Presentation of the study results

THE GREENS/EFA in the European Parliament

Digital technologies in Europe: an environmental life cycle approach

Published in December 2021

The added value of this study

European scope instead of a country or worldwide scope

Creation of a model based on **multiple indicators**

Compliant with the highest methodological standards

The method

Manufacturing

Distribution

Use

End of Life

Indicators

Resource use, mineral and metals

Resource use, fossils

Acidification

Ecotoxicity, freshwater

Climate change

Ionising radiation, human health

Particulate matter

Photochemical ozone formation, human health

Raw materials

Waste production

Primary energy consumption

Final energy consumption

***Environmental** indicators*

***Flow** indicators*

End-user equipment

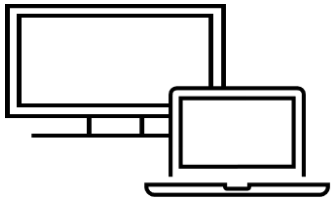
Network

Data Centres

LCA study
Inventory

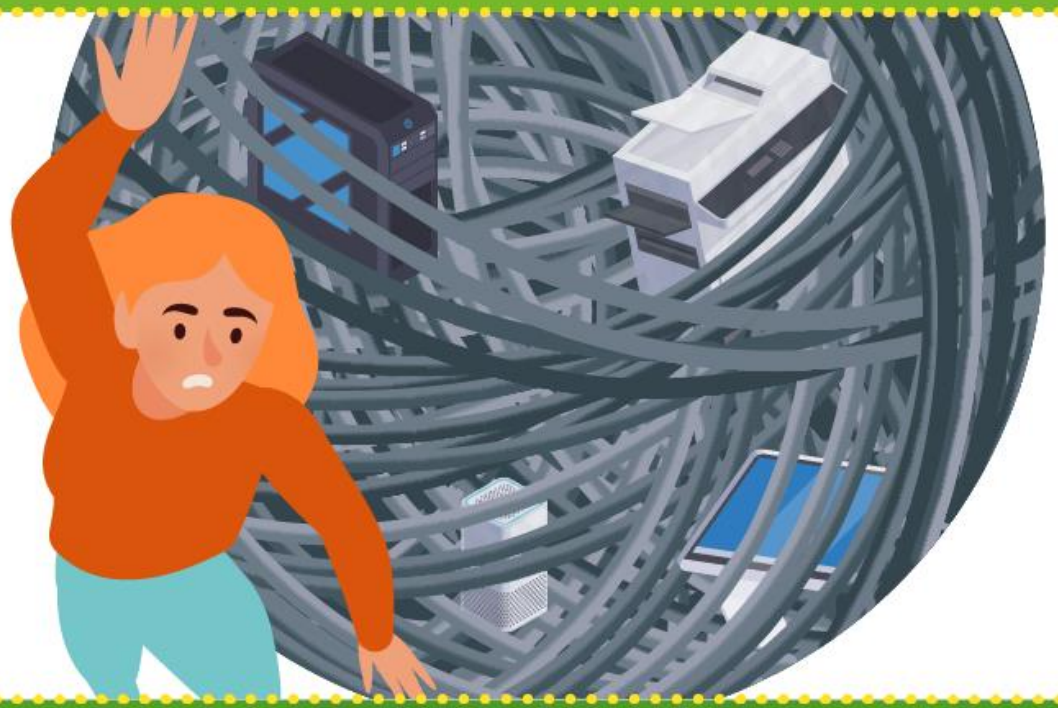
4.5 billion devices. Digital technologies in Europe are a wide set including almost 3 billion end-user devices and 1.5 billion connected objects (IoT).

9 smartphones over 10 people. There are about 475,000,000 smartphones in Europe, meaning more than 9 smartphones over 10 people.



1 TV and 1 laptop for 2 people. There are 226,000,000 TVs in Europe, which means there is a TV for almost 1 over 2 people. There is also 1 laptop over 2 people in Europe, and 1 desktop over 4 people.

There are an average of 3 connected objects per European, including all the types of connected objects (commercial building control, smart meters, home appliances, security, health).



Digital technology in Europe **weighs more than all of humanity**

Compared to the average weight of a person, 571 Mt of raw material correspond to 9.2 billion human beings or 1.11 tonnes per European.

Digital technology contributes to **8 major environmental impacts**

- Resource use, minerals and metals
- Resource use, fossils
- Climate change
- Particulate matter
- Ecotoxicity, freshwater
- Ionising radiation, human health
- Photochemical ozone formation, human health
- Acidification

Source: Bordage, F., de Montenay, L., Benqassem, S., Delmas-Orgelet, J., Domon, F., Prunel, D., Vateau, C. and Lees Perasso, E., 2021. *Digital technologies in Europe: an environmental life cycle approach.*

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LCA study results
Principal results

Raw materials - Mt	571

Raw materials. *Extracted to produce all the ICT used in Europe in 2019, they* ***weigh as much as 18 times the weight of every European****.*

Raw materials - kg	1,110

Climate change - Mt CO_2 eq.	185

GHG. *The greenhouse gas emitted for all the ICT in Europe in 2019* ***accounts for 1,870 km travelled by car for every European****.*

Climate change - kg CO_2 eq.	361

Digital technologies alone spend **40% of the sustainable GHG emissions budget of Europe**

That's a total of 185 Mt CO_2 eq. of Greenhouse Gas, and over 40% of Europe's budget to stay within planetary boundaries (i.e. 1.5°C of global warming).

It is necessary to take into account several indicators to **avoid making decisions that would increase the impacts instead of reducing them**

- Resource use, minerals and metals
- Resource use, fossils
- Climate change
- Ecotoxicity, freshwater
- Ionising radiation, human health

Source: Bordage, F., de Montenay, L., Benqassem, S., Delmas-Orgelet, J., Domon, F., Prunel, D., Vateau, C. and Lees Perasso, E., 2021. *Digital technologies in Europe: an environmental life cycle approach.*

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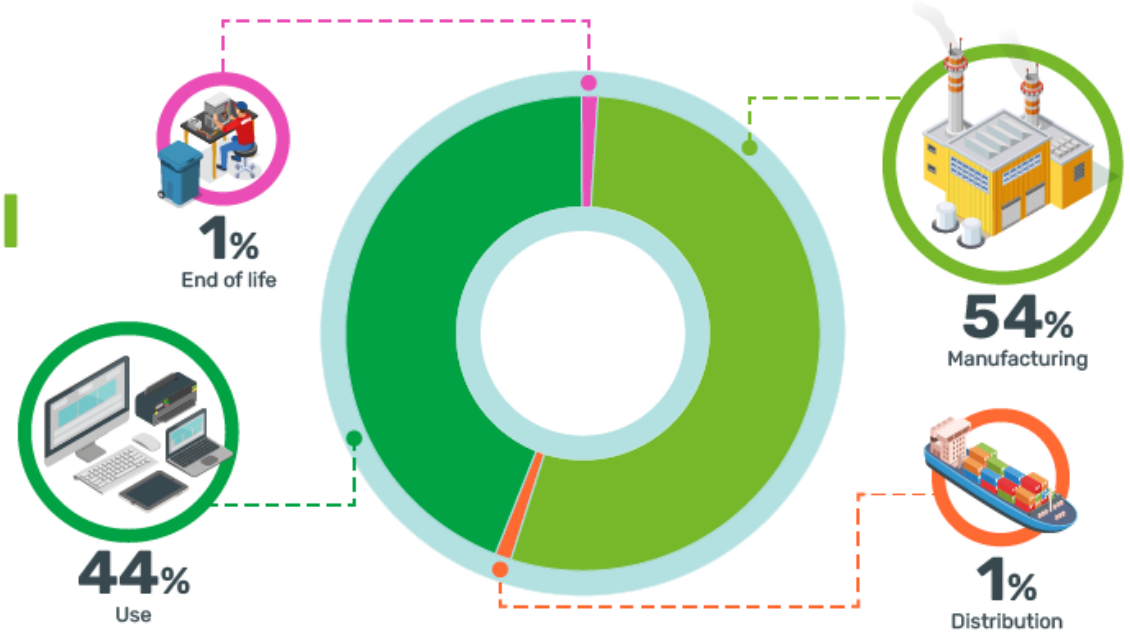
Manufacturing is **the most impactful lifecycle stage of ICT**

54% of impacts occur during manufacturing.



Televisions and computers account for half of the environmental nuisances associated with manufacturing

Source: Bordage, F., de Montenay, L., Benqassem, S., Delmas-Orgelet, J., Domon, F., Prunel, D., Vateau, C. and Lees Perasso, E., 2021. *Digital technologies in Europe: an environmental life cycle approach.*

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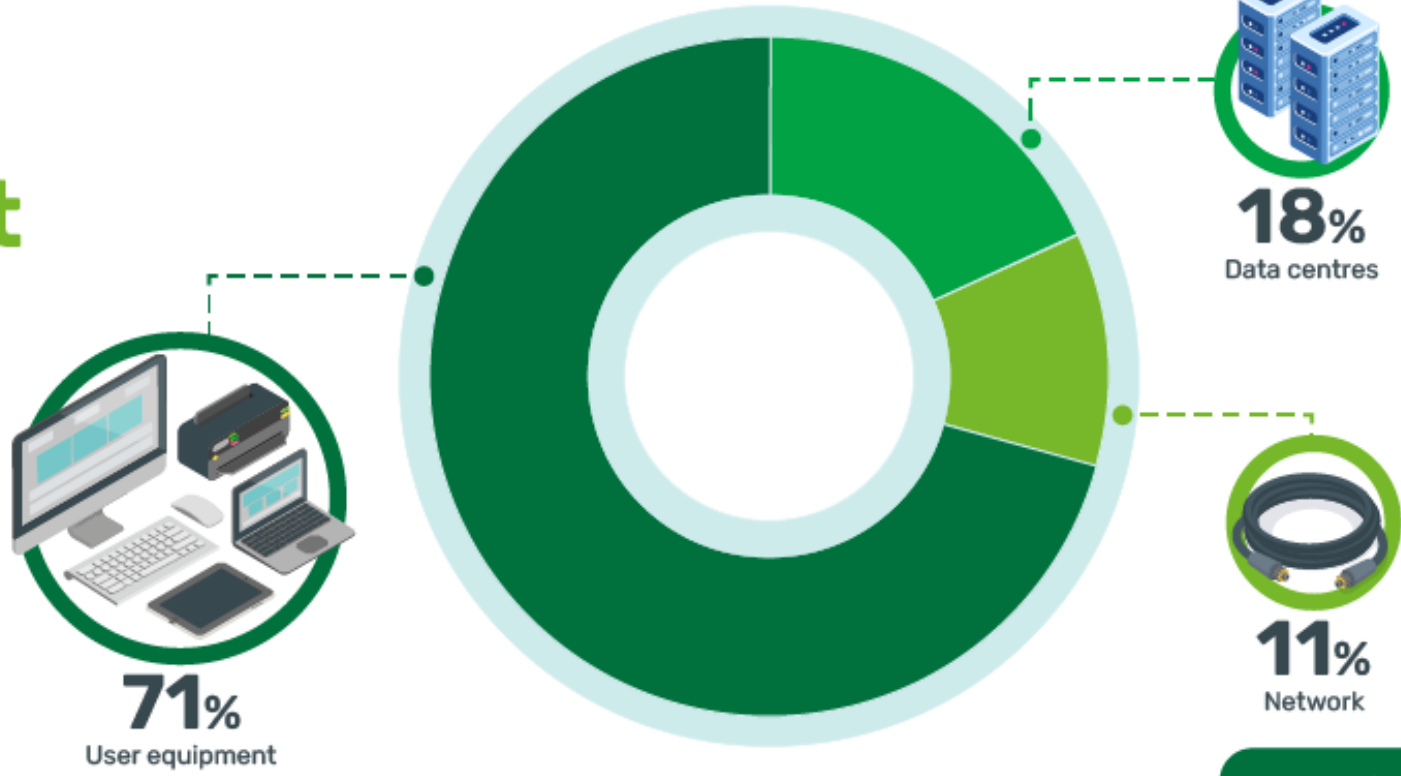
User equipment accounts for **almost 3/4 of the impacts of ICT in Europe**

That's far ahead of data centres and the network which share the last quarter.



Average of the impacts: The 8 main environmental indicators were weighted and normalised using the PEF 3.0 methodology and were aggregated per tier (user equipment, network, data centres) to obtain the share of environmental impacts per tier. See the study for the detailed impacts per indicator and per tier.

Source: Bordage, F., de Montenay, L., Benqassem, S., Delmas-Orgelet, J., Domon, F., Prunel, D., Vateau, C. and Lees Perasso, E., 2021. *Digital technologies in Europe: an environmental life cycle approach*.

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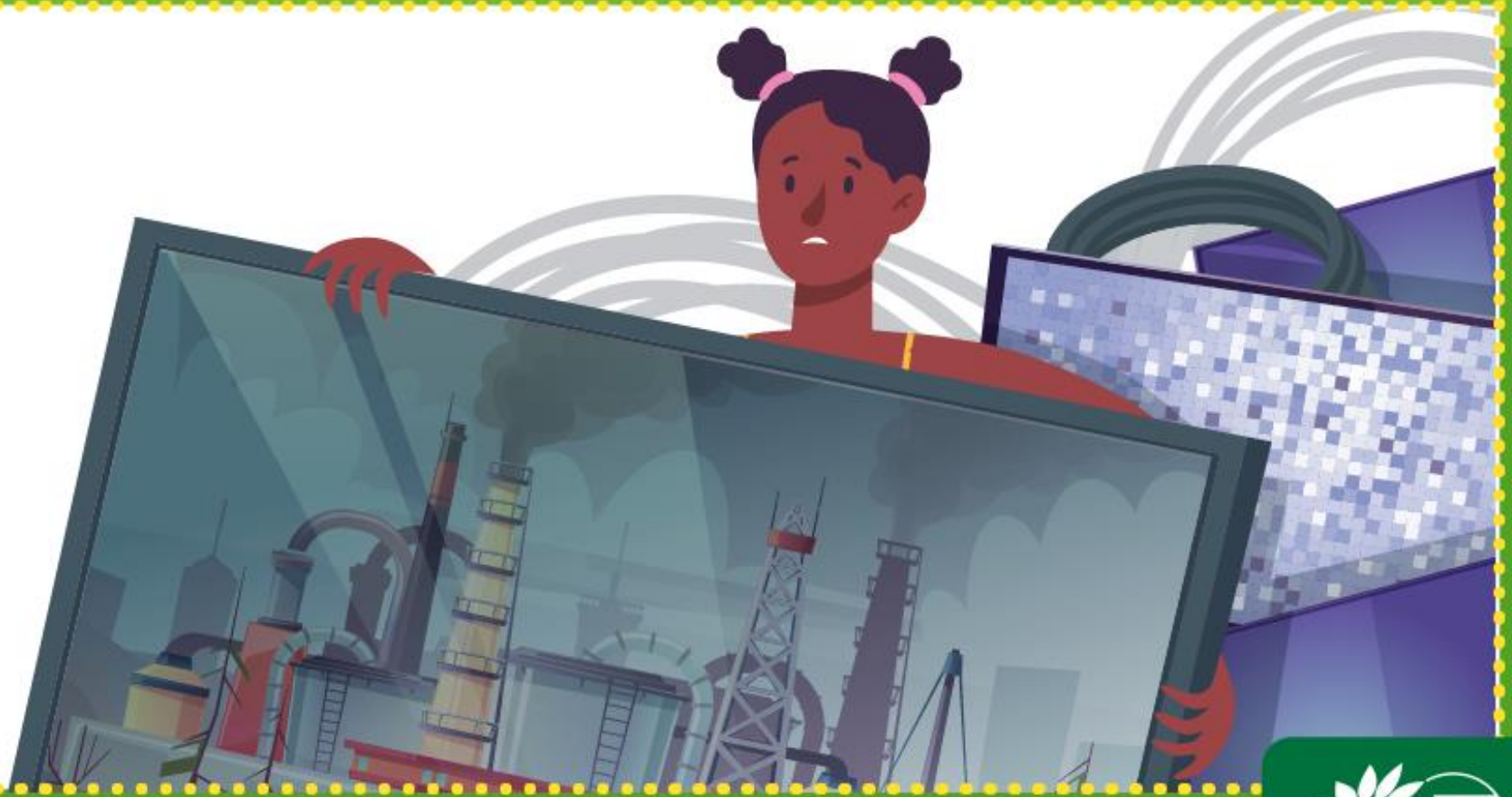
14% of impacts of ICT **are due solely to TVs**

TVs alone have twice the impact of smartphones, and more than all the networks put together (boxes, relay antennas, millions of kilometers of cable, switches and other network equipment).



Source: Bordage, F., de Montenay, L., Benqassem, S., Delmas-Orgelet, J., Domon, F., Prunel, D., Vateau, C. and Lees Perasso, E., 2021. *Digital technologies in Europe: an environmental life cycle approach.*

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Remember :

Digital devices are a non-renewable resource

A device that is manufactured is

a device in less in the future

These results show how urgent it is to tackle the environmental impacts of ICT

By **reducing** the number of devices we need

&

Make the same devices **last much longer**

Thank you for your listening