ICT Sustainability

Future Directions for Green ICT

Making ICT more sustainable through improved efficiency, more circularity and conscious use.

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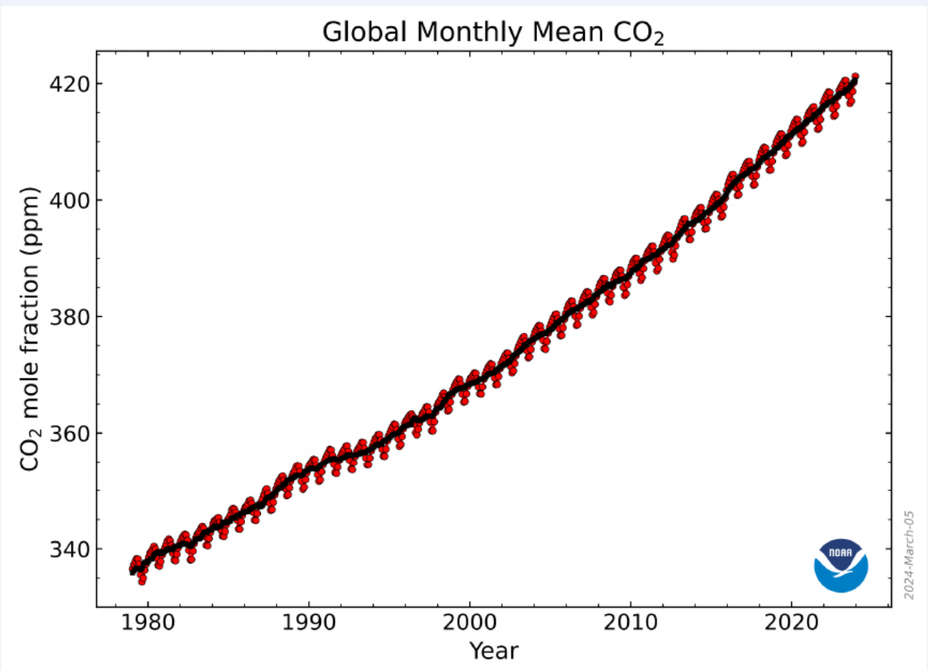
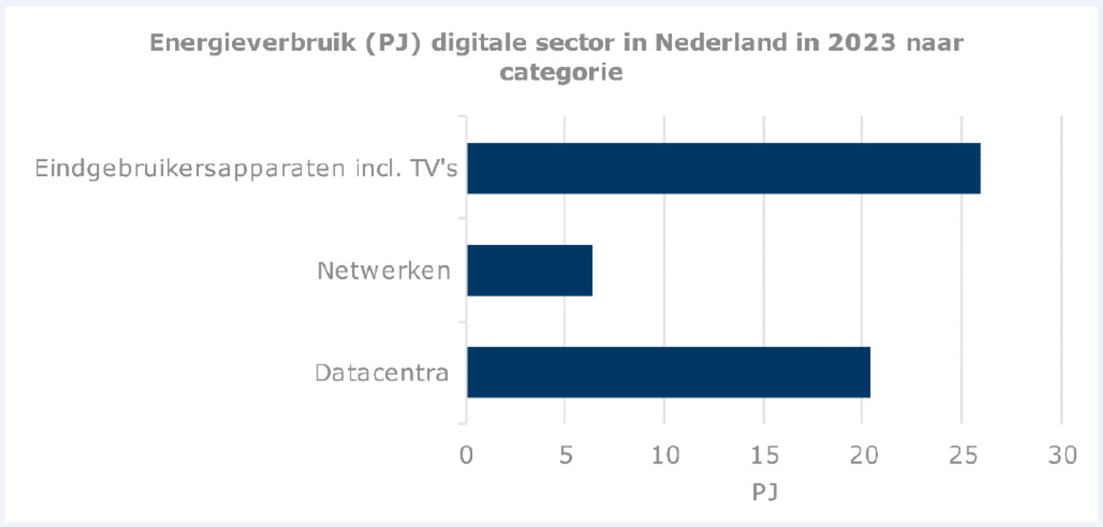


Climate change is due to air particles

- CO2 particles in the atmosphere are linearly increasing still.
- This is a global challenge: the climate does not care where the particles are emitted.
- ICT's footprint is estimated at approximately 4% of global GHG emissions.

Goal: Reduce electricity use

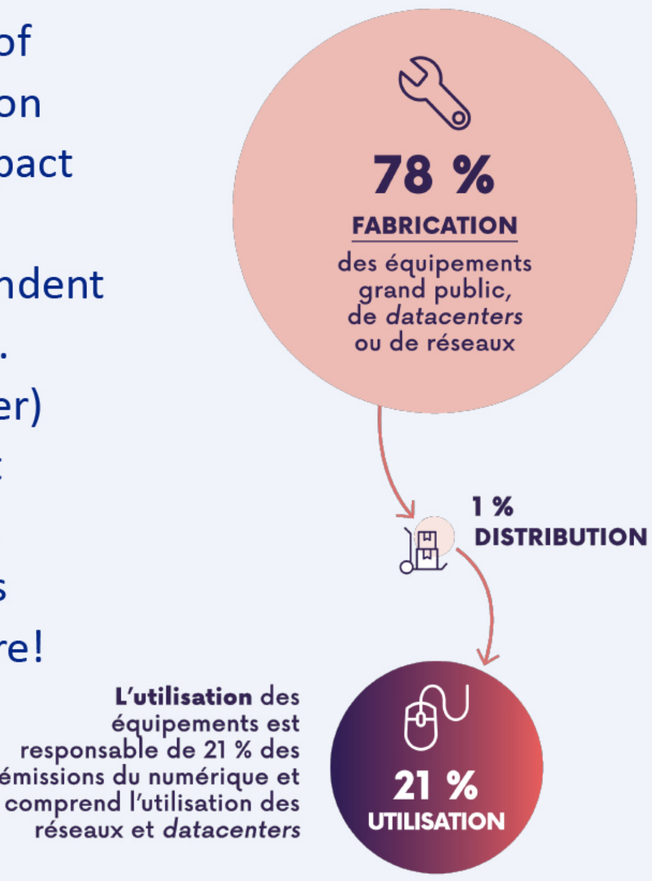
- ICT uses currently roughly 11% of all NL electricity.
- Impact is slowly reducing to due changes in the energy mix (increaser of green vs grey electricity).
- Reducing use will help get to 100% green faster!



Dialogic, De digitale voetafdruk: Emissies van de digitale sector in Nederland in (toekomst)perspectief, september 2023

Goal: Reduce hardware impact

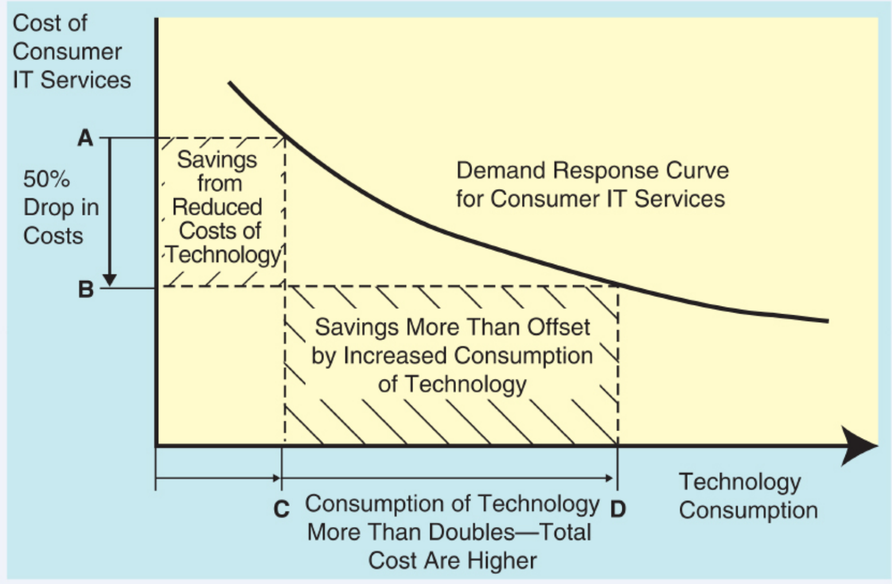
- The CO2 footprint of hardware production is similar to the impact of using it (in The Netherlands, dependent on the energy mix).
- Circularity (R-Ladder) is called for to limit hardware's impact.
- Hardware impact is still hard to measure!



ARCEP, the state of the internet in France, volume 3, July 2023

Beware of quick wins!

- More efficiency often leads to more use. This is called 'Jevon's Paradox' (see figure).
- This is a main example of a 'rebound effect': what happens exactly when parameters change?
- Ultimately, changes should lead to less CO2 in the air!



Corcoran, P. M. (2012). Cloud computing and consumer electronics: A perfect match or a hidden storm?[Soapbox]. IEEE Consumer Electronics Magazine, 1(2), 14-19.

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