

## Common chargers – Revision of the Radio Equipment Directive

Impact assessment (SWD(2021) 245, SWD(2021) 246 (summary)) accompanying a Commission proposal for a Directive of the European Parliament and of the Council amending Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment (COM(2021) 547)

This briefing provides an initial analysis of the strengths and weaknesses of the European Commission's [impact assessment](#) (IA) accompanying the above-mentioned [proposal](#).<sup>1</sup> The proposal (included in the [2020 Commission work programme \(Annex 1\)](#) and in the Joint Declaration on EU Legislative Priorities for [2021](#) and for [2022](#)) was submitted on 23 September 2021 and referred to the European Parliament's Committee on Internal Market and Consumer Protection (IMCO).

The first effort at EU level to tackle the inconvenience to users and the unnecessary waste generated by the many different mobile phone charging technologies was a memorandum of understanding (MoU), facilitated by the European Commission and signed by several major phone companies in 2009. This MoU defined the measures to be taken to allow mobile phones to be charged through a common charger interface. A new MoU proposed by the industry in 2018<sup>2</sup> sought to continue to enable smartphones to be charged through a common charging interface and to transition to a new common charging solution. However, both MoUs still allowed leeway for significant variation.

In its [2020 resolution](#) on common chargers,<sup>3</sup> the European Parliament observed that the single market was still 'not exploiting its full potential, and continuing fragmentation of the market for chargers for mobile phones and other small and medium-sized electronic devices translates into an increase in e-waste [electronic waste] and consumer frustration'. The Parliament therefore called on the Commission to take action to introduce a standard for a common mobile phone charger.

### Problem definition

The IA identified two problem clusters driving the initiative, i) **consumer inconvenience** and ii) **environmental issues**. Under the first problem cluster, the IA identifies five related problems:

- 1 **The lack of interoperability at the device end.** According to the IA, even though fragmentation of device interfaces was partially solved by the initial MoU, incomplete harmonisation is still a source of inconvenience and confusion for consumers. In addition, the lack of a common interface presents a risk in terms of consumer lock-in, e-waste and additional consumer expenses that might incite consumers to buy counterfeit products.
- 2 **The lack of interoperability in relation to charging performance.** The IA states that, despite the broad implementation of the USB PD protocol,<sup>4</sup> the existence of some proprietary charging protocols, coupled with inadequate labelling, can lead to issues such as reduced charging speed or even to the inability to charge mobile devices.
- 3 **The lack of interoperability with other portable devices** with similar charging characteristics to mobile phones, even though – according to the IA, basing itself on a supporting mapping exercise – the adoption of a standardised interface for mobile phones and other small portable devices (e.g. tablets, e-readers) appears to be possible.

- 4 **Safety issues and counterfeit chargers.** The IA argues that there is a substantial market for counterfeit external power supply (EPS) and cables. This results in losses to holders of intellectual property rights, poses serious safety threats to consumers and the environment, and causes risk of damage to devices.
- 5 **Limited unbundling.** According to the IA, despite the commitments made by some manufacturers in late 2020 to unbundle mobile phones and EPS, most devices are still sold together with a charger.<sup>5</sup> The IA argues that not only does this result in a higher number of chargers than consumers need and would buy in a well-functioning market but also in missed opportunities for taking advantage of environmental and economic benefits.

In regard to the problem cluster concerning **environmental issues**, the IA points out that bundling and the existence of a higher number of chargers than consumers need implies that consumers' old chargers become unused or are disposed of once a new device is purchased, which can lead to a waste of raw materials, while also generating greenhouse gas emissions (GHG) and e-waste.

The IA presents a thorough discussion of the problem drivers, which comprise regulatory failures, market failures (e.g. imperfect information), default bias and enforcement issues related to counterfeit products in the EU. The evolution of the problems in the absence of action to promote a common charging solution has also been comprehensively discussed and largely supported by quantitative estimates. The IA argues that fragmentation of connectors, EPS and charging performance would continue, as proprietary solutions would remain on the market.

On the other hand, as the announcements made by some manufacturers indicate, voluntary unbundling of phones and EPS would increase even without EU intervention. Voluntary unbundling, however, might not be taken up by all manufacturers because of concerns about consumers' reactions. While the net effect would be a decrease in the purchase of stand-alone EPS, the IA still expects materials use and e-waste to increase by 2030 and related GHG emissions to increase until 2023 following a switch to heavier EPS. The IA examines the nature and scale of the problem, distinguishing between different categories of portable devices, and substantiating its findings with references to relevant sources such as industry data, related studies, consumer surveys and interviews with market actors.

## Subsidiarity / proportionality

The IA includes a chapter on subsidiarity presenting the legal basis of the initiative – Article 114 of the Treaty on the Functioning of the European Union (the same as for the act the initiative is meant to amend: the Radio Equipment Directive) – and discusses the necessity and added value of EU action. Moreover, a [subsidiarity grid](#) accompanies the proposal, as recommended in the 2018 [report](#) of the Commission task force on subsidiarity, proportionality and 'doing less more efficiently'.

According to the IA, EU intervention is needed to serve the common interest of consumers and the environment, by ensuring that the products placed on the EU market support the effective and efficient functioning of the internal market, maximise consumer convenience and promote a circular economy. The IA states that Member States lack the tools to impose changes to equipment on the basis of consumer convenience or e-waste. It furthermore reflects on the consequences of Member States acting alone; one such consequence would be the exposure of manufacturers to non-harmonised national initiatives that would lead to obstacles to the free movement of goods.

The IA does not compare policy options on the basis of proportionality, in contrast to what is required by the [Better Regulation Guidelines](#) (BRG). While the explanatory memorandum concludes that the initiative is proportionate, as 'the new or amended requirements do not impose unnecessary burdens and costs on industry', the issue of proportionality is not discussed in a systematic way. Instead, it seems to discuss the proportionality of only two measures (mandatory support of the USB PD charging protocol and unbundling). Proportionality considerations do seem, however, to have informed the IA's choice regarding which devices to include in the scope of the initiative.

The deadline for the submission of reasoned opinions on non-compliance with the principle of subsidiarity was 19 November 2021. By that date, [five national parliaments](#) had concluded their subsidiarity scrutiny, with no reasoned opinions issued regarding the proposal.

## Objectives of the initiative

The **general objective** of the initiative is to **increase consumer convenience and achieve environmental benefits** through common charging and unbundling for mobile phones and other portable devices with similar charging needs (IA, p. 26). The IA lays down five specific objectives linked to consumer convenience (objectives 1 to 5 in the list below) and one specific objective linked to the environment (objective 6) (IA, p. 26):

- 1 To promote interoperability, reducing the fragmentation in terms of end-device connectors of mobile phones and other portable devices;
- 2 To promote interoperability in terms of charging performance, including fast charging;
- 3 To ensure citizens have enough information to allow them to make informed choices when buying a new device;
- 4 To provide consumers with a choice on whether or not to acquire a new charger when they purchase electronic devices;
- 5 To extend the pool of devices within the scope of the act to the maximum possible, taking into account the charging requirements, technologies and uses.
- 6 To reduce e-waste.

From the list above, specific objective 4 does raise doubts as to whether it is broad enough to allow consideration of different policy alternatives.

Contrary to the recommendations for legislative initiatives laid down by the BRG (p. 20), the IA does not define operational objectives that set out the deliverables of the preferred policy option. However, the IA identifies six indicators for monitoring purposes that do appear to have a close link to the specific objectives.

The IA explains how the objectives relate to the identified problems. However, it is worth noting that the IA does not cover issues of safety and counterfeit chargers (problem 4). According to the IA, there are other planned initiatives that are expected to deliver on this matter and whose effectiveness still has to be assessed. Thus, in line with the 'evaluate first principle', the IA opted not to address problem 4 through a specific policy option (IA, p. 28). In addition, the objectives appear specific, measurable, achievable (as the IA itself concludes in its comparison of options), relevant and time-bound (the Commission is to draw up a report in 2028 examining the implementation of the initiative, with possible earlier evaluations).

## Range of options considered

Apart from the baseline (option 0), the IA retained five policy options for assessment. For the baseline scenario, the IA assumes that no EU action will be taken and thus, that the 2018 MoU will remain the only tool through which to transition to a common charging solution for smartphones. According to the IA, the 2018 MoU would only address specific objective 1 on a voluntary basis, while leaving the other specific objectives unaddressed, and will thus 'not lead to full interoperability' (IA, p. 29). The options differ across three dimensions, for which either a mandatory action or no action is envisaged, as shown in Table 1 below. A sub-option regarding the scope (either narrow or broad) of the initiative in respect to the range of devices covered is also considered for options 1 to 5; under the narrow scope sub-option the initiative would concern mobile phones only, while under the broad scope sub-option the initiative would also cover other devices with comparable charging characteristics.

Table 1 – Range of retained options (the preferred option is shaded in blue)

Policy option / Dimension	Harmonising the end-device connector	Supporting the relevant charging protocol on the end device and informing consumers about charging performance	Making available on the market at least the unbundled solutions
Option 0	No action	No action	No action
Option 1	Mandatory <sup>(1)</sup>	No action	No action
Option 2	No action	Mandatory <sup>(2)</sup>	No action
Option 3	No action	Mandatory	Mandatory <sup>(3)</sup>
Option 4	Mandatory	Mandatory	No action
Option 5	Mandatory	Mandatory	Mandatory

<sup>(1)</sup> A mandatory measure in this dimension would have USB Type C as the common end-device interface across all devices within the scope of the initiative.

<sup>(2)</sup> A mandatory measure in this dimension would ensure that the USB PD fast charging protocol is supported by the devices and that appropriate information is provided on retail boxes regarding i) the maximum power that the device can take and ii) the support of the common fast charging protocol. The measure excludes equipment that only requires reduced power inputs (5W or less).

<sup>(3)</sup> A mandatory measure in this dimension would require manufacturers to supply unbundled solutions (i.e., selling the device without the EPS), but would continue to allow them to also offer a bundled version. Cables could still be provided in a bundle.

Source: Impact assessment (p. 30).

The three dimensions of the options seem to derive logically from the initiative's specific objectives. All dimensions and policy options are described clearly and in a balanced manner. The IA appears to consider a sufficiently diverse range of policy options, taking into account different combinations across the dimensions. In formulating the policy options, the IA takes into consideration the views of the Expert Group on Radio Equipment and input from public consultations. The IA also describes the different measures and policy options that were discarded at an early stage (e.g. considering information to consumers as a separate dimension), explaining why they were not retained for a more detailed assessment.

The options are compared on the basis of their economic, social and environmental impacts, but also on the basis of their effectiveness in achieving the specific objectives, their efficiency and their coherence with the EU *acquis*. The quantitative impacts of all options (including sub-options) are conveniently summarised in a table facilitating the comparison exercise. Moreover, a set of summary tables illustrates how the different options compare, with the IA scoring their impacts from --- (significant negative impact) to ++ (positive impact). Given the IA's reliance on quantitative estimates (see the Section on 'Assessment of impacts' below), however, additional clarification on their conversion to qualitative scores would have increased the transparency of the qualitative scoring exercise.

In comparing the options, the IA concludes that option 5 achieves the 'fairest trade-off between all the needed achievements' (IA, p. 53), maximising on aggregate the benefits for the environment, consumers and economic operators. Moreover, according to the IA, efficiency is improved if more devices are covered by the initiative. Thus, the IA's preferred option is option 5 with a broad scope.

## Assessment of impacts

The IA examines the economic, social and environmental impact of the options, taking into account the impacts on economic operators, public authorities, consumers and society at large.

When looking at the economic impacts, the IA discusses the expected compliance costs for industry, noting the importance of a sufficient transition period to allow businesses to adapt and thus to mitigate compliance costs such as product redesign. Moreover, the IA quantifies the impacts – arising from changes in the sales of cables and/or EPS – on the industry turnover<sup>6</sup> (worldwide and in the EU) and on distributors and retailers. In addition, impacts on competitiveness and innovation are analysed qualitatively. Administrative costs, impacts on public authorities, and impacts on EU industry and employment are considered negligible under all options.

In the assessment of the social impacts, the IA focusses its discussion on matters of consumer convenience. The IA quantifies the monetary savings brought about by a shift to slightly cheaper solutions (e.g., the price of an unbundled mobile phone is expected to be lower) and a decrease in the purchase of standalone chargers. Moreover, the IA considers product safety in its analysis, screening the options for their (indirect) impact on the sales of counterfeit and illicit chargers.

In regard to environmental impacts, the IA examines the impacts related to the extraction of resources, manufacture, transport, use and disposal of chargers, providing quantified estimates (not monetised) on three indicators: use of materials, generation of e-waste, and life-cycle (cradle-to-grave) GHG emissions.

The preferred option (option 5 with a broad scope) is expected to: bring benefits to EU industry by increasing its yearly turnover by €22 million (+10 %); generate environmental benefits by reducing materials use (2 606 tonnes yearly or 10 %), e-waste (980 tonnes yearly or 4 %) and GHG emissions (184 ktCO<sub>2</sub>e yearly or 14 %); and benefit consumers through yearly savings of €246 million (+4 %).

The IA analysis takes into account a reasonable timespan, from 2024 to 2030, consistent with the timeframe of the initiative. It offers pertinent information about the characteristics of the EU market, industry and consumers, thus establishing a good basis that assists in the interpretation of the results. The IA appears to have examined the relevant impacts in a balanced manner and with substantial quantification. Moreover, the analysis derives logically from the objectives of the initiative and is supported by a clear narrative.

### SMEs / Competitiveness

The IA claims that the impacts of the initiative on small and medium-sized enterprises (SMEs) are small to negligible. Accordingly, no specific mitigation measures were devised for SMEs. To support its argument, the IA refers to the EU mobile phone industry, which is dominated by large mobile phone manufacturers. According to the IA, the options might negatively affect small firms that produce lower-end mobile phones (with a USB micro-B connector and/or USB BC protocol). While the IA contends that this is a small market, it does not provide quantified estimates of the impacts. The IA also analyses the impacts on the SMEs that are a part of the supply chain of mobile phone manufacturers, concluding that the impacts are negligible, without however substantiating its argument by citing the number of affected SMEs or expected resulting costs.

Moreover, the IA does not discuss potential impacts on SMEs that manufacture EPS and/or the other devices that would fall under the broad scope of the policy options. The specific views of SMEs are also not reported in the summary of stakeholder consultation activities. Importantly, the supporting study on the unbundling of chargers (see the Section on 'Supporting data and analytical methods used' below) does report – qualitatively – on the specific impacts for SMEs and identifies 33 SMEs, including 2 manufacturers of charging solutions, that would be directly affected by the initiative. However, the lack of direct correspondence between the options in the supporting study and those in the IA prevents getting a comprehensive overview of the impacts on SMEs.

Impacts on competitiveness are assessed in a dedicated sub-section under the economic impacts, with the IA providing a more detailed analysis for different actors in the value chain in its Annex 4. Most significantly, it is recognised that harmonisation can affect the competitive position of manufacturers using proprietary connectors, as well as small firms producing lower-end phones. In regard to competitiveness, the IA also refers to possible negative impacts on innovation (e.g. in connectors or fast-charging technologies due to non-compliance with the mandatory solutions), which will be mitigated by empowering the Commission to issue delegated acts to



account for possible future technological developments and provide sufficient incentives for joint industry innovation efforts. Moreover, the IA also maintains that the initiative will not generate a non-tariff barrier, noting that imported products will face the same regulation as EU-manufactured products and recalling its alignment with the provisions set out in the World Trade Organization's [Technical Barriers to Trade](#). The preferred option is expected to lead to a decrease of €350 million (-17 %) in the yearly turnover of worldwide industries; the IA, however, does not identify any third countries that this would impact.

### Simplification and other regulatory implications

The IA contextualises the policy environment in which the initiative is set, establishing a clear relationship between relevant EU legislation and the corresponding charger component. Moreover, the IA explains the coherence and complementarity of the initiative with existing and planned EU legislation.

The IA highlights in particular the complementarity of the initiative with the [ecodesign and energy labelling working plan 2020-2024](#), which will include a parallel initiative on a 'universal EPS'. Focusing on the EPS side, the initiative aims to ensure interoperability of chargers with a standardised charging protocol (USB PD) and to provide sufficient information to consumers. Together, the two initiatives would hence cover 'both sides of a cable' and 'contribute to achieving interoperability between the devices and the chargers' (IA, p. 3). The IA argues that by making both initiatives applicable at the same time, coherence and effectiveness would be maximised.

Moreover, the IA notes the interaction of the initiative with the [2020 circular economy action plan](#) and with three concurrent initiatives planned for adoption from the second quarter of 2022 onwards – ecodesign for mobile phones and tablets (new), ecodesign for computers (revision) and energy labelling for mobile phones and tablets (new). The three planned initiatives share the aims of supporting circular models in the EU; reducing e-waste and the environmental footprint by implementing energy efficiency requirements; and enabling consumers to make more sustainable choices by presenting additional information on aspects beyond the scope of the present initiative. The IA also notes the complementarity with potential future work on the management of waste of electrical and electronic equipment (WEEE) under the WEEE Directive, as well as on the circularity of the value chains of electronics under the sustainable products initiative.

### Monitoring and evaluation

The IA describes a monitoring and evaluation strategy that takes into account the specific objectives of the initiative (see the Section on 'Objectives of the initiative' above) as well as related initiatives (see the Section on 'Simplification and other regulatory implications' above). For this purpose, the IA defines a set of six indicators, already identifying sources of data collection. It is worth noting, however, that no indicator is set to monitor potential impacts on innovation and thus to inform about the necessity of additional measures to mitigate such impacts.

The proposal does not amend the existing monitoring and reporting obligations in the Radio Equipment Directive, whose Article 47 tasks the Commission with reporting on the operation of the directive every five years, with the next report scheduled for 2023.

### Stakeholder consultation

The IA provides an overview of the opinions of the different stakeholder groups throughout the analysis, indicating how collected opinions fed into the problem definition, as well as into the range of options considered (both retained and discarded) and into the assessment of impacts. The IA specifies the instances where stakeholders' opinions were split across the different groups, in particular regarding their support for the various retained options. The preferred policy option enjoys overall support from all stakeholder groups, apart from manufacturers, who either oppose further action or prefer an industry-led agreement. These options were discarded by the IA, since they fail to tackle issues related to the environment and consumer inconvenience. A detailed summary and a detailed analysis of consultation activities are presented in Annex 2 of the IA.

A 12-week [open public consultation](#) (OPC) was held from 14 May to 6 August 2019, with the main aim of understanding the problems that stakeholders face due to the current lack of harmonisation, and of gauging their support for EU action on a universal charger. The OPC collected 2 850 responses, mostly from private individuals (97 %) and EU citizens in particular (96 %); participating companies and business were mostly EU-based and 42 % had a direct interest in the initiative.

Other stakeholder consultation activities took place between late 2018 and early 2021, and included in particular: feedback on the [inception impact assessment](#); two consumer surveys based on representative samples of EU consumers, which gathered information about the use of chargers (including old ones), purchasing behaviour and preferences towards a standard charging solution and unbundling; a stakeholder survey exploring stakeholders' views on the common charging and unbundling initiatives; targeted interviews with manufacturers and consumers' associations, among others; and three expert group meetings. It should be noted, however, that the results of the targeted interviews were not presented in the IA and that the summary of the expert group meetings is limited to the identification of the Member States in favour of and against option 5.

## Supporting data and analytical methods used

The analysis conducted in the IA is mainly supported by three commissioned studies<sup>7 8 9</sup> (all publicly available) and by stakeholder inputs. In particular, the assessment of impacts draws substantially on the [Impact assessment study to assess unbundling of chargers](#) and on the stock model developed therein to provide quantitative estimates of the economic, social and environmental impacts. While extended explanations regarding methodological choices are presented in the respective studies, the IA presents, in its Annex 4, a detailed summary of the analytical methods used. In particular, the IA describes the modelling instrument used in the analysis, as well as model inputs and data sources. Complementarily, the Commission's Modelling Inventory and Knowledge Management System ([MIDAS](#)) provides an overview of the model and contains a [webpage](#) dedicated to the initiative.

The assumptions underlying each policy scenario are also outlined in Annex 4 and concern, among others, the market share of EPS and cable types, the sales of standalone EPS and cables, and the disposal and recycling of WEEE. Overall, the assumptions are supported by relevant studies, historical data and input from stakeholders. Sources of uncertainty are also recognised and addressed with a sensitivity analysis in the cases where 'variance in the variable/assumption could have an important impact on the results' (IA, p. 104). One set of assumptions identified for a sensitivity check was the one regarding the rebound effect (i.e. an increase in the sales of standalone chargers following unbundling). The result of this sensitivity check is reported in Annex 4; however, the reporting is based on a policy option that was not retained by the IA (unbundling, with no other mandatory measure), which renders any comparison with the relevant policy options difficult. The limitations of the analysis, which mostly result from data and information gaps, are also transparently identified, with the IA resorting to qualitative analyses when these limitations prevented a quantitative assessment.

## Follow-up to the opinion of the Commission Regulatory Scrutiny Board

The Commission's Regulatory Scrutiny Board (RSB) issued a [positive opinion with reservations](#) on 18 June 2021 based on a draft version of the IA submitted on 18 May 2021. In its opinion, the RSB recommended, among other things, that the draft IA be improved so as to better report on i) the links and coherence with other policy initiatives, ii) the rationale for the elements on harmonisation of connectors and unbundling, iii) how the options are future proof in respect to innovation, iv) the impacts on competition and innovation, and iv) the proportionality of the options. Overall, the IA appears to have incorporated most of the RSB's recommendations, describing, in its Annex 1, the changes that were made in the report to address them. It should be noted, however, that the shortcomings related to proportionality are still apparent in the final IA.

## Coherence between the Commission's legislative proposal and IA

Overall, the proposal appears to be aligned with the IA's preferred policy option, except for the wattage beyond which devices are required to support the USB PD charging communication

protocol – while the IA states that devices requiring power inputs of 5W or less are excluded from the measure, the proposal sets this limit at 15W.

The IA describes the problems and objectives of the initiative in a clear manner, establishing a clear logic between them and the retained policy options. The range of policy options appears diverse and reflects the inputs of the different stakeholder groups. Moreover, all policy options are described in a clear and balanced manner. The IA appears to provide a comprehensive assessment of the impacts of the policy options, with the analysis being extensively supported by quantitative estimates. The IA provides for mitigation measures to ease the transition for manufacturers and to allow for technical progress. Overall, the IA's reasoning appears to rest on a sound evidence base, with the IA relying on supporting studies and the results of public consultations. Finally, even though most of the RSB's recommendations seem to have been reflected in the final IA, the quality of the report would have benefited from a more thorough discussion of the alignment of the options with the proportionality principle. Moreover, impacts on SMEs appear not to have been thoroughly discussed in the IA, which considers the impacts to be small to negligible but does not provide sufficient evidence to substantiate its argument.

## ENDNOTES

- <sup>1</sup> For more information and background on the proposal, see Nikolina Šajn, [A common charger for electronic devices - Revision of the Radio Equipment Directive, EU Legislation in Progress](#), EPRS, European Parliament, November 2021.
- <sup>2</sup> The proposed drafts of the 2018 MoU 'were deemed not satisfactory [by the Commission] in view of the policy objectives of the Union as they neither resolved the remaining interoperability issues, nor addressed future possible evolutions (wireless or fast charging), nor extended the original scope of the initiative to harmonise charging solutions for other devices similar to mobile phones that would further strengthen the consumer convenience'. (IA, p. 2).
- <sup>3</sup> Resolution of 30 January 2020 on a common charger for mobile radio equipment, European Parliament.
- <sup>4</sup> The USB PD protocol is a specification allowing different power delivery levels depending on device demand.
- <sup>5</sup> This briefing follows the IA's definition of the term, whereby a 'charger' comprises an EPS and a cable.
- <sup>6</sup> While this is the terminology used in the main text of the IA, it does seem, from the methodological section in Annex 2, that the IA is referring to gross profits.
- <sup>7</sup> [Impact assessment study on common chargers of portable devices](#), European Commission, December 2019.
- <sup>8</sup> [Technical supporting study to assess the status of wireless charging technologies used for mobile phones and similar portable equipment and next expected main technological developments](#), European Commission, April 2021.
- <sup>9</sup> [Impact assessment study to assess unbundling of chargers](#), European Commission, June 2021.

This briefing, prepared for the Internal Market and Consumer Protection (IMCO) committee, analyses whether the principal criteria laid down in the Commission's own Better Regulation Guidelines, as well as additional factors identified by the Parliament in its Impact Assessment Handbook, appear to be met by the IA. It does not attempt to deal with the substance of the proposal.

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