Position Paper

Ecodesign Regulations for Imaging Equipment and Consumables

This paper has been prepared to inform a JRC-led procedure to develop new ecodesign regulations for the imaging equipment and consumables market. **Please note that this position paper is not endorsed by our member organisation ETIRA.**

1. Our Recommendations

Toner Cartridges

1. Amend the requirements under the WEEE Directive so that **a separate and distinct reuse target** is set – beginning at 30% but thereafter increasing to 50% by 2030.

2. Clarify wherever necessary, that responsibility for creating toner cartridge return systems to meet these reuse targets rests with manufacturers or their authorized representatives when placing new and remanufactured toner cartridges on the market. These clarifications being nevertheless subject to any existing 'de minimis' regulations.

    Doing so will have the practical effect of making it much less necessary for policy makers to repond to demands for firmwear rollbacks and chip designs to be amended under these (2009) and future ecodesign regulations. A justification for this assertion is provided in this paper.

    The WEEE Directive Review is a more appropriate instrument given that the 2009 Ecodesign regulation is constrained by the need to comply with qualifying criteria (a)-(f) in Article 15 (5).

3. In accordance with Article 15 (6), require all toner cartridges (whether clones or otherwise) to be designed to enable them to be refilled and remanufactured for reuse. **Non-compliant cartridges should be denied a CE mark**.

4. In accordance with Annex 1 Part 2 of the 2009 regulation and with Article 14, **at point of sale, require the display** of either the weight of ink or toner in new and remanufactured cartridges and or the number of standard printed sheets the cartridges will deliver.

    Doing so will have the practical effects of providing retail and SME customers greater value for money and of reducing waste.

Printers

5. In accordance with Article 14, printers rated at speeds of more than 50 pages per minute to include a means of revealing to a new owner **both the usage to date and an equivalent declaration of the usage design life.**

6. In accordance with Article 14 and Annex 1 Part 2, **amend energy labelling for this product category** to include the energy consumption avoided by using non-cartridge systems (EcoTank) and refillable and remanufactured cartridges, when compared to the worst option of single use cartridges.

2. Introduction

With the publication on 4th May 2022 of the Ecodesign and Energy Labelling Working Plan 2022-24 (2022/C 182/01) the European Commission rejected a proposal to extend a voluntary agreement with the imaging equipment sector to comply with the Ecodesign Directive 2009/125/EC. The reason given was '*this revision would not achieve the objectives considered in the CEAP (Circular Economy Action Plan) and cannot be considered compliant with the guidelines on self-regulatory instruments in particular regarding the possible reuse of consumables*'.

We conclude from this that any regulatory proposals **must** include effective measures to increase the **reuse** of consumables (printer cartridges).

The original 2009 Ecodesign Directive, which is likely to be replaced by the Sustainable Products Regulations in 2023 or 2024, was principally concerned with reducing in-use energy consumption. It was highly effective in this regard. However, further research identified substantial additional impacts on the environmental and climate footprint of imaging equipment from single-use cartridges and by extension, poor material efficiency due to the premature disposal of printers because they offer insufficient durability, repairability and upgradability.

In recognition of these challenges, the structure of the evidence assembled by the JRC during 2023 has been based on the established seven stage methodology for the ecodesign of energy related products. https://susproc.jrc.ec.europa.eu/product-bureau/node/633

The JRC evidence includes extensive private data provided by independent cartridge refillers and remanufacturers of cartridges and printers. It also includes a recent study of consumer attitudes and behaviours in this market sector. During the two technical workshops held to date the following was highlighted:

i. There are so many cartridge designs (reported to be at least 2,500 and perhaps as many as 25,000) that retail customers often cannot identify a reliable replacement without purchasing one at a higher price from the OEM. Consequently, retail customers spend more than necessary on replacement cartridges and too often, discard the original.
ii. Retail customers buy cartridges on price. More relevant information on the weight of toner/ink in the cartridge or number of pages to be delivered is disguised or difficult to access. Consequently, retail customers receive poor value for money.

On the other hand, the consumer behaviour study highlights that:

iii. Customers do not trust the quality of refilled cartridges provided by local independent suppliers. Consequently, it could be argued that customers are choosing to pay a higher price for the reassurance of best quality printing.
iv. Retail customers report that they discard their printers because they no longer receive software updates, a working cartridge or obtain spare parts. Consequently, printers are prematurely discarded and customers are thereby forced to buy new equipment.

The market for imaging equipment and consumables is very competitive, mature but in slow decline in terms of printers sold and the quantity of toners and inks used. According to the JRC evidence base, projected sales of imaging equipment are forecast to reach 21.34 million units by 2030 and 19.38 million units by 2040 (though changing teleworking practices following the COVID pandemic may alter this trend).

Retail and business customers have a wide range of options including OEM take-back services for used equipment and cartridges to enable them to be remanufactured or the materials recycled (Lexmark and Brother). There are options including refillable ink tanks requiring no cartridge (Epson) as well as 'ink on demand' services (HP) that include take-back of the used cartridge. Yet, because of the gaps in the service packages offered by OEMs, local independents compete by offering refilled and remanufactured cartridges as well as refurbished equipment. Some OEMs have responded to what they see as unfair competition from independents by using 'Technical Protective Measures' on their cartridges in combination with software updates in order to prevent the reuse of cartridges after they have been refilled by someone else.

Yet for all this choice, the evidence collated to date indicates significant equipment waste of approximately 650,000 tonnes and cartridge waste of 150,000 tonnes annually as well as poor value for money for many retail customers and SMEs.

In searching for a 'landing zone' for our recommendations to the JRC, we have noted that almost all market participants would welcome limits on the growth in sales of 'clones' that have been designed for single use. These are non OEM toner cartridges that are designed to be used once only and cannot be opened for remanufacture or refilling, and are typically priced to sell quickly. Research provided to the JRC indicates that at least some of these single use 'clone' cartridges contain non-compliant toners and may thereby present a respiratory hazard to those working in proximity to the printers in which they are installed.

3. Problem Definition

We understand this to be:
   i.   The **reuse** of toner cartridges needs to increase from its current rate of less than 20% toward a reported upper technical limit of 85% (see section 8).
   ii.   The environmental and climate change footprints of the equipment and consumables need to be improved by measures other than those included (in 3.i.) above.
   iii. The ecodesign measures need to enable more resource efficient choices by retail and SME customers in particular.

3.1. Constraints
   i.   This product category is already subject to extensive regulatory controls. Any proposals will need to acknowledge and be consistent with these regulatory controls and take account of forthcoming horizontal measures for ICT equipment, including those in relation to interoperability.

   ii.   This product market is mature and highly competitive. Measures will need to be designed to comply with the qualifying criteria in Article 15 (5) to redirect but not curtail competitive forces.

4. Where in the Value Chain to Intervene?

The current market structure is a response to the existing regulatory framework. It would be a mistake to see the current conflicts between OEMs and the independent cartridge refillers and remanufacturers as a priority for intervention. Instead, consider at which point in the value chain an ecodesign intervention would provide new incentives for value chain cooperation.

It is an opportunity to steer this market *away* from competition that increases waste and instead *toward* competition that extends the working life of equipment and consumables.

Although many market participants wish to discuss the contentious issues of on-cartridge chip design and firmware rollbacks, these are merely the current conflicts created by a lack of clarity about who is required to manage product life-cycle responsibilities. Instead, by our recommending a requirement for all manufacturers or their authorized representatives to provide their customers with a means of returning cartridges so that at least 30% are refilled and remanufactured, OEMs would need to organize the service to ensure more consistent, standardized outcomes for their customers. Independents that fail to win approval from OEMs would eventually be denied access to the cartridges and be replaced by competitors consistently using OEM-approved toners and quality controls.

Once cartridges are collected to meet new reuse and recycling targets, OEMs will have the options of either operating their own in-house remanufacturing services (like Brother) or establishing an approved subcontractor model (for example with global logistics companies). They may also send the cartridges for material recycling.

Many independent cartridge refillers and remanufacturers will not welcome this change. But there are two product sectors which should provide comfort that the clarity of OEM-led responsibility can expand market share, increase profitable new business opportunities for the remanufacturing sector, and address directly the poor quality reputation amongst customers that has been reported in the JRC evidence.

4.1. Bosch as inspiration
In the diesel injector market, Bosch approve small businesses all over the world to adopt Bosch systems that ensure quality control during local remanufacture. The geographically distributed injectors can thereby be returned to service without discarding them or destroying them for material recycling.

4.2. Tyres as inspiration
One of our member organisations is ETRMA. Tyre retreading was once dogged by a poor reputation because of inconsistent methods and a lack of traceability. The tyre industry addressed the issue by requiring all independent tyre retreading operators to be registered and to print on reused tyres a traceability number. The system has stabilized the reputation of retreading for trucks tyres in particular. In due course, this system may enable the expansion of retreading to other categories of tyre other than those for trucks and aircraft.

5. Addressing the Single-Use Clones

Almost all market participants would welcome constraints on these single-use products. In our view, there should be no place in this market for products that are deliberately designed to be so resource-inefficient.

Subject to trade and competition constraints and the qualifying criteria under Article 15 (5), these products need to be denied a CE marking on grounds of their not being designed to be opened for refilling or remanufactured for reuse.

6. Point of Sale information

Changes to tyre labelling (albeit using a separate legal instrument) have provided standarised comparative data on tyres at the point of sale. Annex 1 Part 2 permits ecodesign requirements that address key comparative information such as weight of toner or ink in the cartridge and/or the pages to be delivered.

There is an opportunity to improve the value for money at point of sale for SMEs and retail customers. The JRC evidence points to the need to provide information to enable a better informed decision. One unintended consequence of customers using longer lasting cartridges will be that it will delay the return of the cartridge for reuse. The current cycle is between 3 and 9 months. Nevertheless, we have recommended an intervention at the point of sale.

7. Printer Equipment

7.1. Energy Labelling for Printer Equipment
The original focus of the Voluntary Agreement for this product category was to achieve annual reductions of in-use energy consumption. Comparative energy labelling based solely on in-use energy consumption for a printer is incomplete because no account is made of the product design within a business model for cartridge use. The energy wasted by using single-use cartridges when compared to using no cartridges at all (Epson EcoTank) or remanufactured cartridges (Lexmark, Brother etc) is not included.

There is an opportunity to address this since LCA (Life Cycle Assessment) data is available for these options, and the justification to do so is provided by Article 14, which states under 'consumer information' 'that consumers are provided with the requisite information on the role that they can play in the sustainable use of the product'.

We have made a recommendation in this regard to inform better decisions at the point of sale.

7.2 Printer Equipment Design
The JRC evidence points to a significant proportion of retail and commercial printers being prematurely discarded by customers because they are unable to source spare parts, receive software updates or source a working cartridge.

In such a competitive market for used equipment there is only one proposal made by members that may preserve product value without adding significantly to manufacturing costs.

For machines with a printing speed of at least 50 pages per minute, the second owner or agent for sale has no reliable and independent means of knowing how much use the machine has experienced or even its design limits. Requiring a means to identify usage information should be inexpensive but there is currently no incentive for a manufacturer to provide this feature. We have made a recommendation in this regard, a change permitted under Annex 1 part 2.

8. Consumer Behaviour

The upper technical limit to cartridge reuse is reported to be 85% (Waugh et al.). However, member companies report that in practice it is difficult to obtain cartridges for reuse because of consumer behaviours that lead to the cartridges being damaged or lost to the wastes management system.

For this reason, the recommendation of a separate and distinct reuse target has been set initially at 30% with the intention that it increase thereafter to 50% by 2030. Given a clear incentive to achieve higher targets, companies may adopt good practices from member states such as the CONIBI collection system in France. This collective scheme has reduced unit collection costs whilst increasing the rate of cartridge return.

> Sections 2-8 are presented in support of the recommendations made by
> the European Remanufacturing Council in Section 1 above.

The European Remanufacturing Council has participated in the technical workshops and contributed to the comprehensive evidence base compiled by the JRC at https://susproc.jrc.ec.europa.eu/product-bureau/node/633 Our member companies include Original Equipment Manufacturers, approved third-party specialists and independents that remanufacture OEM equipment and cartridges.

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About the Council:
The vision of the European Remanufacturing Council is to triple the value of Europe's remanufacturing sector to €100 billion by 2030. We will bring together businesses from every product sector to share knowledge, and seek changes to policy with the aim of making remanufacturing a normal part of the product life cycle.

For more information about the CER please visit www.remancouncil.eu

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