CircThread

Policy Brief #2

Eco-design in the context of the DPP

dss+
Protect. Transform. Sustain.

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Policy Brief #2: Eco-design in the context of the DPP

Contents Overview

In the last two decades, the EU has sought to incentivise the eco-design of electronic and electrical equipment (EEE) through multiple policy packages, such as the WEEE Directive, the Eco-design Directive, and the Waste Framework Directive. All three were introduced in the 2000s and have since been recast more than twice each to expand in scope and level of ambition. See Annex 1 for overview of history of eco-design policy development.

Most recently, the proposed Eco-design for Sustainable Products Regulation aims to transform the current eco-design policy landscape including notably through the introduction of a Digital Product Passport (DPP) for most products entering the European market. This paper explores the significance of eco-design data integration into DPPs, investigating various data fields to discern which information is essential for DPPs to include in relation to eco-design to improve products' circularity and sustainability.

The paper recommends the need for a DPP to enable eco-design assessments of products using both carbon footprint (CF) and WEEE Generated (WG) data. The challenges of including subjective data on eco-design aspects such as repairability are also highlighted. The use of the DPP to inform consumers about the eco-design credentials of products whilst offering a feedback loop back to manufacturers on how products are used/repaired to influence redesign opportunities are additional recommendations.

Data that manufacturers could provide about product's current eco-design

How can a product user differentiate between a product that has eco-design principles applied to it and one that has not? The inclusion of eco-design data from manufacturers in a DPP could inform the consumer at the purchasing stage and provide helpful data to a reprocessor or repairer that would otherwise not be available. Informing on eco-design performance beyond legal obligations could help showcase sustainability and create an additional selling point, potentially providing a competitive advantage. Examples of such data fields are outlined below:

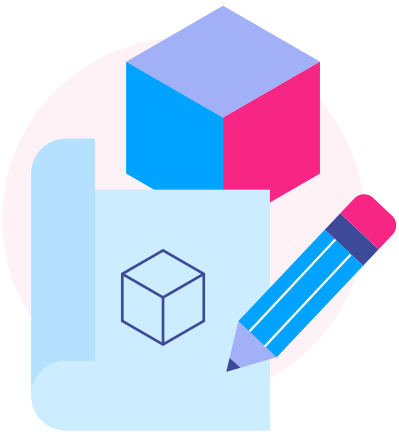
Carbon footprint of products' manufacture

Making carbon footprint data available in a DPP to aid consumer choice when comparing products at point of purchase (either in-store or online) would be valuable. The requirement to provide this data could encourage manufacturers to reconsider the eco-design of their products to improve their performance and thus sales competitiveness.



It is critical to make sector level benchmark datasets available in order to make comparisons across products' holistic environmental impacts. However, life cycle analysis (LCA) data is not yet available in a uniform way across sectors to

ensure that all products or brands are judged against the same criteria. This is due to the varying methodologies/approaches (e.g parameters and boundaries) and different databases being used. The introduction of specific LCA requirements with standardised information requisites and methodologies to be included in a DPP should take steps to address this problem. However, it is important to note that manufacturers have suggested that access to LCA data remains challenging with significant costs (approx. €20,000 per LCA was cited[1]). To overcome this challenge, incentives, policy instruments and improved access to LCA data is needed to aid manufacturers in this data management process.



Product composition and design

Information related to recycled content, presence of hazardous materials, type of batteries and critical raw materials (CRM) has been highlighted as valuable information to recyclers, repairers and remanufacturers so they know the economic value of the products they process as well as to ensure safety compliance. The policy brief on recycling in the context of the DPP develops this topic in further detail. In addition to this, eco-design requirements could improve product disassembly performances, in order to improve its reparability, recyclability and overall end-of-life treatment. For instance, the process of removing batteries could be made easier, quicker and safer using reversible fixation systems (e.g., screws, snap-it, etc.) instead of non-reversible ones (e.g., glue, welding, etc.).

Product repairability

The repairability of a product is a more challenging feature to assess using data provided in the DPP. In theory, the repairability of a product is supported through Right To Repair legislation, which introduces requirements for manufacturers to provide spare parts for a set number of years. However, in practice, dss+ research[2] has shown that a lack of consumer awareness and behavioural inclinations imply that often the option of product repair (over for instance, purchase of a new product) is not chosen, even if made available. However, a product under warranty is much more likely to be repaired as the cost is covered. This variability of influencing factors illustrates that inclusion of data on repairability in a DPP without further policy guidance is likely to be subjective. Further guidance and development of repairability scoring and its communication to consumers is therefore needed. The policy brief on Repair and Reuse in the context of the DPP develops this topic in further detail.



1 Magalini, Heinz, Holt, Manclark, Daniel, Haarman, Leroy, Hajósi (2022). "The eco-modulation of producers' financial obligations for WEEE in the UK" – Accepted for publication by Department for Food, Environment and Rural Affairs (Defra). December 2022 https://www.consultdss.com/491a4f/globalassets/assets/documents/ar-defra-ecomodulairereport.pdf

2 Magalini, Heinz, Haarman, Daniel, Manclark (2022). "Development of policy options for resource efficient eco-design of energy-related products" - Accepted for publication by Department for Food, Environment and Rural Affairs (Defra). December 2022 https://www.consultdss.com/49176f/globalassets/assets/documents/ar-defra-ecodesign-report.pdf



Social impact

In addition to environmental data, the DPP has the potential to provide information about the performance of businesses in the supply chain regarding the social impact of their operations to aid in the enforcement of standards and demonstration of compliance. This could also influence consumer choice of product. Requirements could include gender pay gap, Health & Safety incidents, minimum wage paid, activities with the local community etc. The challenge arising here is the choice of data fields that can be applied in a consistent manner across all businesses within the supply chain and that can be qualified/verified especially within the means of small to medium enterprises (SMEs), which deserves further evaluation.

Possible metrics the DPP could use to measure eco-design impact

Data included in a DPP regarding eco-design should include a set of metrics that can provide insights on the environmental impact of a product in relation to its design features, in order to influence consumer decisions, aid compliance enforcement, and contribute to policy-making developments aimed at enhancing circularity and sustainability.

There is a wide variety of possible metrics and datapoints that can be included in a DPP that demonstrate the environmental impact of a product's design. But different metrics present certain drawbacks, thus impacting the decision-making process of which metrics to include. Several of these are impacted by the availability of data as well as by limitations on their reliability. Some of the possible criteria and their eligibility explored by dss+[3] included:

- **Placed on Market (POM) in tons:** This is the total weight in tons of products that are sold new in a year. This can be seen as the simplest and most relevant indicator for "resource consumption". However, weight alone does not capture the high environmental impact related to complex electronic products such as laptops and smartphones. Indeed, although environmental footprint of products tends to increase with their weight, the relation is not linear and impacts may vary substantially across products of similar weight, e.g. depending on the number of electronic components in them.
- **WEEE generated (WG) in tons:** This is the total weight in tonnes of products that are being discarded as "waste" at end-of-life. Arguably the most relevant indicator for "waste reduction", however, as for POM, it does not capture the fact that some materials are more impactful than others due to the way they are produced. (e.g., gold versus steel). This strongly correlated to POM (except for rapidly growing or disappearing technologies e.g., LED lamps and CRT screens).

3 https://www.consultdss.com/491a4f/globalassets/assets/documents/ar-defra-ecomodulairereport.pdf

- **Carbon footprint (CF) of production**: This is the amount of carbon dioxide generated by the manufacture of a product only and does not include the carbon generated when in use. This is a highly relevant environmental indicator, especially to overcome the limitation of the focus on weight only (see above). This is however mathematically much more complex than weight (requires the modelling of complete supply chains and supporting energy mixes), and the currently available life cycle databases are incomplete and/or too generic.

Additional possible criteria are explored in Annex 2. These other metrics present various drawbacks and also give a less holistic and insightful overview of a product's impact.

dss+ research identified two indicators of a product's impact as most suitable due to relatively high environmental relevance and medium-to-high data availability/quality: WEEE Generated (WG, expressed in tons) and Carbon Footprint (CF, expressed in kgCO2-eq).



Using a combination of these criteria can be used to prioritise products in need of policy intervention to reduce their lifecycle environmental impact (focusing on production and disposal). In doing so, it is possible to ensure the biggest "offenders" are captured. For example, small WEEE such as toasters and home printers are low in weight so if only WEEE Generated in tons is used as a criterion, these items would not rank as important and yet are not widely being repaired due to being low value. Similarly, washing machines are very heavy but are widely repaired so could give a misleading impression from a weight-based perspective.

Research results also showed that the relationship between these two metrics is not linear: "electronically rich" products such as laptops, monitors, TVs, PCs and small household appliances score "above their weight" in terms of carbon footprint, as the production of electronic components is particularly carbon-intensive. Overall, product types ranking high in the WG and/or CF dimensions were ICT equipment, small household equipment, professional cooling equipment, washing machines, fridges, central heating equipment (boilers), radio/ hi-fi/music instruments, printers, large cooking equipment and microwave ovens. Among those product categories, all are already subject to eco-design requirements in the EU and/or the UK except for small equipment for food preparation (e.g. toaster, grills, food processing, frying pans), microwave ovens and printers (e.g. scanners, multi functionals, faxes). But it should be noted that there is a lack of data for many indicators and product categories.

What information could the DPP provide to improve the eco-design of a product?

When considering which datapoints to include in a DPP regarding products' eco-design, it can be viewed in two ways. In order to collate and share information on the environmental impact of a product after manufacture, there are a number of metrics outlined as previously discussed.. However, an equally interesting angle to investigate is how information managed within a DPP can help manufacturers improve the eco-design of a product. In other words, what information can be sent upstream, back to the manufacturers, about a product so they can improve design choices to decrease a product's environmental impact. Two datapoint areas can be distinguished as helpful in this regard:

Data from reprocessors provided to the rest of the supply chain

Viewpoints collected via industry workshops highlight that there is a lack of information being fed back up the supply chain by reprocessors, whereas many of these insights could enable "quick wins" for improving the design of products to support their circularity.[4] Recyclers or repairers do not have an established communication route to formally share data on the challenges that they face when dismantling products for recycling or gaining access to replace a part due to the way a product has been designed. A DPP could facilitate an easy-to-access, credible method of sharing this data back to manufacturers.

Consumer use of a product

If a DPP can collect data on when a product is repaired or disposed of by the consumer, manufacturers would be able to assess if they can remove any barriers to improving reuse/repair through eco-design[5]. For example, research conducted by dss+[6] shows there is a widely held perception by consumers that having a product repaired by the original manufacturer is more expensive than going to a local independent repairer – despite the manufacturer having an obligation to hold spare parts for 5-10 years.

Similarly, if a consumer disposes of a product not due to malfunction but altering tastes, fashions or just personal preference, logging this differentiation in a DPP would allow manufactures to assess what steps they need to take to encourage products to be used for their full lifecycle. This might be by facilitating easier repair, investing in marketing campaigns to educate consumers or even reducing the number of perceived "new models" being launched that might only be cosmetically different. There is also the potential for manufacturers to make products easier to dismantle for refurbishing and reuse and recycling purposes, if they are not being kept in use for as long as anticipated. The challenge would be finding ways to validate this information and to incentivise the consumer to share such data when there is no directly visible benefit to them while protecting user privacy. One suggestion here from a CircThread project workshop was the use of technology or software to track the usage of a product. This might be having a wash cycle counter on a washing machine or a tracker of battery usage on a laptop.

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4 Formentini, Koppelaar, Leone, Dell'Ambrogio, Fontana, Guggiari, Frangez, Slavko, Matavš, Obu Vazner, Herreras Martínez, Hajosi, Ramanujan - "Information Needs for Establishing Circularity-Focused Collaborations Among Product Manufacturers and Recyclers" - Accepted for publication in Proceeding of Eco-Design Conference, Nara, Japan 2023

5 Formentini, G., & Ramanujan, D. (2023). Design for circular disassembly: Evaluating the impacts of product end-of-life status on circularity through the parent-action-child model. Journal of Cleaner Production, 405, 137009.

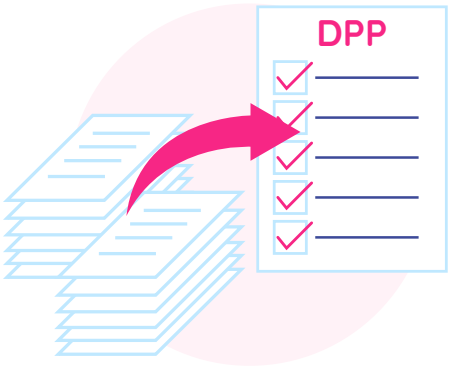
6 https://www.consultdss.com/49176f/globalassets/assets/documents/ar-defra-ecodesign-report.pdf

Key challenges with legislative landscape/implementation; and focus on information barriers

In the vast scope of policies looking to encourage, support and (in the case of eco-modulation) even reward eco-design, there are a number of key legislative challenges related to barriers to the provision of product information which could impact the implementation of a DPP. These include:

Administrative burden

The existence of a multitude of policies could create overlaps or duplicate requirements regarding data demands or the type of products that policy is applied to. This risks creating additional administrative burden for companies to comply to increased regulatory demands – especially when similar data across different platforms would need to be provided. A DPP needs to be a universal portal whereby all compliance activities could be streamlined and be a "one stop shop" for both proving compliance and for ensuring that data requests are not duplicated.



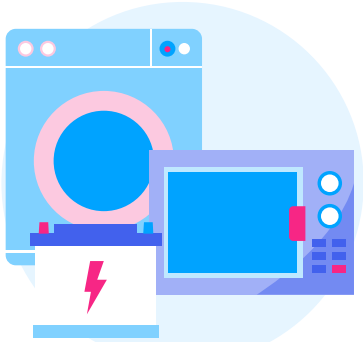
Data availability



Data must be credible and available in a uniform manner across a number of years to measure the level of impact that a DPP has in making such information available. For example, POM data is already readily available from manufacturers whereas LCA-related information is currently not. If a DPP is to be successful in facilitating eco-design, it needs to make relevant assessment data easily accessible over a period of time to allow comparisons and analysis. This could be a challenge as the data from LCA assessments (for example) is still costly for manufacturers to obtain. Legislation would need to specify the use of a uniform methodology for such data to be used by all companies to enable like-for-like comparisons of data and products to be made. The requirement for data verification adds another layer of complexity to ensure the data being shared is credible.

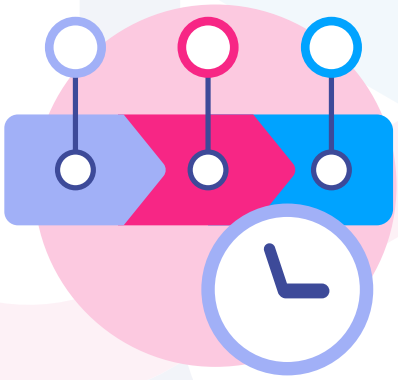
Variety of products within the EEE sector

Large domestic appliances such as washing machines are significant purchases, presenting physically large pieces of equipment and are essential for day-to-day living. Small EEE such as a toaster or printer are cheaper purchases and not a big inconvenience if they break nor are they considered valuable enough to repair. These potentially different attitudes towards repair directly influence the environmental impacts that these products may have throughout their lifecycle and so the type of policy interventions needed. If regulatory policies are focussed on certain types of EEE products, other key contributors might get overlooked – depending on the metrics used to determine focus areas. With this in mind, a DPP needs to have data



fields that can be universally applied all the products within the EEE sector and yet be dynamic enough to facilitate comparison and allow for contrasts of products' environmental performance to be made across models, categories, and ranges.

Timescales to implement eco-design changes



One significant challenge regarding the information shared by the DPP on eco-design is the timescales by which the impact of such design changes will be seen. Data shared in a DPP needs to reflect potential different "lag times" of impact as detailed below:

Longer timescales

Physical design changes

The reduction of waste generated on account of physical design changes of new products including the use of recycled content, depending on product lifetimes and including the time to implement regulations, will take a minimum of 6/7 years[7]. This is for products with relatively short lifespans of 3-5 years such as smartphones, peripherals, and laptops. Design requirements to enable better recovery of materials and components at end-of-life will also have a longer time to realise the benefit. The DPP will therefore need to enable this data to be input at time of manufacture but allow for the resulting impact to not be seen in comparative analysis or be factored into making decisions until 6/7 years later or longer.

Shorter timescales

Extending product life

In contrast, the benefits of eco-design requirements that can extend the lifetimes of existing stock has immediate impact. Therefore, lifespan data needs to be easily visible and available in a DPP for all current products on the market to ensure this benefit is captured and acknowledged – by consumers as well as recyclers/repairers and manufacturers. This therefore needs to be included from the initial versions of the DPP onwards rather than added in a later iteration.

Product labelling

Alternative measures/instruments such as eco-labelling (e.g. the use of a repairability index or low carbon mark) on a box or via the DPP has the potential be impactful in the shorter term by influencing consumer product choices at point of purchase and encouraging competition between producers for better scores.

Repairability/Spare parts

There are some conflicting considerations which highlight the complexity and inter-related nature of reporting repairability data in a DPP:

- **Repairability versus customer convenience** - the time and cost of repair: for critical products such as washing machines and fridge/ freezers, the necessity of the product will greatly restrict the cost and speed at which a repair is acceptable. If the repair is perceived as being too

7 https://www.consultdss.com/49176f/globalassets/assets/documents/ar-defra-ecodesign-report.pdf

expensive (versus the cost of buying brand new), takes too long or raises doubt of a secondary or recurring fault, a new machine will often be chosen. This circumstantial factor therefore makes including any metric or "score" for Repairability into a DPP far more complex. Data fields in a DPP could allow for some categorical selection options accompanied with optional free text. This would give greater insights into product use but also makes data evaluation more complex.

- **The maturity of a product category** – Some products have an established servicing and repair industry (such as washing machines and laptops) with spare parts being available for longer periods already standard practice. Other products such as microwaves, toasters, grills and food processors do not have this available and as these products are typically low prices items, the challenge will be making repair economically viable. The ability to score these latter items in a DPP will therefore not be possible and data is not available.

Recommendations for a DPP to contribute to increased impact of Eco-design

For a DPP to facilitate eco-design measures to reduce the environmental impacts of EEE, it is important to use a combination of the identified metrics (WG or CF) to ensure the products are not assessed solely on their physical size or weight whilst also not being excessively broad and thus ineffective. The cost of obtaining reliable CF data and its uniform application needs to be addressed within the DPP for it to be effective.

The different types of categories within EEE means that one approach does not suit the whole sector. Activities that might need to be encouraged for one category of products can be commonplace established practice in another. Regulatory policies therefore need to reflect this nuance and tailor the approaches needed depending on a multitude of factors. These include the complexity of the product category, whether the technology is new or established, the maturity of the market, other prevalent policy requirements such as safety that take priority and the infrastructure that is in place for repair or recycling. The data fields within a DPP needs to allow for this variation across the EEE sector to be reflected but also ensure enough data fields are mandatory and consistently applied to allow for data analysis, trends, product comparisons and decisions to be drawn from it.

A more immediate way of delivering impact would be for eco-design regulations to offer minimum standards and data fields that a producer must comply with - using the DPP as a universal access portal. These regulations need to be clear and facilitate direct action such as setting a minimum operational lifetime that is supported by repairability, supplying data on availability of spare parts or legislating against materials that hinder the repairability of products. For product categories that have a lower product value and low economic repair value, this would be ground-breaking territory – such as toasters and food processors. However, the challenge here will be to make this economically viable. A DPP should enable such minimum data standards to be made mandatory and streamlined in order to be a "one stop shop" for both proving compliance and for ensuring that data requests are not duplicated. However, further research and consideration is needed for data fields where information entered is very subjective – such as repairability – to enable data to be verified.

The eco-design data provided in a DPP could be a feasible way to educate a consumer about product repair or aftercare to ensure product life extension and thus reduction of environmental impact. This could include:

- **Point of purchase information** – using the DPP as a credible system that all producers use to give consumers clear, credible ratings based on social and sustainability credentials to influence choice at the point of purchase (both online and in-store). The development of ratings that uses a similar method to that of the EU for the Repairability Index could make it easier for producers to use existing worldwide data held.
- **Repair/reuse information** – using the DPP to provide data on the size and type of fittings, glues or availability of spare parts to facilitate a quick and affordable repair. Providing data on location of repair engineers or possible costs could help to dispel some of the assumptions that consumers have towards repair.

The DPP should not be used for outwards communications only. It should be a two-way portal that offers valuable consumer and reprocessor feedback to manufacturers about products so manufacturers can improve design choices to decrease their environmental impact. Therefore, the DPP needs to make relevant assessment data easily accessible over a period of time for all current products on the market as well as new products to allow comparisons and analysis across models, categories, and ranges. This must also then factor in the potential different "lag times" between eco-design decisions being made and the impact being seen in the market.

ANNEXES TO POLICY BRIEF #2 ON ECO-DESIGN

Annex 1

Overview of EU eco-design policies

- **The Directive 2002/96/EC on WEEE** explicitly set out to incentivise the eco-design of EEE through EPR in both its preamble and Article 4: "The establishment, by this Directive, of producer responsibility is one of the means of encouraging the design and production of electrical and electronic equipment which take into full account and facilitate their repair, possible upgrading, reuse, disassembly and recycling."

  However, anecdotal evidence as well as formal evaluations of its effectiveness at promoting eco-design have found that Directive 2002/96/EC on WEEE had failed in this regard in virtually all Member States. To make up for this shortcoming, the **Waste Framework Directive** in its three iterations to date has restated the need for EPR to support the eco-design of products to minimise the burden on waste management systems.

  Since the introduction of EPR systems in Germany and Sweden during the 1990s, there has been significant success in shifting EOL burdens from governments to producers. However, this progress has been accompanied by criticism of their lack of effectiveness at encouraging producers to design environmentally friendly products. The most notable amongst these criticisms is the fact that in collective EPR systems, producers pay fees based on product weight or the number of units placed on the market (POM) and on the average recycling costs for specific waste streams. Such systems ignore differences in treating products at the EOL, with some products being easier to refurbish, reuse, and recycle than others because of how they were designed. Existing EPR systems offer little consideration of product eco-design within their fees. The fee does not stimulate manufacturers to volunteer to make their products more durable or repairable.

- **The Eco-design Directive 2009/125/EC18** is a framework Directive that establishes EU-wide implementing measures for improving the environmental performance of energy-related products. This Directive applies to all energy related products and allows for the creation of additional implementing measures to regulate the eco-design of certain product groups if they meet the initial criteria (as described in the Directive).
- **The Energy-related Products Policy Framework (PPF),** published November 2021 committed to introducing similar requirements for more products to those recently put in place relating to spare parts availability and information for repairers (the 'right to repair' elements of the most recently laid out Eco-Design Regulation), provided the evidence supporting that approach. In the PPF, plans were also set out to explore more ambitious measures to enable reuse, repair and remanufacture, including design for disassembly.
- The most recent Eco-design and Energy Labelling Working Plan 2022-2024 shall guide the Commission's work until the **Eco-design for Sustainable Product Regulation** comes into implementation (which shall further expand the scope of eco-design requirements as well as the sustainability requirements for the regulated products).

- The EU's Communication for the recent working plan emphasised that its selection of "31 most promising product groups for further work" - found in the preparatory study - represented new potential use phase savings in 2030 of "1 000 PJ, or 278 TWh, i.e. ca. 2 % of EU primary energy use in 2020", and that "priority was given to those products which have the highest potential for energy and/or material efficiency, and at the same time scored well on other criteria and where stakeholder feedback did not cast significant doubts about the prospects for success," as set out in table 1 below:

Product group	Energy saving potential 2030 (related to use phase or material efficiency)	Considerations
Low temperature emitters (radiators, convectors)	170 petajoule (P)) (use phase)	Highest energy saving potential, important for Renovation Wave building decarbonisation
Professional laundry appliances	33 PJ (use phase)	Studied in the past and now considered more mature in view of progress in technical standardisation
Professional dishwashers	20 PJ (use phase)	Studied in the past and now considered more mature in view of progress in technical standardisation
Universal External Power Supplies (EPS)	12-27 PJ (embedded)	Link to Common Charger initiative, will be done as part of review of existing EPS regulation
Electric vehicle chargers	11 PJ (use phase)	After 2030 the potential savings increase, to in 2050 almost 76 PJ annually Hence, it is reasonable to consider setting requirements before large volumes of potentially inefficient chargers are installed

- In terms of environmental impact, the preparatory studies for the EU's working plans that have been reviewed place particular focus on energy usage in the use phase of product groups, and savings potential for the products, as well as on feasibility/ease of implementation and at a second stage increasingly aim to also integrate material efficiency savings questions.
- It should be highlighted that the process for selection of product groups eligible for further Eco-design measures, is currently under revision and the results will feed into further detailing of the implementation of the Eco-design for Sustainable Products Regulation. A core aim of this revision of the methodology is to further reinforce circularity aspects (such as durability, repairability, identification of chemicals hindering re-use and recycling) in the assessment of products and preparation of eco-design requirements.

Annex 2

Possible metrics the DPP could use to measure eco-design impact

- **End-of-life carbon footprint:** This is the amount of carbon dioxide generated by the product when it is processed as a waste. The environmental impact of end-of-life is negligible in comparison to those generated during the manufacturing of products. According to a simplified assessment conducted by dss+[1], carbon footprint at end-of-life represents on average 3% of the carbon footprint of production.
- **Critical raw materials content**: This is the amount of critical raw materials such as cobalt, lithium, nickel that are in a product and is expressed as a percentage. There is low data availability , and high variability between models depending on brands and year of manufacture.
- **Problematic substances content**: This is the amount of materials or additives that are considered "problematic" such as lead, phthalates and brominated flame retardants and is expressed as a percentage. There is low data availability, and high variability between models depending on year of manufacture (due to the gradual introduction of substance restrictions and eco-design requirements).
- **Abiotic depletion potential of production**: This is the depletion of non-renewable resources such as fossil fuels, metals, minerals used in the product of a product. While relevant, this metric relies on substantially even more data, and less widely accepted mathematical models, than the carbon footprint indicator.
- **Aggregated environmental impact of production (total ReCiPe score)**: ReCiPe is a method for doing life cycle impact assessments. While relevant, this relies on even more data, and less widely accepted mathematical models, than the carbon footprint indicator. It also implies value judgement due to weighting of various impact categories.
- **POM in units**: This is the number of new products that are sold in a year. However, there is low correlation between the number between number of units and resource consumption and waste generation. For example, although LED lamps represent 13% of total units POM, they account for just 0.4% of weight POM, whereas washing machines, which account for just 0.4% of units POM, account for 13% of total weight POM. Units as a metric is a less effective proxy for environmental impact than weight, particularly when the goal is waste prevention.
- **Waste generated in units**: same reason as above.
- **Collection rate:** This is how many products at end-of-life are being collected for processing and is expressed as a percentage. It is measured as the weight of WEEE collected relative to the average weight of electronic equipment put on the market in the three preceding years. Collection figures are often only available at category level, which is not granular enough to capture specificities of product types.

1 https://www.consultdss.com/49176f/globalassets/assets/documents/ar-defra-ecodesign-report.pdf

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