

Press release

THE ENVIRONMENT

Understanding differences in the methodologies used to measure the digital environmental footprint: the Technical Experts Committee managed by Arcep and ADEME publishes its first report

Paris, 3 April 2023

Today Arcep is publishing the first report from the Technical Experts Committee on measuring the digital environmental footprint. Titled “Assessment of the environmental impact of the ICT sector: Methodological gap analysis,” it delivers an analysis of the different methodologies used to measure the digital environmental footprint, identifies their limitations and suggests avenues for improvement. The goal of the report is to share a common approach to measuring the environmental impact of the ICT sector and thereby improve its modelling.

What explains the disparities in the results obtained by the studies devoted to measuring the digital environmental footprint?

Multiple studies set out to assess the digital environmental footprint, but their findings can vary. In its report, the Technical Experts Committee suggests several reasons for these disparities:

- **The availability and quality of the data** used in the different studies;
- **The lack of methodological anchoring.** [The first volume of the study published by ADEME and Arcep in 2022](#) reveals that, of an exhaustive sample of 132 studies published after 2010, most make no mention of references or benchmarks (91%), some merely mention one or several references but do not apply them (7%) and a very few (2%) explicitly state that they fully or partially employ a reference document or benchmark to assess environmental footprints.
- **The low rate of use of the reference assessment methodology promoted by the International Telecommunication Union (ITU): standard ITU-T L. 1450.** ITU defined Recommendation L.1450 in 2018, which sets out the methodological approach to assessing the ICT sector’s carbon footprint based on a life cycle analysis. Although considered by experts as the authoritative text on the matter, this standard is not sufficiently used by impact studies.

Three studies examined through the lens of the International Telecommunication Union (ITU) reference suggested avenues for increasing its appropriation

Having reached this conclusion, the Technical Experts Committee created a gap analysis matrix that summarises methodological and data reliability requirements according to the ITU standard. This matrix was then applied to the three studies to illustrate the standard’s applicability:

- a study published by Ericsson in 2018¹;
- a Shift Project² study;
- and an ADEME and Arcep joint study published in 2022³.

The three analysed studies comply to some degree with the ITU standard, notably with respect to the scope of ICT⁴, the approach to calculating embodied emissions (i.e. those generated during the production phase and in the extraction of the required raw materials) and data quality.

¹ [Malmodin and Lundén, “The energy Carbon Footprint of the Global ICT and entertainment and media sectors 2010-2015” \(2018\)](#)

² [The Shift Project, “Note d’analyse – Impact environnemental du numérique: tendance à 5 ans et gouvernance de la 5G” \(2021\)](#)

³ [“Évaluation de l’impact environnemental du numérique in France et analyse prospective – Évaluation environnementale des équipements et infrastructures numériques en France \(Rapport 2/3\)” \(2022\)](#)

⁴ ICT are not synonymous with the digital sector per se. The OECD defines ICT as primarily intended to “fulfil or enable the function of information processing and communication by electronic means, including

Drawing on these analyses, the Technical Experts Committee makes 15 suggestions for improving assessments, which include:

- expand the notion of “environmental impact” to include, in addition to climate change, the protection of biodiversity and other planetary boundaries;
- specify how to incorporate emerging technologies such as Blockchain, artificial intelligence and the Internet of Things into digital environmental impact studies;
- better define the scope of application of standard L.1450 by clarifying the dividing lines between ICT and neighbouring sectors like Entertainment and Media (E&M).

Arcep and ADEME extend their thanks to all of the Committee members, and particularly to the authors of the three studies analysed in this report

Arcep and ADEME extend particular thanks to the Shift Project and Ericsson, both Technical Experts Committee members who agreed to submit their respective studies to this, by definition, critical exercise. This report in no way challenges their analyses as such, but rather employs them as a means to illustrate the applicability of the ITU reference standard, and possible ways to improve methodological harmonisation.

Overseen by Arcep and ADEME, the Technical Experts Committee seeks to promote greater mutual understanding between digital industry stakeholders and environmental protection actors

Chaired by Catherine Mancini, of Nokia, the Committee is made up of digital industry experts (network and data centre operators, equipment suppliers, content and service providers), researchers and environmental think tanks. The Committee’s experts seek to provide technical insights and offer recommendations on topics and issues relating to measuring and assessing the digital environmental impact.

The Committee’s analyses inform the work that Arcep does as part of its “Achieving digital sustainability platform,” and particularly its [annual “Achieving digital sustainability” survey](#) which compiles indicators collected from telecom operators, to monitor the evolution of their environmental footprint.

Associated documents

- [Evaluation de l’impact environnemental des TIC : analyse des écarts méthodologiques](#)
- [Assessment of the environmental impact of the ICT sector: methodological gap analysis](#)
- [Find out more about the Technical Experts Committee for assessment](#)

Arcep at a glance

The Regulatory Authority for Electronic Communications, Postal Affairs and Print Media Distribution (Arcep), a neutral and expert arbitrator with the status of independent administrative authority (IAA), is the architect and guardian of internet, fixed and mobile communications and postal networks in France.

transmission and display”. This does therefore not include economic activities tied to the media/content sector, which include content and broadcasting production and publication activities.

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