



FSFE's position to Public Consultation on the BEREC Draft
Report on Sustainability: Assessing BEREC's contribution to
limiting the impact of the digital sector on the environment

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Introduction

Comments on Chapter 1 (Introduction)

The Free Software Foundation Europe (FSFE) acknowledges the BEREC initiative to assess and better understand the impact of the digital sector, including electronic communications networks and services, on the environment and setting an outline for BEREC activities to environmental sustainability of the sector. We are pleased to collaborate with BEREC for the present report on the sustainability of the Information Communications Technology (ICT) sector and share our experience with digital sustainability. Our position paper offers recommendations that could be further used to improve environmental transparency and data accuracy on the ICT sector's environmental footprint, in particular:

- Considering **software sustainability** as a fundamental element of any regulatory approach to ICT sector. Free Software is key to achieve the ability to reuse and repurpose of scarce digital resources in an innovative and sustainable way.
- Considering **hardware sustainability** as a central element for saving natural resources by expanding the possibilities of hardware usage and extending the usage time of hardware, particularly end-user terminal equipment. Enabling device neutrality and right to repair on equipment market fosters not only fair competition but innovative and sustainable solutions for telecommunications.
- Considering **regulatory practices** that have positive impact on fair competition and sustainability of telecom markets. For instance, fostering cooperation with NRAs for implementing rules safeguarding freedom of terminal equipment.

Case study: freedom of terminal equipment and sustainability

Comments on Chapter 2 (Case Studies)

Since 2013, the FSFE has been working to protect end-users rights to use and deploy personal routers and modems for internet connection. "[Router Freedom](#)" has a close and direct connection with sustainability by mitigating e-waste and increasing the lifespan of terminal equipment. Router Freedom is an example we want to highlight in promoting this right in Europe and how the current



telecom regulatory framework negatively impacts sustainability by restricting freedom of terminal equipment which directly impacts the sustainability of the whole telecom sector.

Freedom of terminal equipment is the principle that people are free to choose and use their private equipment (modems and routers) to connect to the Internet. Article 3(1) of Regulation 2015/2120 as well as Recital 3 of Directive 2008/63/EC unambiguously demand to give end-users the right to use their own terminal equipment. When accessing the Internet, end-users should be free to choose between various types of equipment. Internet Access Providers (IAPs) should not impose restrictions on the use of terminal equipment connecting to the network in addition to those imposed by manufacturers or distributors of terminal equipment.

The BEREC Guidelines on NTP (BoR (20) 46), which were designed in accordance with Article 61(7) of the EECC, provide guidance to NRAs when they specify the location of the NTP. The NRAs should take utmost account in defining the NTP in three pre-determined points (A, B and C). The [FSFE collaborated with BEREC](#) in submitting a position when the draft guidelines were proposed, highlighting the importance of having the NTP at point A as a standard to be implemented by NRAs.

However, after two years of implementation, the regulatory framework remains fragmented. At the time of elaboration of the BEREC Guidelines of the NTP, the FSFE warned that the listed “technological necessities” by which the NRAs could establish the NTP on locations diverse from point A, could limit freedom of terminal equipment and harm not only end-users’ rights but also the sustainability of the ICT sector.

When IAPs impose specific models on users - which are not best suited for their needs - it can mean unnecessary expense. For the environment, this is unfavourable due to the build-up of hardware waste even though other devices would still work.

During the last years, the FSFE experience has demonstrated that no objective technological necessity is observable to exclude the free choice of routers/modems. On the contrary: in countries where Router Freedom is established, a significant number of end-users decided to make use of this freedom, a vital market for terminal equipment is evolving, and there were no such breakdowns in neither the cable nor the DSL network.



FSFE [monitoring map](#) for freedom of terminal equipment in Europe

BEREC has mentioned in the sustainability report some regulatory actions under the EEC and sectorial directives seem to have had positive effects on the environment (e.g. Article 44 of the EEC). We encourage the regulator to consider other regulatory ways directed to software and hardware re-use on telecom markets that would enable sustainable approaches and safeguard end-users rights. Collaboration with NRAs in achieving a favourable regulatory landscape for terminal equipment would positively affect the more efficient use of internet devices and equitable use of the public network.

The FSFE recommends regulatory practices that have positive impact on fair competition and sustainability of telecom markets. For instance, fostering cooperation with NRAs for implementing rules safeguarding freedom of terminal equipment is an example on how regulatory frameworks can be beneficial for digital sustainability.

Software and hardware sustainability and the ICT sector

Comments on Chapter 5 (Key Finding of the external study)

The FSFE welcomes BEREC recognizing the importance of environmental issues considering the ICT and the coordinated efforts with National Regulatory Agencies (NRAs) to identify sustainable development goals for the telecommunications sector. Particularly positive is the elaboration on possible regulatory frameworks as proposed by art. 44 of the European Electronic Communications Code (EECC) and sectorial directives for developing more sustainable digital environments.

Complementarity to BEREC's report the FSFE recommends including in the agenda of the telecom sector sustainability the impact assessment of open technologies, particularly Free Software (also known as Open Source) for the industry, public sector and end-users. We encourage BEREC to consider the following propositions for a fair and sustainable regulatory approach in cooperation with NRAs in Europe.

Key Principle 1 - Software design and Free Software licensing are key to enable repairability and extend usage lifetimes of electronic devices

"Software obsolescence" is a major problem regarding the usage lifetime of many devices, including those used for internet connection as smartphones, routers and modems. Software obsolescence comes into effect when hardware manufacturers stop supporting the software of their devices. Instead of updating the software on their previously sold devices, the same manufacturer often publishes a new device with a successive version of the software. In addition, the ability to install the new version on a previous device is artificially restricted.

The practice of software obsolescence also often comes with interoperability problems. If manufacturers do not mind backwards compatibility of electronic devices, newer software versions are not able to communicate with previous ones. Meaning that even if users decide to keep their old device running instead of buying new ones they very soon become incompatible with newer devices - although their devices work technically pretty well.

Besides, an obligation of devices having to use [Open Standards](#) would be key to solve the problem of non-interoperability of devices. It would further allow to let devices from different



manufacturers communicate with each other. To enable interoperability, manufacturers must ensure that any data necessary to run a device's primary function is compatible with and possible to import/export in open standards.

Key Principle 2 - The universal right to install any software on any device and the publication of source code of drivers, tools and interfaces are fundamental for extending devices' lifespan

Many manufacturers prevent users from installing third party software or operating systems by artificially locking down devices. Although the right to install any third party software on any device would enable users to choose software that helps them to keep running their devices even if the initial manufacturer has decided to stop their support. It would furthermore enable volatile aftermarkets and enhanced competition regarding re-use of devices.

For the ability to reuse and repurpose resources in a creative and sustainable way, the universal right to install and develop any operating system and software is fundamental. Legal, technical, commercial or other obstacles to reuse these devices for any purpose should be discouraged.

Right to repair is crucial for extending the lifespan of devices, which directly affects sustainability. For a proper implementation of right to repair, the publication of source code of drivers, tools and interfaces of any device is key. More and more often repairability of devices is not possible because repair shops and services do not have access to the software tools necessary to analyse and repair a device. Same goes for the drivers that are necessary to run certain parts or modules of a device or replacing them with spare parts from another manufacturer. The situation worsens with the introduction of serialisation of spare parts by manufacturers.

Smaller components of a device often require specific drivers, tools, and interfaces to operate. Users need full access and free reusability of the source code of those drivers, tools, and interfaces to analyse and integrate a device within a set of interconnected devices from different manufacturers. Source code reusability is also key to exercise the full right to repair for any third-parties from professional repair shops to repair cafés to end-users.

A free license is any license that gives everyone the four freedoms to use, study, share and improve the software, including [Free and Open Source Software licenses](#). The obligation to publish drivers, tools, and interfaces under such a free license after market entry are key for full access to



our devices and exercising the universal right to repair: It enables repair services and users to have full access to the device and to replace spare parts and install third-party software. In addition, Free Software interfaces will additionally support the interoperability of devices.

Key Principle 3 - Device Neutrality is necessary for non-discriminatory environment for digital services and software applications in devices

While the FSFE supports BEREC in inquiring impact on sustainability of communication networks throughout their life cycle, in particular the three phases mentioned in the report (deployment, operation and decommissioning, p.30), it is also necessary to consider policy interventions on to ensure competition, consumer protection and freedom of choice. In this sense, the FSFE also welcomes the work BEREC has done evaluating the Digital Markets Act, which will set new standards on how large internet platforms behave in relation to access to devices.

The telecom sector has much to gain in terms of sustainability with [Device Neutrality](#), a term that has been introduced to describe a non-discriminatory IT environment in that any service and software application is treated equally within the running operating systems, its dominant platforms and their respective hardware companies.

This aspect is particularly important for any user or third party not interested in modifying hardware or software systems but who wants to benefit from more competition and a more vibrant software market. Hardware and operating systems, but also browsers and app-stores, have become the gatekeepers of interaction between users and services. Users, developers, and third parties however shall have the freedom to access and offer information and services within these platforms and not be blocked for any competitive reason. The free choice of services would help the sustainability of our digital services and devices by opening up markets and innovation. If consumers buy, for example, a smart device and can afterwards decide to use the pre-installed - even proprietary - operating system but not the pre-installed cloud connection to its initial manufacturer but to a third-party service provider instead, this could amplify competition, users' freedom, and ecologically friendly options. It would in particular allow a more diverse usage of existing hardware and the assembling of hardware in a more modular manner.

An obligation that connected services as well as the software on connected devices and applications must offer interoperability and full functionality of a device's initial purpose with the use of Open Standards would be key to open up competition and consumer protection.

Key digital sustainability take-aways for the telecom sector

- Software design and Free Software licensing are key to enable repairability and extend usage lifetimes of electronic devices.
- The universal right to install any software on any device and the publication of source code of drivers, tools and interfaces are fundamental for extending devices' lifespan.
- Device Neutrality is necessary for non-discriminatory environment for digital services and software applications in devices.

Conclusion

Comments on Chapter 6 (Conclusions and outline for BEREC's future work on sustainability)

Overall, the FSFE acknowledges the BEREC initiative to develop approaches for the sustainability of ICT sector. The FSFE also supports and welcomes the involvement of stakeholders on this process. The FSFE position offers recommendations that could be further used to improve environmental transparency and data accuracy on the ICT sector's environmental footprint, in particular:

- Considering **software sustainability** as a fundamental element of any regulatory approach to ICT sector. Free Software is key to achieve the ability to reuse and repurpose of scarce digital resources in an innovative and sustainable way.
- Considering **hardware sustainability** as a central element for saving natural resources by expanding the possibilities of hardware usage and extending the usage time of hardware, particularly end-user terminal equipment. Enabling device neutrality and right to repair on equipment market fosters not only fair competition but innovative and sustainable solutions for telecommunications.
- Considering **regulatory practices** that have positive impact on fair competition and sustainability of telecom markets. For instance, fostering cooperation with NRAs for implementing rules safeguarding freedom of terminal equipment.



About the FSFE

Since 2001, the FSFE has been working to protect and enhance freedoms of technology users in Europe and deeply involved on defending the rights of end-users to choose and use terminal equipment for internet connection. In the last years, the FSFE has developed and conducted several initiatives oriented to the sustainability of software and hardware, including technologies with direct impact on the telecommunications sector. Among them:

- The comprehensive study "[On the Sustainability of Free Software](#)", focused on the analysis of how Free Software (also known as Open Source) impacts the sustainability of IT infrastructures, including policy recommendations for a more sustainable digital society.
- The [Router Freedom](#) activity, aimed to protect end-users rights in regards to terminal equipment, the sustainability and competition on router markets.
- The [Radio Lockdown Directive](#) activity, aimed to safeguard Free Software on radio equipment, which have positive consequences for the environment.
- The [Upcycling Android](#) initiative to overcome software obsolescence and to extend the lifespan of hardware - mainly smartphones - with the help of Free Software.

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