Ecodesign and Energy Labelling for digital products

Contribution to the European Commission regulations under preparation

July 2024

While digitalisation can be considered as a driver supporting the decarbonisation of some other sectors, the ICT sector cannot be exempted from making its own efforts and reducing its own impact. **It accounts for almost 4% of total greenhouse gas (GHG) emissions worldwide**[1] and these emissions are expected to rise only further: it is estimated that **digital carbon footprint could triple in France between 2020 and 2050**, if no action is taken[2]. **Devices constitute the largest part of this carbon footprint**, in particular those that are most commonly used such as smartphones or computers. Beyond GHG emissions, ICT is also responsible of other forms of environmental impacts such as metals and minerals depletion, water consumption or e-waste generation[3]. To reduce the environmental footprint of devices and more broadly of the ICT, the adoption of ecodesign principles by the industry is a necessary step for improving the sustainability of both digital products and services. The EU has been at the forefront of ecodesign regulation in this regard, as demonstrated once again by the new Ecodesign for Sustainable Products Regulation (ESPR)[4].

In the context of the preparation by the European Commission (EC) of non-legislative acts on ecodesign and energy labelling of computers and of the foreseen Ecodesign and Energy Labelling Working Plan for 2025-2026, this note puts forward three main policy proposals developed upon Arcep's work on sustainability since 2019:

1) **Mitigating software obsolescence of computers by ensuring long-term support of their operating systems**;
2) Adopting a **global approach to ecodesign policies for ICT by extending requirements to digital services**, given the interdependencies between the elements of the digital value chain necessary for their operation (*i.e.,* devices, networks and data centres);
3) **Expanding ecodesign requirements and energy labelling to other digital products** (*e.g.*, routers and set-top boxes), following the existing EU framework for smartphones, tablets and computers.

In the context of **data-driven regulation**, Arcep also stresses the importance of **environmental information** – such as EU labels – in creating positive incentives on the EU market for sustainable products. All the different categories of environmental impact when designing such information tools, based on the EU's official "multicriteria" methodologies addressing the multidimensional aspects of the environmental footprint of ICTs should therefore be considered.

---

[1] The Shift Project, Lean ICT : Pour une sobriété numérique, octobre 2018 ; GreenIT.fr, Empreinte environnementale du numérique mondiale, septembre 2019 ; CGE, Réduire la consommation énergétique du numérique, décembre 2019.

[2] "ADEME-Arcep study: assessment of the digital environmental footprint in France in 2020, 2030 and 2050", Press kit, March 2023, p.10. ADEME-Arcep study: assessment of the digital environmental footprint in France in 2020, 2030 and 2050 - PRESS KIT (March 2023)

[3] *Ibid.*, p.3.

[4] Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC, OJ L, 2024/1781, 28/06/2024. Regulation - EU - 2024/1781 - EN - EUR-Lex (europa.eu)

1 Mitigating the consequences of software obsolescence by revising the framework for the ecodesign of computers

In 2020, **devices account for 65% to 90% of the French digital environmental footprint** according to an Arcep-ADEME study and **22% of the French digital carbon footprint is due to approximatively 100 million computers**[5]. **The manufacturing phase of consumer devices, but also of data centres and networks, account for nearly 80 % of the digital carbon footprint[6]. Therefore, any action that can be taken to extent the lifespan of devices and reduce the high renewal rate must be considered to reduce their environmental footprint.** The software obsolescence has been identified as one of the reasons why consumers change devices, as pointed out in Arcep's Digital barometer[7]. To remedy this, the **French General policy framework for the ecodesign of digital services (RGESN)**[8], a set of best practices published in May 2024, underlines the positive impact of long-term software support in favor of extending the lifespan of devices, and especially the importance of keeping usable digital services on older model devices. Thus, Arcep invites the Commission to **consider the impact of operating systems on the obsolescence of devices** and would be **in favor of the definition of ecodesign requirements for operating systems**.

In this regard, the European Commission may consider **requiring computer manufacturers and distributors to ensure the maintenance of the operating systems they choose to preinstall on their devices**[9]. Therefore, **computer manufacturers and distributors will have to provide – free of charge – essential security updates for their use, for a period of 10 years from the end of placement on the market of the associated computer**. On the one hand, this obligation echoes the existing framework established by the Commission regulation (2023) on ecodesign requirements for smartphones and tablets[10] and on the other hand, it refers to the minimum duration recommended in the RGESN for compatibility of digital services with old devices[11].

While the lifespan of computers can easily exceed 10 to 15 years, the main devices distributors currently provide their devices with an operating system which may not be used safely during its lifetime due to the cessation of security updates. The end of the support period for the computer's operating systems is leading IT managers to renew by anticipation laptop and desktop computers only to mitigate cybersecurity risks although they might still carry out the tasks they were supposed to[12]. Hence, the proposal for a mandatory 10-year period availability for security update of computers' operating system would have multiple benefits:

1. **User Empowerment and Purchasing Power benefits**: Users would not have to change equipment prematurely and would still be able to access the applications of their choice;
2. **Cybersecurity benefits**: Eliminating the incentive to use a device with an unsupported operating system that may present cybersecurity vulnerabilities;
3. **Environmental benefits**: Significantly reducing GHG emissions, e-waste, and the consumption of water and minerals/metals related to the life cycles of computers.

---

[5] "ADEME-Arcep study: assessment of the digital environmental footprint in France in 2020, 2030 and 2050", *op. cit.*, p.5 and p.7.

[6] *Ibid*., p.3

[7] Arcep, Arcom, CGE, ANCT, Digital barometer, 2023 edition, https://www.arcep.fr/cartes-et-donnees/nos-publications-chiffrees/barometre-du-numerique/le-barometre-du-numerique-edition-2023.html

[8] "General policy framework for the ecodesign of digital services", Arcep and Arcom in connection with ADEME, May 2024. General policy framework for the ecodesign of digital services version 2024 (arcep.fr)

[9] Even if the operating system chosen by the manufacturer is edited by a third-party company.

[10] Commission Regulation (EU) 2023/1670 of 16 June 2023 laying down ecodesign requirements for smartphones, mobile phones other than smartphones, cordless phones and slate tablets pursuant to Directive 2009/125/EC of the European Parliament and of the Council and amending Commission Regulation (EU) 2023/826, OJ L 214, 31/08/2023, p. 70 & 82. Regulation - 2023/1670 - EN - EUR-Lex (europa.eu)

[11] Criterion 2.2. of the RGESN is as follows, "[t]he digital service must limit its contribution to their obsolescence by running on the oldest possible devices" which suggest that it must be using the latest version of the operating system offered by the device. It specifically recommends compatibility to computers sold 10 years ago at minimum, taking into account the expected lifespan of these devices. *op. cit*., p. 37.

[12] For example, Microsoft, holding about 70% of the operating system market share announced in early 2024 that support for Windows 10 will end by October 2025, while Windows 11 is only be compatible with devices from 2018/2019 onwards. Canalys Research estimates in a recent study that in the nearly two-year period until Microsoft's official end-of-support date for Windows 10 – 14 October 2025 – roughly a fifth of devices will become e-waste due to incompatibility with the Windows 11 OS. This equates to 240 million PCs. Apple, with a 17% market share, offers security updates for a short period and requires high hardware specifications for new OS versions, typically supporting a device for 6 to 8 years.

More broadly, the European Commission may look upon **all software maintenance levers in its revision of ecodesign requirements for computers**. For example, the ability of market players to provide clear information on the types of updates offered, distinguishing essential updates (corrective, security) from non-essential updates, the absence of negative consequences (especially on storage capacity and RAM) following the installation of functional updates on device's performance, and a firmware management policy that extends product lifespan should be considered. Furthermore, when an operating system is no longer maintained, it would also be important to encourage device suppliers not to obstruct, but rather to facilitate, the use of alternative operating systems.

Complementary to ecodesign requirements and the mitigation of software obsolescence, **data-driven tools** – such as labels, index or public data bases – represent efficient levers to create positive incentives on the markets for the development of sustainable products[13]. Arcep therefore welcomes a future delegated act on energy labelling for computers. The European Commission is, however, invited to examine **the plurality of environmental impacts related to the whole life cycle of computers** (*e.g.,* by considering other impact categories such as climate change and resource depletion). It would indeed be relevant to consider the inclusion of a durability/repairability index in this labelling in line with existing work and methodologies, especially the Product Environmental Footprint Category Rules (PEFCR) developed by the Joint Research Center.

2 Adopting a global approach to ecodesign policies, in particular by extending ecodesign requirements to digital services

With the Ecodesign for Sustainable Products Regulation (ESPR)[14], an important step was taken by enlarging the scope of ecodesign requirements from energy-related products to all material products. The implementation of this regulation will be a challenge and could be a milestone for the achievement of European environmental targets.

At the same time, services, which can be referred to as immaterial products, are also a component of the environmental footprint of our economies. When consumers access a digital service such as an application, it is through the use of several devices as well as the use of networks or data centres for internet connection, computation, or data storage. Obviously, these digital infrastructures need energy, emit greenhouse gases, and also require raw materials for their construction. As a result, despite the greatest possible efficiency, the more digital services are used, the more resources are ultimately required. Digital services are, thus, a key element in understanding the environmental footprint of the ICT sector and current growth trends, and should therefore be given greater attention, including from a regulatory perspective. To illustrate this point, one of the key messages of the Arcep-ADEME study **is the importance of taking into account the interdependencies between the environmental footprint of infrastructures and that of devices, which are interrelated since they both support the use of services**[15].

This leads to suggest that environmental issues should be included in the design of digital services, to enable the conciliation of environmental targets and digitalisation. In other words, Arcep would like to call on the European Commission to **adopt a global approach to ecodesign policies, by including services – *e.g.,* digital services – in the scope of its future initiatives**. This will be consistent with the objective of reflecting on measures relating to the environmental impacts of Content Applications Providers mentioned in the European Commission's White Paper "How to Master Europe's Digital Infrastructure Needs?"[16].

[13] The relevance of *data-driven* regulation tools to achieve digital sustainability has been raised in several work of Arcep and BEREC such as Arcep report "Achieving digital sustainability" (2020), BEREC report "Assessing BEREC's contribution limiting the impact of the digital sector on the environment" (2022), BEREC report "ICT sustainability for End-Users"(2024).

[14] Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC, *op. cit.*

[15] "ADEME-Arcep study: assessment of the digital environmental footprint in France in 2020, 2030 and 2050", *op. cit.*

[16] European Commission, White Paper, "How to master Europe's digital infrastructure needs?", COM(2024) 81 final, Brussels, 21/02/2024. White Paper - How to master Europe's digital infrastructure needs? | Shaping Europe's digital future (europa.eu)

As highlighted by the French General policy framework on the ecodesign of digital services (RGESN), applying this approach would allow to:

1. Increase **devices' lifespan** by avoiding risks of software obsolescence and promoting sustainable and interoperable standards. A clear illustration is the importance of providing sustainable operating systems for the durability of digital devices as elaborated above;
2. **Optimise the resources needed for digital services' life cycle and use**. It would limit the growth of new capacities related to devices and to digital infrastructures such as data centres, by reducing the pressure on this equipment. For instance, this means limiting the impact of energy-intensive content such as video through more efficiency and sustainable choices;
3. **Enable consumers to fully control their use of digital services by limiting the attention-grabbing techniques** which can lead to overconsumption such as scrolling or auto-play designs;
4. Finally, **encourage stronger environmental transparency** of digital services by encouraging players to publish more data on their services' footprint and their ecodesign performance.

While all the progress made at European level to address the ecodesign of products, including digital products, are to be welcomed, Arcep believes the European Commission, with the support of national authorities, can have a leading role in providing better information on the impact of digital services on the environment and in developing incentives or regulatory measures for the ecodesign of digital services on the EU market.

3 Expanding ecodesign requirements and energy labelling to other digital products with significant environmental impacts

The European regulatory frameworks on ecodesign and energy labelling are powerful policy instruments to support the greening of European economies, while fostering consumer awareness of the differentiated environmental impact of their products. In this context, Arcep would like to invite the European Commission to **consider including all digital products with significant environmental impacts to its frameworks.**

In its annual survey "*Achieving digital sustainability*", Arcep has identified that, **in France, routers and set-top-boxes consumed 3.3 TWh in 2022**. This represents **more than three times the consumption of fixed networks**, and constitutes 0.7% of the overall electricity consumption in France[17]. The **instantaneous electricity consumption can also vary greatly depending on the model**, ranging from 3.6 to 25 W for routers, and from 2.3 to 17.7 W for set-top boxes. Making this data available to consumers through **labelling** would highlight this wide range of electricity consumption between the two. Beyond the extension of labelling requirements, there is a considerable scope for progress in reducing the power consumption of these digital products, through ecodesign requirements but also **the development of functions for automatic deep standby**. These measures could be applied only to routers and set-top boxes new to the market, to avoid any rebound effects or incite to renew the current fleet of boxes.

On the basis of the above findings and as they have significant environmental impacts, it would thus be a positive development to extent **ecodesign requirements to routers and set-top boxes** (incl. for digital terrestrial television) **to reduce their environmental footprint, especially their energy consumption**. A logical next step in addressing the environmental impact of all digital products could be to consider including network radio equipment within this framework, as they also represent a significant part of the digital environmental footprint (networks accounting for 4 to 14% of the ICT sector's environmental footprint[18]).

[17] Arcep, « Enquête annuelle 'Pour un numérique soutenable' », Third edition, *op. cit.*

[18] "ADEME-Arcep study: assessment of the digital environmental footprint in France in 2020, 2030 and 2050", *op. cit.*