

This part adopts a qualitative approach for emerging technologies and concepts like **IoT, artificial intelligence, Cloud, 5G, autonomous vehicles, rebound effects, raw materials,**

e-waste and the circular economy. Each case study explains why the technology addressed is a help or a hindrance for the environment, highlighting some key findings, an expert's input and when possible, some examples of solutions.

It is the first time that such extensive and harmonised data has been collected and gathered in one document, following a common standard and methodology. This study has been peer-reviewed with ISO 14071 methodology and complies with the best international standards regarding life cycle methodology (ISO 14040-44).

Main takeaways

Digital technologies have a considerable environmental impact, and this impact is mainly material.

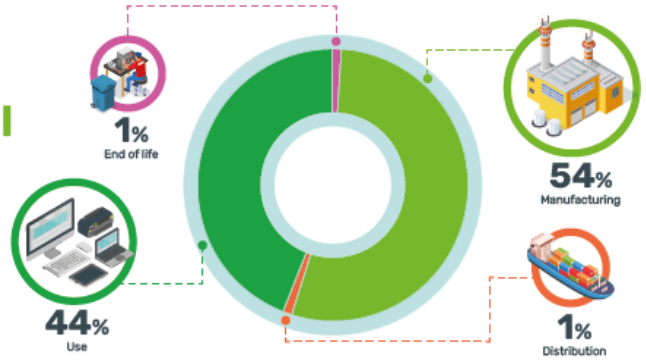
- 40% of the environmental impacts of Information and Communication Technologies (ICT) are due to the depletion of metal resources and the use of fossil resources, mainly to manufacture the devices.
- Digital technologies for European use alone accounts for 40% of the sustainable GHG emissions budget of Europe to stay below 1.5°C.
- Almost 10% of European electricity consumption is devoted to digital technologies.

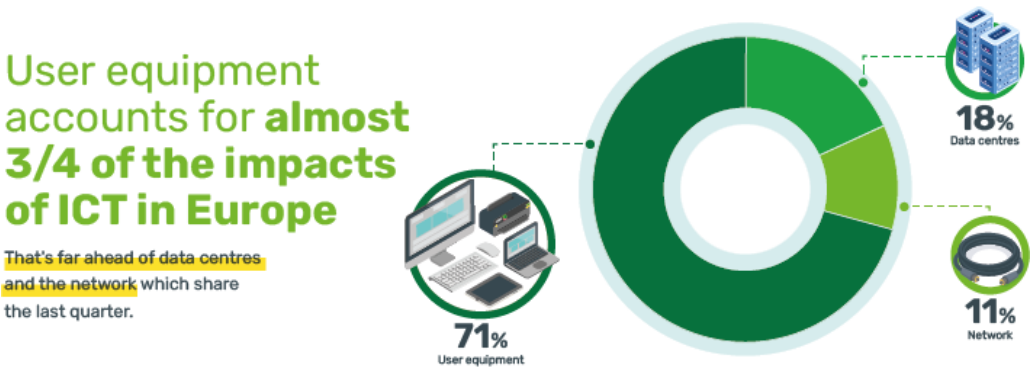
These findings completely deconstruct the belief that the digital world is mainly virtual, "in the clouds", and ecological by design.

We need fewer, longer lasting, and more sustainable digital devices:

Manufacturing is **the most impactful lifecycle stage of ICT**

54% of impacts occur during manufacturing.





- The majority of the impacts occur during the manufacturing phase (54%), before the equipment is used (44%).
- 71% of the environmental impacts come from end-user devices and not from data centres (18% of the impacts) and the network (11%).
- 82% of the waste is generated during manufacturing

This requires us to think about serious evolutions in terms of eco-design standards, and business models both to use fewer devices and to use the same devices for longer. This means supporting "repair and reuse".

Information on the environmental impact of digital technology is lacking and needs to be widespread, clear and transparent

- While carrying out the study, the experts came across multiple challenges to gathering comprehensive and harmonised data to be able to compare and aggregate numbers. Since data is key to sound policy-making, we urgently need to make it more available.
- This can be solved through the collection and publication of environmental data by manufacturers, the systematisation of mandatory environmental impact life cycle assessments and mandatory labelling of the environmental score of digital products and services.

Key policy recommendations

Fewer, longer lasting and more sustainable digital devices:

- To reduce the number of devices, make them multifunctional
- Fight all forms of obsolescence by extending the legal duration of software update periods to a minimum of 5 years
- Increase reuse rates by moving from proprietary systems to interoperable and open ones and making the right to return compulsory
- Incentivise the durability of products, second hand purchases and refurbishment with consumer protection

Providing European citizens with reliable data on digital responsibility:

- Create a scientific observatory and committee capable of providing consensus and peer-reviewed information to the European Commission on the environmental and health impacts of digital technology
- Obligatory environmental impact assessments for manufacturers and/or distributors of digital products
- Make environmental labelling mandatory for digital products and services
- Regularly quantify the impact of digital technology in Europe and analyse the evolution of the structure of impacts

Strengthening the strategic autonomy of the EU on raw materials

- Make Europe the industrial leader in secondary raw materials by establishing efficient recyclability standards and targets
- Ensure the systematic collection of e-waste and prevent illegal pathways to keep the benefit of our valuable resources
- Ban the opening of new raw material mines in Europe

More information about the Greens/EFA's campaign:

On several occasions, the Greens/EFA Group in the European Parliament have brought to the Commission's attention the importance of the digital transition for promoting the green transition. In 2020, the European Parliament voted in favour of the report, *Towards a sustainable single market for business and consumers*, by Greens/EFA MEP, David Cormand. This report proposes measures to tackle premature obsolescence, reduce digital waste and ensure greater transparency and consumer protection.

Several letters have been shared with the Commission: a letter dated from April 2021 calling on the European Commission to introduce a clear legislative proposal for sustainable circular data centres in the EU, and another letter dated from October 2021 calling on the European Commission to adopt an ecological approach to connectivity.

Read more here: https://www.greens-efa.eu/en/campaigns/green-our-tech

SUMMARY

Understanding
The environmental impacts of ICT and taking action

Study commissioned by

the European Parliamentary group of the Greens/EFA

Project headed by GreenIT.fr, with Nega Octet members (DDemain, GreenIT.fr, LCIE CODDE Bureau Veritas, APL data center)