European Office

The Ecodesign Directive and Material Efficiency – ready for circularity?

Recommendations for the use of standards under Mandate M/543

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1. Introduction

The Ecodesign Directive is a regulatory success. Significant results have been achieved with the energy efficiency agenda, contributing to the overall energy and climate objectives of the European Union. The ongoing work under standardisation mandate M/543 lays the foundation for shifting regulatory focus onto material efficiency. It also gives insight into possible challenges related to the concrete implementation of new types of ecodesign requirements.

The German Engineering Association VDMA represents 3200 mostly medium-sized companies in more than 39 product segments. Machines fall entirely within the scope of the Ecodesign Directive. Components already regulated comprise product groups such as water and heat pumps, industrial fans, electric motors or commercial vacuum cleaners. Indirectly regulated are industrial end-users who integrate components into their machines and plants, often having to adapt their initial product design.

This paper assesses the relevance of material efficiency parameters in the Business-to-Business sector and gives recommendations for the use of standards developed under Mandate 543. It argues that the distinctive treatment of B2C and B2B product groups becomes even more relevant under the Circular Economy agenda.

2. The mandate

The mandate seeks the development of horizontal cross-sectorial standards (Type A Standards) that would be the basis for more detailed specifications at the product level (Type C Standards) once there are product-specific implementing measures in place that need technical support. VDMA welcomes this basic architecture giving room for product-specific implementation. As it stands, the mandate will produce eight standards, on durability, the ability to repair, reuse and upgrade, the ability to remanufacture, the proportion of re-used components, recyclability and recoverability, the proportion of recycled material content and on how to declare the use of critical raw materials.

3. Analysis: Initial assessment of the applicability of the draft standards in the B2B goods sector

3.1. Durability

Increasing the life of products has been at the focus of debates on how the Ecodesign Directive can contribute to the circular economy. While terms such as planned obsolescence are associated with short-lived consumer goods, the idea is at odds with the understanding of machines and industrial appliances. These are capital or investment goods whose explicit purpose is to be durable. Machines are the workhorse among products: often applied in extreme conditions, they are used intensively and are judged for their level of performance and reliability, because machinery's productivity is directly related to a manufacturing company's productivity. A machine manufacturer's competitiveness depends on these factors, which is why a market failure justifying regulatory intervention in this area is uncommon.

Market differentiation is possible at the level of contractually agreed service duration. This is competition benefiting the circular economy, with business models working in favour of extending lifetime and repairability. **New technologies such as condition monitoring and predictive maintenance optimise the use of spare parts and reduce the chances of a premature end of lifetime. This evolving business model should be protected, rather than interfered with, from a regulatory point of view.**

Further points to consider in the product-specific implementation:

- The assessment method underlying the durability draft standard (measured by mean time between failure, or MTBF) is not suitable for most machinery products. This concept, which is state-of-the-art for electronic/electric large series components, requires time- and cost-extensive testing. This is not feasible for mechanical engineering, which is characterised by a diverse portfolio of specialised products being manufactured in small numbers.
- Durability or lifetime requirements can conflict directly with other regulatory objectives. Increasing the lifetime could in some cases increase the use of material or it could in other cases decrease its recyclability. It could also mean having to select a material that has a negative impact on the energy efficiency of the product. Therefore, clear political guidance is required how to reconcile these conflicting objectives in the interest of creating stable and predictable framework conditions.
- Further limits to extending the lifetime of a product are set by other legislation such as RoHS or component-level ecodesign requirements. Introducing the “repair as produced” principle can incentivise a longer availability of spare parts.

3.2. Remanufacturing

Remanufacturing describes a life-extending internal loop enabling a renewed use of the product or parts of the product. According to the draft standard, it is an industrial process which creates a product from used products or used parts where at least one important change is made to the product. It is also distinct from the process of refurbishment, which returns a used product to a satisfactory working condition without making any important changes to it. Both processes are relevant for the engineering industry, on the component as well as on the final product level. In some areas, they have become **a functioning business model**.

Remanufacturing is a complex process that comprehensively reinstates and updates the product’s initial functionality to a state-of-the-art product. Turning this approach into a business model requires scale of production. Additionally, there needs to be an incentive on the customer’s side to return the product, as well as customer tolerance for buying a remanufactured product. If the product is used in safety-related applications, marketing remanufactured goods may not be economically viable.

Careful study is required, to see if there are market failures in the B2B sector to be corrected. Indeed, if there are, they may be explained by component-level regulation that does not allow placing of products on the market after a certain point of time due to new requirements in place – be it safety, environmental or energy efficiency legislation. This circumstance effectively creates a barrier to secondhand markets for components. It could indeed be a field where conflicting objectives become clearly visible.

Further points to consider in the product-specific implementation:

- VDMA welcomes that the draft standard is closely aligned with relevant provisions from the safety legislation regarding the “important change”, which facilitates the transposition of the standard. For the political implementation process, however, the

terminology should be fully aligned with the New Legislative Framework to avoid legal uncertainty[1].

- VDMA welcomes the variety of assessment methods offered as well as the reference to potential new, as yet unknown, assessment methods to be acceptable means of supporting a requirement.

3.3. Repair

Politically, repairability has been identified as an important lever to improve circularity in products. Since the debate is mainly informed through frustrations about non-repairable consumer goods, standardisation activities have been driven by actors from the consumer goods sector or non-governmental organisations from that background. Progress is understandably expected in this area. VDMA also agrees that, wherever feasible, in considering the framework conditions (and in the interest of the consumer), easy, inexpensive and accessible repair options should be available to the consumer.

As a result, it is this standard where the product-specific implementation is most important. **As the horizontal standard is mainly developed through the lens of a consumer good, it is inevitably not entirely suitable to the B2B sector. As described above, there is a well-established services market including repair services in the industrial goods sector. Machines are repairable.**

Depending on the product and repair required, they are conducted in-house, by an external, specialised repair service or by the manufacturer. In most cases, the machine - as well as the repair service required - is more complex and involves more technical expertise than a refrigerator or a toaster. It is unlikely that any untrained person could conceivably be eligible to repair a machine because liability issues, other relevant safety legislation and required expertise limit the options of a manufacturer to allow access for repair. Importantly, it is frequently a time- and resource-sensitive process, which explains the establishment of a market around these services. **Therefore, it is of utmost importance to pursue a product-specific approach and avoid any horizontal legal requirement for all product groups covered under the Ecodesign Directive.**

3.4. Recyclability

Machines consist mainly of metals. Recycling rates and recycled content rates for mass metals certainly point to a high recyclability of machines at the end of their lifetime. According to the International Resource Panel's Status Report on Metals[2], most mass metals are largely recyclable and have a recycled content rate of more than 50%. For precious and specialised metals, the picture is the opposite. However, the recycling rate of those precious and specialised metals used in industrial applications ranges between 40 - 90% compared to 0 - 15% in the electronics sector. This suggests there is a market for retrieving such metals from machines at the end of their lifetime.

Trends such as lightweight construction increase the use of plastics parts over time. The industry is raising awareness regarding this trend and thinking through recycling options as soon as a new material or a new technology is developed, such as printed electronics. There are, of course, challenges regarding complex materials such as high technology composite plastics for rotor blades of wind turbines. Only solutions specific to the value chain can be

[1] See the Blue Guide, p. 16ff

[2] International Resource Panel, Recycling Rates of Metals – A status report
http://www.resourcepanel.org/reports/recycling-rates-metals

successful in this respect. Broadly speaking, plastics applied in machinery are high-tech materials fulfilling a specific and customised function.

Electronic components will be more and more integrated into machinery due to the digitalisation of industrial processes. For electronic components, it is important to consider that there are grounds for exempting some specific machinery from component disassembly requirements. In extreme operating conditions, recycling-friendly fixing techniques contradict the safety requirements of the machine. Electronic components enter separate recycling streams.

3.5. Recycled content

One of the approaches discussed specifically in the context of the EU Plastics Strategy is the option of implementing recycled content requirements to stimulate secondary raw materials markets. VDMA is sceptical that recycled content measures at the product level are the silver bullet to solving the issue.

Several existing market barriers make it particularly difficult for machine manufacturers to procure recyclates. Most manufacturers lack the supply chain power to be able to demand a specific recyclate that is certified to exactly fulfil the specifications needed. Without a guaranteed quality, the manufacturer cannot use the material reliably. Market dynamics could lead to a shortage of supply. Furthermore, there are doubts that recycled content measures could be properly surveilled by authorities. Research should focus on developing better and more efficient measuring techniques.

VDMA suggests concentrating first on increasing the recycled content of plastics materials. If a secondary material market develops, increasing the recycled content of the final product would be less problematic and more market-driven. To stimulate secondary raw material markets, quality criteria for plastics with clearly specified uses should be developed. A legal level playing field created under REACh for primary and secondary raw materials should be implemented more stringently.

3.6. Documentation of critical raw materials

To facilitate the recovery of critical raw materials, future implementing measures will contain obligations to inform in detail about the critical raw materials used, and specify the content. It is positive that this is aligned with the official EU list of critical raw materials. Based on case-by-case analysis, it should be established whether there are market-based solutions such as take-back mechanisms[3], available recycling facilities or closed loop recycling, which would make a mandatory information requirement unnecessary.

In the B2B sector, many manufacturers still offer customised solutions down to an individual component. Creating more and more communication obligations would increase the administrative and financial burden on producers of customised components. Furthermore, it could ultimately trigger a shift to more standardised components, specifically in the electronics sector, which could in turn result in a loss of diversity within these product categories.

3.7. Horizontal considerations

Any information deriving from reporting obligations must be strictly limited in terms of public accessibility. **Guaranteeing business confidentiality** is pivotal. In the B2B sector, many

[3] https://www.rocklink.de/

companies still offer customised solutions. Even seemingly limited information can give competitors in a specialised market insight into production and design choices (think of screws or adhesives, for example). It is important to consider that even products regarded as "series" products are customised to some degree. A motor manufacturer estimates that out of one million products, only 1.6 units are identical. Increasing design or documentation requirements could ultimately lead to a considerably less differentiated EU market and would negatively influence the competitiveness of European manufacturers outside the EU.

Once these horizontal standards are transposed into product-specific standards, it must be ensured that there are **no conflicts with competition law or code of conduct obligations**. This is particularly important with respect to areas such as repair services that are differentiating factors in the marketplace. It is also relevant with regard to insurance policies. Companies may not give third parties access to their products from an insurance point of view (product liability).

Where there is a proven market failure, taking legislative action in the framework of the Ecodesign Directive related to the circular economy and material efficiency is justified, so long as the Article 15 requirements of the Directive are fulfilled. It is important that any new measure is proportionate and **enforceable by market surveillance authorities**. Companies complying with their legal obligations suffer a competitive disadvantage to those who do not. Some circular economy criteria, such as recycled content or durability requirements, may be costlier and more burdensome to check than is currently the case.

4. Recommendations for the political implementation of M/543

Based on the above analysis, VDMA asks for the following principles and recommendations to be taken into account in the future use of the standards developed under Mandate M/543:

1. **Differentiating consumer and industrial goods in the context of material efficiency is crucial**. Incentive structures, customer behaviour, customer relations, pricing, material composition and market dynamics distinguish both sectors. Therefore**, VDMA strongly advises against any horizontal legislative requirement**. To carry forward the success of the Ecodesign Directive, case-by-case assessment remains crucial.

2. The ecodesign process offers an opportunity to determine the right approach on the product level with regard to **conflicting objectives** related to energy efficiency, safety legislation, durability and recyclability. These **need to be addressed** to avoid stranded investments in R&D and innovation. Companies require clear guidance from politicians about where they should put their emphasis. Alternatively, they should have the freedom to decide which ecodesign aspect(s) have priority for their products.

3. The standards should offer a **choice of assessment methods**. This is especially central for the mechanical engineering sector, as some of these drafts are based on standards for electrical/electronic mass products and are not applicable. Thus, it is crucial to leave room for creating new product-specific methods if none of the proposed methods are appropriate for the product group in question.

4. Design requirements related to material efficiency deeply affect design choices and can lead to a high degree of standardisation, significantly reducing technology options. **Pushes for more standardisation and legal requirements need to ensure that market opportunities for differentiation remain available.** This is particularly significant in new markets such as repair services based on predictive

maintenance. Therefore, it is even more important to **uphold the basic principle of technology neutrality**.

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