

Preparing for the Ecodesign for Sustainable Products Regulation (ESPR)

Implications for horizontal reparability requirements and with focus on the furniture sector

Mattias Lindahl, Erik Sundin,
John Laurence Esguerra,
Linköping University

RESEARCH REPORT

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Implications for horizontal repairability requirements
and with focus on the furniture sector

Author (-s): Mattias Lindahl, Erik Sundin, John Laurence Esguerra,
Linköping University

SWEDISH ENVIRONMENTAL
PROTECTION AGENCY

The Swedish Environmental Protection Agency
Phone: + 46 (0)10-698 10 00
E-mail: registrator@naturvardsverket.se
Address: Naturvårdsverket, SE-106 48 Stockholm, Sweden
Internet: www.naturvardsverket.se

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Preface

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The conclusions and views presented in the report are those of the authors.

The report was written by Mattias Lindahl, Erik Sundin, and John Laurence Esguerra at Linköping University.

In this report with the title *Preparing for the Ecodesign for Sustainable Products Regulation (ESPR) - Implications for horizontal repairability requirements and with focus on the furniture sector results from part of the synthesis project The transition to a circular economy to achieve environmental and climate goals* (funded 2025) are presented.

The report has been reviewed by reviewers at the Swedish Environmental Protection Agency for practical relevance.

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Contact person at the Swedish Environmental Protection Agency:
Neda Farahbakhshazad

Förord

Denna rapport har finansierats med medel från Naturvårdsverkets Miljöforskningsanslag.

De slutsatser och synpunkter som presenteras i rapporten är författarnas.

Rapporten har skrivits av Mattias Lindahl, Erik Sundin, och John Laurence Esguerra vid Linköpings universitet.

I denna rapport med titlen *Preparing for the Ecodesign for Sustainable Products Regulation (ESPR) - Implications for horizontal repairability requirements and with focus on the furniture sector presenteras resultat från en del av syntesprojektet Omställningen till en cirkulär ekonomi för att nå miljö- och klimatmålen från 2025.*

Rapporten har granskats av ojäviga handläggare på Naturvårdsverket för praktisk relevans.

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Contents

Preface	3
Förord	4
Summary	7
Sammanfattning	9
Abbreviations	11
1. Introduction	12
1.1 Goals	12
1.2 Approach and Sources	12
1.3 Structure of the Report	12
2. Overview of the Ecodesign for Sustainable Products Regulation	13
2.1 The Ecodesign for Sustainable Products Regulation (ESPR)	13
2.2 Priority Product Groups and Early Implementation Priorities	13
2.3 Generic Ecodesign Requirements under the ESPR	15
2.4 Digital Product Passport and Information Infrastructure	15
2.5 Operationalizing the Digital Product Passport: Standardization, Interoperability and Data Governance	17
3. Development of Standards for Material Efficiency	19
3.1 National entry points and how organizations connect (Sweden – Europe – Global)	19
3.2 CEN-CENELEC and the EN4555X Series	20
4. Repairability as a Horizontal Requirement	22
4.1 Repairability Elements Likely to be Specified	22
4.2 Legal Basis and Standardization Pathway for Repairability Scoring	23
4.3 Repairability Scoring and the Wider EU Right-to-Repair Landscape	23
5. Furniture as a Priority Product Group	27
5.1 Likely Requirement Areas for Furniture	27
5.2 Disassembly as a Practical Basis for Furniture Circularity	28
5.3 Remanufacturing Evidence and Digital Product Passports for Furniture	28
6. A Practical Roadmap for ESPR Preparedness	30
6.1 What Swedish EPA Should Do and Why	30
6.1.1 Build national alignment around “what good looks like”	31
6.1.2 Treat standardisation as a strategic environmental and competitiveness lever	32
6.1.3 Prepare for market surveillance by clarifying what companies must be able to show	34
6.1.4 Use pilots to turn regulatory uncertainty into practical capability	35
6.1.5 Mobilise industry associations as implementation partners	36
6.2 What Industry Associations Should Do to Prepare for Related Legislation	37

6.3	What Companies in General Should Do and Why	38
6.3.1	Build evidence-based repairability	38
6.3.2	Integrate Design for Repair into product development	39
6.3.3	Treat documentation and spare parts as strategic product assets	39
6.3.4	Build test and evidence systems fit for future requirements	39
6.3.5	Prepare structured product data and DPP readiness	40
6.4	Furniture focus: What Furniture Companies Should Do and Why	40
7.	Conclusions	42
8.	References	43
	Appendix: Selected priority products	47

Summary

This report examines how Swedish industry can prepare for forthcoming requirements under the Ecodesign for Sustainable Products Regulation (ESPR), with a particular focus on horizontal repairability requirements, including repairability scoring, and on the furniture sector as a priority product group. The report has been commissioned by the Swedish Environmental Protection Agency and is based on EU legal and policy sources, standardisation work, scientific literature, and discussions with relevant Swedish stakeholders.

The ESPR marks a shift from voluntary sustainability ambitions to verifiable product compliance. Its delegated acts will progressively define binding requirements for product groups and horizontal measures, including durability, reliability, repairability, remanufacturability, disassembly, material traceability, recycled content, recyclability and Digital Product Passports. Although the exact requirements will be introduced stepwise, the direction is already clear. Swedish companies, authorities and industry associations therefore need to begin preparing before final delegated acts are adopted.

A central conclusion is that repairability must be treated as a practical and evidence-based capability, not merely as a design claim. Products will increasingly need to be supported by repair documentation, spare part strategies, disassembly instructions, product version control, supplier data and standards-based testing. A product that is technically possible to repair will not be sufficient if spare parts are unavailable, instructions are missing, costs are prohibitive, or repair cannot be carried out in practice. Future repairability scoring should therefore reflect real repair access over time.

Standards will be decisive for how ESPR requirements become measurable, comparable and enforceable. They will define test methods, assessment procedures, scoring systems, documentation requirements and reporting formats. Swedish participation in European standardisation should therefore be treated as both an environmental and competitiveness issue. Early engagement can help ensure that future standards are practically workable, environmentally meaningful and proportionate, especially for SMEs.

For the furniture sector, the main preparedness priorities are durability, repairability, disassembly, remanufacturing/refurbishment and traceable product information. Furniture companies should already begin reviewing product architectures, joints, adhesives, upholstery, coverings, mechanisms, fasteners, wear parts, repair manuals and material information. Particular attention should be given to replaceable components, reversible joints where feasible, non-destructive disassembly, repair and refurbishment instructions, and pilot solutions for Digital Product Passports or product identity cards.

The Swedish Environmental Protection Agency should take a more active national coordinating role in ESPR preparedness. This includes aligning authorities, industry associations, standardisation bodies, public procurers, SME-support actors and circular value chain actors around practical guidance, pilots, evidence expectations and implementation pathways. The Swedish Agency for Economic

and Regional Growth (sv. Tillväxtverket) should be involved where SME support, business development and competitiveness are central.

Industry associations should act as implementation partners by translating emerging ESPR requirements into sector-specific tools, checklists, training, templates and pilot activities. They can help SMEs understand what preparedness means in practice, coordinate input to standardisation, and identify shared barriers related to documentation, supplier data, spare parts, repairability and Digital Product Passport readiness.

Companies should treat ESPR preparedness as product management and business development, not only as regulatory compliance. Immediate actions include building evidence packages for durability and repairability, assigning ownership for product data and documentation, identifying products at risk of future redesign, strengthening spare part and repair strategies, and piloting structured product data systems. These capabilities will support both compliance and circular business models such as take-back, resale, repair, refurbishment, remanufacturing and material recovery.

Overall, ESPR preparedness should be understood as capability-building. Done well, it can reduce environmental impacts, lower compliance risk and strengthen Swedish competitiveness through better products, better data, longer product lifetimes and stronger circular services.

Sammanfattning

Denna rapport analyserar hur svensk industri kan förbereda sig för kommande krav enligt förordningen om ekodesign för hållbara produkter (ESPR), med särskilt fokus på horisontella krav på reparerbarhet, inklusive reparerbarhetspoäng, samt på möbelsektorn som prioriterad produktgrupp. Rapporten har tagits fram på uppdrag av Naturvårdsverket och bygger på EU:s rättsliga och politiska källor, standardiseringsarbete, vetenskaplig litteratur samt diskussioner med relevanta svenska aktörer.

ESPR innebär ett skifte från frivilliga hållbarhetsambitioner till krav på verifierbar efterlevnad på produktnivå. Genom delegerade akter kommer bindande krav successivt att definieras för produktgrupper och horisontella åtgärder, bland annat avseende robusthet, tillförlitlighet, reparerbarhet, återtillverkningsbarhet, demontering, materialsparbarhet, återvunnet innehåll, återvinningsbarhet och digitala produktpass. Även om de exakta ESPR kraven införs stegvis är riktningen redan tydlig. Svenska företag, myndigheter och branschorganisationer behöver nu därför börja förbereda sig innan de slutliga delegerade akterna antas.

En central slutsats är att reparerbarhet måste förstås som en praktisk och förmåga som kan beläggas, snarare än enbart som ett designpåstående. Produkter kommer i ökande grad att behöva stödjas av reparationsdokumentation, strategier för reservdelar, demonteringsinstruktioner, versionskontroll, leverantörsdata och standardbasad provning. Det räcker inte att en produkt tekniskt sett kan repareras om reservdelar saknas, instruktioner är ofullständiga, kostnaderna är för höga eller reparation inte fungerar i praktiken. Framtida poängsättningar för reparerbarhet bör därför spegla faktisk möjlighet till reparation över tid.

Standarder blir avgörande för hur ESPR-krav blir mätbara, jämförbara och möjliga att tillämpa. De kommer att definiera utvärderingsmetoder, poängsättningsmetoder, dokumentationskrav och rapporteringsformat. Svenskt deltagande i europeisk standardisering bör därför ses som en fråga både för miljö och konkurrenskraft. Tidigt deltagande kan bidra till att framtida standarder blir praktiskt användbara, miljömässigt meningsfulla och proportionerliga, särskilt för små och medelstora företag.

För möbelsektorn är de viktigaste beredskapsområdena hållbarhet, reparerbarhet, demontering, återtillverkning/rekonditionering och spårbar produktinformation. Möbelföretag bör redan nu granska produktarkitekturer, fogar, lim, klädselar, överdrag, mekanismer, fästelement, slitagedelar, reparationsmanualer och materialinformation. Särskild uppmärksamhet bör ges åt utbytbara komponenter, demonterbara fästelement där det är möjligt, icke-destruktiv demontering, reparations- och rekonditioneringsinstruktioner samt pilotlösningar för digitala produktpass eller produktidentitetskort.

Naturvårdsverket bör ta en mer aktiv nationell samordnande roll i förberedelserna inför ESPR. Det innebär att samordna myndigheter, branschorganisationer, standardiseringsorgan, offentliga upphandlare, SME-stödjande aktörer och cirkulära värdekedjeaktörer kring praktisk vägledning, pilotprojekt, evidenskrav och genomförandevägar. Tillväxtverket bör involveras där stöd till små och medelstora företag, affärsutveckling och konkurrenskraft är centrala.

Branschorganisationer bör fungera som genomförandepartner genom att översätta framväxande ESPR-krav till sektorspecifika verktyg, checklistor, utbildningar, mallar och pilotaktiviteter. De kan hjälpa små och medelstora företag att förstå vad praktisk beredskap innebär, samordna inspel till standardisering och identifiera gemensamma hinder kopplade till dokumentation, leverantörsdata, reservdelar, reparerbarhet och DPP-beredskap.

Företag bör behandla ESPR-beredskap som produktledning och affärsutveckling, inte enbart som efterlevnad av regler. Omedelbara åtgärder omfattar att ta fram underlag som styrker produkters hållbarhet och reparerbarhet, tydliggöra ansvaret för produktdata och dokumentation, identifiera produkter som riskerar att behöva omkonstrueras i framtiden, stärka strategier för reservdelar och reparation samt pilottesta strukturerade produktdatasystem. Dessa förmågor stödjer både efterlevnad av regler och cirkulära affärsmodeller såsom returlogistik, återförsäljning, reparation, rekonditionering, återtillverkning och materialåtervinning.

Sammantaget bör ESPR-beredskap förstås som kapacitetsbyggande. Genomförd på ett bra sätt kan den minska miljöpåverkan, sänka regelefterlevnadsrisker och stärka svensk konkurrenskraft genom bättre produkter, bättre data, längre produktlivslängder och starkare cirkulära tjänster.

Abbreviations

CEN	Committee for Standardization
CENELEC	European Committee for Electrotechnical Standardization
CWA	CEN-CENELEC Workshop Agreement
DfD	Design for Disassembly
DfRem	Design for Remanufacturing
DPP	Digital Product Passport
ECD	Environmental Conscious Design
EFIC	European Furniture Industries Confederation
ERP	Enterprise Resource Planning
ESPR	Ecodesign for Sustainable Products Regulation (Regulation (EU) 2024/1781)
ETSI	European Telecommunications Standards Institute
EU Ecolabel	European Union Ecolabel scheme
GPP	Green Public Procurement
ICT	Information and Communication Technology
JRC	Joint Research Centre (European Commission)
JTC 10	CEN-CENELEC Joint Technical Committee 10 (material efficiency of products)
M/604	Standardisation request on Digital Product Passports (Commission Implementing Decision C (2024) 5423)
OEM	Original Equipment Manufacturer
PLM	Product Lifecycle Management
PT	Project Team
SEK	Svensk Elstandard (the Swedish Electrotechnical Commission)
SIS	Swedish Standards Institute
TMF	Trä- och Möbelföretagen

1. Introduction

This report work was commissioned by the Swedish Environmental Protection Agency (EPA) and is being carried out by a team of researchers at Linköping University during Spring 2026. It addresses emerging EU policy developments on repairability (in general) and their implications for the Swedish furniture sector, with particular attention to how forthcoming requirements under the Ecodesign for Sustainable Products Regulation (ESPR) may shape market expectations and compliance needs (European Commission 2025c).

1.1 Goals

This report has two goals:

- Explore how Swedish industry can prepare for the Commission's planned development of horizontal repairability requirements (including scoring) under the ESPR (indicative launch 2027)
- Explore how the Swedish furniture sector can prepare for ESPR delegated acts for furniture (indicative launch 2028).

1.2 Approach and Sources

The report combines desktop research of EU primary sources (legal texts on EUR-Lex, European Commission communications and webpages, and science-for-policy reports from the Commission's Joint Research Centre (JRC)) with a targeted review of peer-reviewed literature on repairability assessment and circularity in the furniture sector. It is complemented by discussions with representatives of Swedish EPA, Trä- och Möbelföretagen (TMF), Swedish Standards Institute (SIS) and the reference group of this commission. The analysis emphasizes the role of standards and standardization activities because these are central to specifying measurement methods, testing protocols and information requirements in delegated acts.

1.3 Structure of the Report

Section 2 introduces the Ecodesign for Sustainable Products Regulation (ESPR), the prioritisation of product groups in the 2025–2030 Working Plan, and the role of the Digital Product Passport (DPP) as a key infrastructure for product information, compliance and circular value chains. Section 3 explains the development of material-efficiency standards and why standardisation is central to making ESPR requirements measurable, comparable and enforceable. Section 4 analyses repairability as a horizontal requirement, including repairability scoring, evidence needs, the right-to-repair context and implications for public procurement. Section 5 focuses on furniture as a priority product group, with particular attention to durability, disassembly, repair, refurbishment, material traceability and DPP readiness. Section 6 translates the analysis into practical recommendations for the Swedish EPA, industry associations, companies and furniture actors. Section 7 concludes with the report's main messages on ESPR preparedness, capability-building and circular competitiveness.

2. Overview of the Ecodesign for Sustainable Products Regulation

2.1 The Ecodesign for Sustainable Products Regulation (ESPR)

Regulation (EU) 2024/1781 establishing a framework for the setting of ecodesign requirements for sustainable products (ESPR) constitutes a central element of the EU's sustainable product policy. Its objective is to improve the environmental sustainability of products placed on the European Union market or put into service, with the aim of making sustainable products the norm while ensuring the free movement of such products (European Parliament - the Council of the European Union 2024a).

The ESPR enables the European Commission to adopt delegated acts that specify, for each product group or horizontal measure, the relevant performance requirements (e.g., minimum durability or recyclability criteria) and information requirements (e.g., documentation to users, repairers or authorities). It covers a wide range of life cycle aspects, including durability, reliability, reusability, remanufacturability, upgradeability, repairability, energy and resource efficiency, recycled content, and (where relevant) product carbon and environmental footprints (European Parliament - the Council of the European Union 2024a).

The ESPR complements and reinforces other EU initiatives, including Directive (EU) 2024/1799 on common rules promoting the repair of goods (the Right to Repair Directive, applicable from 31 July 2026) and broader EU competitiveness and decarbonization policy packages. The ESPR repeals Directive 2009/125/EC on energy-related products and extends the regulatory approach beyond energy efficiency to multiple circularity and sustainability aspects through a directly applicable Regulation (European Commission 2024c, European Parliament - the Council of the European Union 2024a, European Commission 2025b, European Commission 2025a).

2.2 Priority Product Groups and Early Implementation Priorities

The implementation of the ESPR is structured around priority product groups as stated in Article 18(5). Eleven priority product groups were identified (European Parliament - the Council of the European Union 2024a):

- Iron and Steel,
- Aluminium,
- Textiles (including garments and footwear),
- Furniture,
- Tyres,
- Detergents,
- Paints,
- Lubricants,
- Chemicals,
- Energy-related products (new or under review in relation to the former Ecodesign Directive 2009/125/EC), and
- Information and communication technology (ICT) products and other electronics.

The identification of priority product groups followed technical analysis and stakeholder consultation, including a public consultation conducted in 2023 and synthesized by the European Commission's JRC. The selection was narrowed from an initial list of 33 product groups to 21 and ultimately to the 11 groups included in the ESPR, based on criteria such as environmental improvement potential, market relevance, policy coverage, expected costs and benefits, and contribution to EU strategic autonomy (Faraca *et al.* 2024).

Further prioritization was undertaken following discussions at the first Ecodesign Forum in February 2025 and reflected in the Ecodesign for Sustainable Products and Energy Labelling Working Plan 2025–2030 (COM(2025) 187). Not all product groups in Article 18(5) were retained as immediate priorities for the first five-year period; the Working Plan sets out a first wave of product-specific and horizontal measures and provides an indicative timeline for preparatory studies and delegated acts, as displayed in Figure 1 (European Commission 2025c).

The early priorities described in the Working Plan can be grouped as follows (based on the Working Plan and the rationale presented in Appendix Table A) (European Commission 2025c).

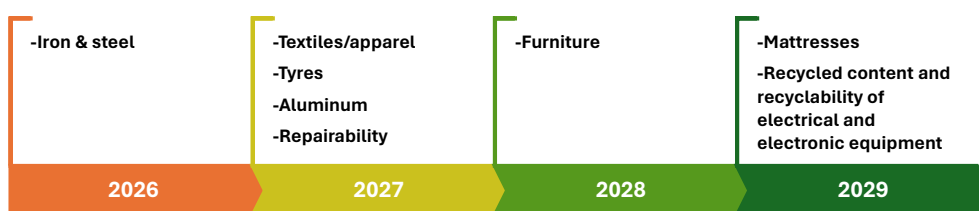


Figure 1. Of the eleven priority product groups identified in Article 18(5) of Regulation (EU) 2024/1781, eight were selected for inclusion in the Ecodesign and Energy Labelling Working Plan 2025-2030 (COM(2025) 187). The year indicated refers to the planned launch of defined ecodesign requirements for each product group (European Commission 2025c).

2.3 Generic Ecodesign Requirements under the ESPR

The ESPR establishes a comprehensive set of generic ecodesign requirements that can be applied to products placed on the EU market or put into service (Article 5(1)). These include, among others (European Parliament - the Council of the European Union 2024a):

- Durability, reliability and reusability
- Upgradability and repairability; possibility of maintenance and refurbishment
- Presence of substances of concern (information and, where relevant, restrictions through delegated acts)
- Energy use and energy efficiency; water use and water efficiency
- Resource use and resource efficiency; expected generation of waste
- Recycled content; possibility of remanufacturing; recyclability and recoverability of materials
- Environmental impacts, including carbon footprint and environmental footprint (as applicable).

The applicability of each requirement is determined case by case for each delegated act, considering technical feasibility, environmental impact and the availability of measurement methods. Requirements may take the form of performance requirements (minimum criteria) and/or information requirements (mandatory provision of data to economic operators, authorities and/or consumers). Measurement methods and test standards are expected to be developed in collaboration with European and international standardization bodies to ensure enforceability and uniform application across the internal market (European Commission 2016b, Bundgaard and Huulgaard 2023, European Parliament - the Council of the European Union 2024a, CEN-CENELEC 2026).

2.4 Digital Product Passport and Information Infrastructure

Within the ESPR, the Digital Product Passport (DPP) should be understood as a core information infrastructure for sustainable product policy rather than as a stand-alone communication tool. The European Commission describes the DPP as a digital identity card for products, components and materials, intended to store and share relevant data on sustainability, durability, circularity and legal compliance (European Commission 2024d). Under the ESPR, products covered by relevant delegated acts may only be placed on the market or put into service if a DPP is available and if the data in that passport is accurate, complete and up to date (European Parliament - the Council of the European Union 2024a, Article 9(1)). The DPP therefore links product design requirements, market surveillance, circular value chain collaboration and consumer-facing information into one regulatory architecture.

The DPP is not a single, fixed dataset. Instead, the ESPR establishes a framework in which product group delegated acts and horizontal measures will specify what data must be included, which data carrier should be used, how the data carrier should be presented and positioned, who should have access to which data, who may

create or update the passport, and for how long the passport must remain available (European Parliament - the Council of the European Union 2024a, Article 9(2)). This is important because the information needs of customers, repairers, refurbishers, remanufacturers, recyclers, customs authorities and market surveillance authorities differ. For example, customers may need durability, maintenance and repair information; professional repairers may need disassembly and spare part information; recyclers may need material composition and substances-of-concern data; and authorities may need compliance evidence and traceability data (European Commission 2024d, European Parliament - the Council of the European Union 2024a, Articles 9-11, European Commission 2025c).

A central design issue is the granularity of the passport. The ESPR explicitly states that the delegated act shall specify whether the DPP is to be established at model, batch or item level, and how these levels are to be defined (European Parliament - the Council of the European Union 2024a, Article 9(2)(d)). Article 10 further states that the data in the passport shall refer to the product model, batch or item as specified in the delegated act (European Parliament - the Council of the European Union 2024a, Article 10(1)(f)). This means that DPP granularity is not predetermined across all sectors; it will be calibrated according to the product group, the type of information required and the practical need for traceability.

For furniture, the granularity question is particularly important. A model-level passport may be sufficient for information that is stable across all units of a product model, such as general design characteristics, standard disassembly instructions, spare part compatibility and generic material categories. A batch-level passport may be more appropriate where material composition, suppliers, finishes, textile coverings, adhesives or chemical treatments vary between production batches. An item-level passport may be justified for higher-value products, products intended for multiple ownership cycles, customized furniture, contract furniture, or products managed through leasing, take-back, refurbishment or remanufacturing models. In these cases, item-level identity can support repair history, component replacement, refurbishment records and end-of-use routing. The practical trade-off is that finer granularity improves traceability and circular-service potential but increases data-management complexity, supplier data requirements and long-term maintenance obligations.

From a repairability perspective, the DPP can become a scalable channel for structured, auditable information on components, disassembly steps, joining techniques, spare parts, tools, software or diagnostic access where relevant, and repair instructions. This is consistent with both the ESPR's information-requirement logic and EU research work on repairability scoring, which emphasizes that repairability must be supported by evidence and not only by product design claims (Rodríguez and Favi 2022, Wandji *et al.* 2023, European Commission - Joint Research Centre 2025, European Commission 2025c, Spiliotopoulos *et al.* 2025). For furniture, this could include information on frames, upholstery, coverings, mechanisms, fasteners, glues, surface treatments and replaceable wear parts. The passport could also support circular business model operations such as take-back, resale, repair, remanufacturing, refurbishment and recycling by keeping relevant product information available beyond the first sale and across multiple ownership cycles (Kurilova-Palisaitiene *et al.* 2015, Steinwender *et al.* 2024, Wulf *et al.* 2024).

Access rights are another key part of the information architecture. The ESPR does not imply that all DPP data will be open to everyone. Instead, access to data is to be regulated according to essential requirements and specific access rights defined

at product-group level in the applicable delegated act (European Parliament - the Council of the European Union 2024a, Article 10(1)(g)). Article 11 further clarifies that customers, manufacturers, importers, distributors, dealers, professional repairers, independent operators, refurbishers, remanufacturers, recyclers, market surveillance authorities, customs authorities and other actors should have access based on their respective access rights (European Parliament - the Council of the European Union 2024a, Article 11(b)). In practice, this means that companies need to distinguish between public information, commercially sensitive supplier or bill-of-material data, repair-network information, and compliance data intended primarily for authorities (European Parliament - the Council of the European Union 2024c).

The ESPR also allows for exemptions from the requirement to have a DPP, but these exemptions are limited. Article 9(4) provides that the Commission may exempt product groups from the DPP requirement where technical specifications of the DPP are not available in relation to the essential requirements in Articles 10 and 11, or where other Union law already includes a system for the digital provision of information for that product group which the Commission considers to achieve the relevant access and compliance-verification objectives (European Parliament - the Council of the European Union 2024a, Article 9(4)(a-b)). In other words, the exemption logic is not primarily based on company size, product simplicity or sector preference, but on whether the technical infrastructure is available or whether an equivalent EU digital information system already exists.

2.5 Operationalizing the Digital Product Passport: Standardization, Interoperability and Data Governance

While the ESPR defines the regulatory role of the DPP, its practical deployment depends on cross-sector interoperability, common technical building blocks and robust data governance. The passport must be connected through a data carrier to a persistent unique product identifier, and the data carrier must be physically present on the product, packaging or accompanying documentation as specified in the relevant delegated act (European Parliament - the Council of the European Union 2024a, Article 10(1)(a-b)). The data must also be based on open standards and, where appropriate, be machine-readable, structured, searchable and transferable through an open interoperable data exchange network without vendor lock-in (European Parliament - the Council of the European Union 2024a, Article 10(1)(d)).

To support this, the Commission adopted standardization request M/604, Implementing Decision C(2024) 5423, addressed to CEN, CENELEC and ETSI. The request is intended to develop standards for DPPs in support of Union policy on the ESPR and on batteries and waste batteries (European Commission 2024b, Faraca *et al.* 2024). The standardization work is expected to provide technical foundations for unique product identifiers, data carriers, machine-readable data structures, exchange formats, interoperable interfaces, access control, role-based permissions, cybersecurity and data integrity mechanisms.

In parallel, CEN-CENELEC have published Workshop Agreement CWA 18186:2025, which captures practical DPP implementation lessons from the Horizon Europe project “CircThread”. The guidance discusses design choices such as where data should reside, how information granularity should be handled, and how infor-

mation exchange can enable circularity use cases such as repair, refurbishment, remanufacturing and recycling (European Committee for Standardization 2025). These implementation-oriented initiatives are important because DPP readiness depends not only on regulatory interpretation, but also on the ability of companies and value chain actors to exchange reliable data in a consistent and interoperable way.

Recent research reviews underline that interoperability and data governance are decisive. Without clear data ownership rules, long-term data availability, and a scalable approach to supplier data acquisition, the DPP risks becoming a compliance overhead rather than a foundation for circular services (Lopes and Barata 2024). For companies, this means that DPP preparation should be treated as a product governance programme rather than only as an IT task. It requires coordination between product development, sustainability, procurement, quality assurance, compliance, after-sales service, IT and supplier management.

Practical preparation actions for manufacturing companies include:

- 1. Define product data ownership and governance** – Assign responsibility for DPP-related data across functions and clarify who may create, validate, update and approve information.
- 2. Establish persistent product identifiers and version control** – Prepare for product identification at the level likely to become relevant for the product group, whether model, batch or item level.
- 3. Map stable and variable product information** – Distinguish between information that is stable across a product model and information that may vary by batch, supplier, material, finish, component or item.
- 4. Collect supplier and component data systematically** – Build routines for obtaining and maintaining information on materials, components, substances of concern, spare parts, repairability, remanufacturability, disassembly and compliance evidence.
- 5. Define role-based access rights** – Separate public information from data intended for repairers, recyclers, authorities or internal use, and assess how commercially sensitive information should be protected.
- 6. Align internal systems** – Connect DPP-relevant data across PLM, ERP, quality, compliance, service and documentation systems so that information can be delivered consistently across markets.
- 7. Pilot a minimum viable passport** – Test a DPP structure for one product line to identify data gaps, supplier-data challenges, access-right issues and technical integration needs before delegated acts make requirements binding.
- 8. Monitor emerging standards** – Follow the M/604 work programme and related CEN-CENELEC and ETSI activities to ensure that internal DPP pilots remain compatible with emerging interoperability requirements.

For furniture companies, these actions are particularly relevant because product data is often distributed across design documentation, supplier specifications, material declarations, upholstery and surface-treatment records, service manuals and quality systems. A structured approach to DPP readiness can therefore support both ESPR compliance and the development of circular business models based on take-back, resale, repair, remanufacturing, refurbishment and material recovery.

3. Development of Standards for Material Efficiency

3.1 National entry points and how organizations connect (Sweden – Europe – Global)

Delegated acts under the ESPR will require robust, repeatable and comparable measurement methods. Standards therefore play a central role by providing common terminology, test methods, assessment procedures and reporting formats that make legal requirements measurable and enforceable. In general, standards are being developed for different geographical areas and for different kinds of products as illustrated by some examples in Table 1 below.

Table 1. Example of standardization organizations effective with different scope depending on geographical areas and product sectors.

Organisation	Geographical area	Product sector
ISO - International Organization for Standardization	Global	General
IEC - International Electrotechnical Commission	Global	Electrical products
ANSI - American National Standards Institute	USA	General
CEN - European Committee for Standardization (Comité Européen de Normalisation)	Europe	General
CENELEC - European Committee for Electrotechnical Standardization (in French: Comité Européen de Normalisation Électrotechnique)	Europe	Electrical products
BSI - British Standards Institution	Great Britain	General
SIS - Swedish Standards Institute	Sweden	General
SEK - Svensk Elstandard (the Swedish Electrotechnical Commission)	Sweden	Electrical products

Standardization organizations do not operate in isolation. They collaborate and sometimes develop standards jointly, for example when ISO, CEN and IEC developed the Environmental Conscious Design (ECD) standard in 2010 and later updated it in 2019 (IEC 62430:2019). For companies, influence on both international and European standards is typically exercised through national member bodies. In practice, international standardization is led by ISO (and IEC for electric products), while European standardization is led by CEN (and CENELEC for electrical products).

Participation and influence are primarily channeled through national standardization organizations that are members of these systems. For Swedish industry,

this means engaging via SIS for general standardization and via SEK for electrotechnical standardization. Swedish companies typically participate through national mirror committees coordinated by SIS/SEK, where national positions are consolidated, comments to drafts are coordinated, and experts are nominated to working groups at CEN/CENELEC and ISO/IEC level. This is therefore the main route for Swedish stakeholders to contribute to, and influence, the methods and reporting formats that later become essential for implementing and enforcing ESPR delegated acts.

Material efficiency issues are addressed in many standards. From an ISO perspective, material efficiency is included in guidance on how organizations manage environmental work (e.g. “Environmental management systems – Guidelines for incorporating ecodesign” (ISO 14006:2020).

EU experience under the earlier ecodesign framework shows that horizontal standards can provide a backbone that product-specific committees and delegated acts can build upon (European Commission 2016b, Bundgaard and Huulgaard 2023, European Parliament - the Council of the European Union 2024a, CEN-CENELEC 2026).

3.2 CEN-CENELEC and the EN4555X Series

European standardization on material efficiency was initiated through a European Commission standardization request on ecodesign requirements on material efficiency aspects for energy-related products (often referred to as mandate M/543), issued via Commission Implementing Decision C (2015) 9096. In response, CEN and CENELEC organized the work in a joint technical committee (JTC 10) consisting of seven project teams (PTs) to develop horizontal methods and guidance that complement energy-efficiency regulation by addressing durability, reparability and other circularity aspects (European Commission 2016b, CEN-CENELEC 2026).

The joint technical work was structured into the following project teams:

- PT1: Terminology
- PT2: Durability
- PT3: Upgradability, ability to repair, facilitating reuse, and use of reused components
- PT4: Ability to remanufacture
- PT5: Recyclability and recoverability, RRR index, recycling and use of recycled materials
- PT6: Use of critical raw materials and recyclability of critical raw materials
- PT7: Documentation and/or marking of information related to material efficiency

The standardization request is linked to three overarching material-efficiency aspects (European Commission 2016b, CEN-CENELEC 2026):

- Extending product lifetime
- Ability to reuse components or recycle materials from products at end-of-use/life
- Use of reused components and/or recycled materials in products

The resulting EN4555X series provides horizontal methods and guidance for assessing product circularity characteristics. The standards were initially developed for energy-related products, but the underlying concepts (durability, reparability, recyclability, recycled content and information provision) are relevant across more general product groups and can inform future ESPR delegated acts (European Commission 2016b, Bundgaard and Huulgaard 2023, European Parliament - the Council of the European Union 2024a, CEN-CENELEC 2026). Hence, upcoming revisions will include products in general and not only energy-related ones.

- EN45552: Durability of products
- EN45553: Remanufacturability
- EN45554: Reparability, reuse and upgrade
- EN45555: Recyclability and recoverability
- EN45556: Proportion of reused components
- EN45557: Proportion of recycled material content
- EN45558: Declaring the use of critical raw materials
- EN45559: Providing information related to material efficiency aspects
- EN45560: Method to achieve circular design of products

Together, these standards help users and regulators understand how products can be designed and assessed for improved durability, reparability, remanufacturability and recyclability.

EN45553 provides a general method for the assessment of the ability to remanufacture energy-related products. Case studies of using the standards have shown different possibilities to practice scoring methods.

4. Repairability as a Horizontal Requirement

Repairability is a key horizontal theme under the ESPR. The policy intent is to ensure that products are designed so that maintenance, repair and component replacement are feasible throughout the product's life cycle, thereby extending lifetime, reducing waste and supporting circular business models. Repairability requirements under the ESPR are expected to interact with consumer-facing measures in the Right to Repair Directive (European Parliament - the Council of the European Union 2024b) and with product-specific delegated acts adopted under the ESPR (European Commission 2024c, European Parliament - the Council of the European Union 2024a, European Commission - Joint Research Centre 2025, European Commission 2025c, Spiliotopoulos *et al.* 2025).

4.1 Repairability Elements Likely to be Specified

Based on the generic ecodesign requirements and existing standardization and research work, repairability measures typically translate into a combination of design-related and information-related requirements. Table 2 summarizes key elements that are already visible in the ESPR framework and related standardization activity (Rodríguez and Favi 2022, Bundgaard and Huulgaard 2023, Wandji *et al.* 2023, European Parliament - the Council of the European Union 2024a, European Commission - Joint Research Centre 2025, Spiliotopoulos *et al.* 2025).

Table 2. Illustrative elements of repairability requirements and relevant standards (indicative, based on EU legal and technical sources and peer-reviewed studies).

Key element	What it means in practice	Relevant standards / work
Access to repair information	Provision of technical documentation and manuals to professional repairers and, where relevant, users.	EN45554:2020; ISO 14006:2020
Spare parts availability	Minimum availability period and conditions (including delivery times and, potentially, cost/price transparency).	EN45554:2020
Design for disassembly and replacement	Product architecture enables replacement of priority parts without unnecessary damage; joining techniques, fasteners and clear access paths support non-destructive disassembly.	EN45554:2020; related material-efficiency standards (EN4555X series)
Repairability scoring	Standardized scoring disclosed to stakeholders (and potentially consumers), based on transparent assessment methods and evidence that can be checked by market surveillance.	ESPR Working Plan 2025–2030 (horizontal measure on repairability incl. scoring); JRC repairability scoring system and scoping study (JRC139725)
Diagnostic access and software support (where relevant)	Access to necessary diagnostic functions and continued software/firmware support that does not unnecessarily prevent repair (relevant for connected and software-dependent products).	JRC repairability work highlights software as a criterion in repairability relevance and scoring discussions

4.2 Legal Basis and Standardization Pathway for Repairability Scoring

The ESPR provides two key legal basis for repairability requirements and scoring:

- ESPR Article 7: specifies repair information, spare parts availability and the potential introduction of a repairability score (European Parliament - the Council of the European Union 2024a).
- ESPR Article 11: provides for delegated acts to define thresholds, testing methods and scoring systems (European Parliament - the Council of the European Union 2024a).

EN45554 provides general methods for the assessment of the ability to repair, reuse and upgrade energy-related products. Peer-reviewed case studies show how EN45554 and related repairability indices can be used to identify disassembly bottlenecks and derive eco-design guidelines (Rodríguez and Favi 2022, Wandji et al. 2023). Additional case studies also show challenges when using the standard due to lack of product information and repair instructions.

The Commission's 2025–2030 Working Plan identifies a horizontal measure on repairability (including scoring). In parallel, the JRC has developed and tested a reparability scoring concept and has published a scoping study on which product groups could be most relevant for implementing an EU-wide product reparability score. These technical building blocks are likely to inform how repairability scoring is operationalized under the ESPR (European Commission - Joint Research Centre 2025, European Commission 2025c, Spiliotopoulos et al. 2025).

In parallel, the Right to Repair Directive (European Parliament - the Council of the European Union 2024b) aims to improve the functioning of repair markets and strengthen consumer access to repair. Member States must transpose the Directive into national law and apply it from 31 July 2026 (European Commission 2024c, European Parliament - the Council of the European Union 2024a).

4.3 Repairability Scoring and the Wider EU Right-to-Repair Landscape

The EU policy framework is increasingly moving from repairability as a design attribute to repairability as a verified consumer reality. The Working Plan 2025–2030 signals that the Commission may combine design-oriented requirements with consumer-facing information tools through a horizontal repairability measure that explicitly includes repairability scoring. In parallel, Directive (EU) 2024/1799 on common rules promoting the repair of goods seeks to make repair more attractive through information and process-oriented measures (European Commission 2024c, European Parliament - the Council of the European Union 2024a, European Commission 2025c). Taken together, these instruments indicate a shift from “repairability in theory” to “repairability in practice”, where scoring is expected to be anchored in verifiable evidence rather than assumptions about product design.

From a standardization perspective, the main methodological reference point for repairability assessment is (CEN-CENELEC 2020), “General methods for the

assessment of the ability to repair, reuse and upgrade Energy-related Products,” developed by CEN/CENELEC/JTC 10. The standard sets out core principles such as reparability criteria, a scoring approach, weighting logic, and an aggregation method for a final score. However, the existence of a common reference does not automatically translate into uniform outcomes. Wandji et al. (2023) identified nine additional reparability assessment methods, most of which draw heavily on EN45554 but implement its principles differently. As illustrated in Table 3, key elements vary across methods, number of criteria, scoring scales, weighting choices, and aggregation rules, meaning that “reparability scoring” is not one single operational practice but a family of related approaches that can produce different results for the same product.

Table 3. Comparison of reparability assessment methods according to the EN45554 principles (Wandji et al. 2023).

	EN 45554	i-Fixit	Assessment matrix for ease of repair	JRC's Repair Scoring System (RSS/JRC)	French Reparability Index (FRI)
Number of criteria	11	20	24	15	12
Range of criteria scoring system	0 to 1	1, 2, or 3	0, 2, 5, or 10	0 to 1	0 to 13
Criteria weighting	Defined	1	1	1 or 2	1
Priority part weighting	–	–	–	1 or 3	–
Aggregation calculation method	Weighted sum	Sum divided by 4	–	Sum divided by total weight	Sum divided by 10

Empirical studies underline why these matters for policy design. Dangal *et al.* (2025) compared four scoring methods (iFixit, RSS/JRC, FRI, and Austrian ONR19202) across product categories including smartphones, televisions, washing machines, and vacuum cleaners. Overall scores were strongly correlated, but the spread between best- and worst-case assessments for the same product could exceed the differences between products. A major driver was ambiguity in how disassembly steps are interpreted under step-counting approaches. To reduce this sensitivity, Dangal *et al.* (2025) propose a proxy time method and recommend broader improvements, including clearer protocols, explicit treatment of limiting factors, and stronger verification procedures.

The Joint Research Centre (JRC) has already investigated reparability scoring design choices – such as what elements to score and how scoring could be standardized – creating a technical knowledge base that can inform future delegated acts and harmonized standards (European Commission - Joint Research Centre 2025). Yet evidence also suggests that scores risk missing practical “deal-breakers”: missing documentation, lack of spare parts, or prohibitive costs may not be adequately reflected even if a product appears mechanically easy to disassemble. An empirical comparison of four scoring systems (French Reparability Index, JRC scoring system, iFixit, and ONR 19202) therefore emphasizes the need for clearer protocols, improved management of limiting factors, and strengthened verification (Dangal *et al.* 2025).

This distinction, between *scoring mechanics* and *real repair access*, is also highlighted in legal and academic assessments of the EU repair directive. Information tools alone may not remove the core barriers that determine whether repair actually happens, including economic incentives, spare parts availability and pricing, and access to repair information. For any future EU-wide scoring scheme, this implies that a high score should correspond to durable repair access over time, not merely theoretical disassembly potential (López-Bermúdez and Vence 2025). For software-enabled products, the scope widens further: access to diagnostics, pairing tools, and software can be as decisive as physical disassembly, and legal constraints linked to copyright and technological protection measures may materially affect repairability in practice (Rosborough *et al.* 2023).

This has direct relevance for Green Public Procurement (GPP). Public procurement can help turn repairability from a compliance claim into an operational requirement by asking not only whether a product can be repaired, but whether repair is practically available during the contract period. In this sense, GPP can function as a bridge between ESPR-style product requirements and real circular outcomes in public purchasing. For example, procurement criteria can require evidence of disassembly and replacement procedures, access to repair manuals, availability of spare parts for a defined period, transparent spare part pricing, service response times, and conditions for repair, refurbishment, take-back or remanufacturing. For furniture, this is particularly relevant because EU GPP and EU Ecolabel criteria already operationalize several themes likely to become important under future delegated acts, including durability, restricted substances, maintenance and repair provisions, traceability and take-back (European Commission 2014, European Commission 2016a, Donatello *et al.* 2017).

However, using repairability scoring in GPP also requires caution. If public buyers rely only on a numerical score, there is a risk that procurement rewards products that are “repairable on paper” but not repaired in practice. A high score may be misleading if spare parts are unavailable, repair instructions are incomplete, costs are too high, or repair services are not accessible to the procuring organization. GPP criteria should therefore prioritize the enabling conditions for actual repair: documented procedures, spare part availability, realistic repair costs, contractual service obligations, access for independent or authorized repairers, and evidence that repairs can be performed repeatedly without damaging the product. For furniture, this also means focusing on replaceable wear parts, coverings, upholstery, mechanisms, fasteners, modular components and non-destructive disassembly.

A practical priority for public procurement is therefore to combine product-level requirements with service-level requirements. Product-level requirements should address design for repair, durability, disassembly, material traceability and compatibility with future DPP information flows. Service-level requirements should address maintenance, repair logistics, spare parts supply, refurbishment options, take-back systems and reporting on actual repair outcomes. This would make procurement a demand-side instrument that supports both ESPR preparedness and circular business models. It would also help public buyers move beyond purchasing “sustainable products” as static objects and instead procure product-service systems that keep products in use for longer.

For Swedish public authorities and procuring organizations, the main priority should be to develop criteria that are verifiable, proportionate and linked to mea-

surable outcomes. The most important focus areas are: evidence-based repairability, availability and affordability of spare parts, repair documentation, durable access to service, traceability of product information, and contractual follow-up of repair and refurbishment performance. In this way, GPP can support the broader EU shift from design potential to practical circularity. The central question is no longer only whether a product can be repaired, but whether the procurement model, supplier obligations and product information make repair the normal and economically viable option throughout the product's lifetime.

5. Furniture as a Priority Product Group

Furniture is identified as a priority product group under the ESPR and is included among the early priorities in the Working Plan 2025–2030; recent industry documentation also describes the sector as a major EU manufacturing ecosystem with around 1 million employees, about 120,000 enterprises and turnover above EUR 100 billion, which strengthens the policy case for early furniture-specific measures (European Furniture Industries Confederation 2024, European Furniture Industries Confederation 2025). The sector is often highlighted as having significant improvement potential because product lifetimes can be short in some segments and material combinations can make end-of-use/life operations challenging. This matters against the backdrop of high waste volumes in the EU and persistent challenges in waste prevention and reuse. EU analyses of the furniture sector and its circular economy opportunities therefore emphasize durability, reparability, remanufacturability, refurbishment and improved material information as key levers and practical company guidance increasingly links those levers to design choices and business-model change (Furn Project Consortium 2018, European Furniture Industries Confederation 2024, European Parliament - the Council of the European Union 2024a, Eurostat 2024, European Commission 2025c).

5.1 Likely Requirement Areas for Furniture

The ESPR enables delegated acts to combine performance requirements and information requirements. For furniture, policy and standardization discussions point to a strong emphasis on durability, reparability, remanufacturability, disassembly, data transparency and circular material flows, including structured product information that can support repair, refurbishment and end-of-life management, as shown in Table 4. Furniture longevity depends on combined technical, functional, and emotional design strategies (Alsén 2026). Existing EU voluntary instruments, such as EU GPP criteria and the EU Ecolabel for furniture, already operationalize many of these themes and can be used as practical reference points in preparation work; European Furniture Industries Confederation’s 2024 policy documents additionally stress harmonised rules, proportionality for SMEs and alignment with ongoing CEN TC 207 work (European Commission 2014, European Commission 2016a, Donatello *et al.* 2017, European Furniture Industries Confederation 2024, European Parliament - the Council of the European Union 2024a, European Commission 2025c, European Furniture Industries Confederation 2025).

Table 4. Illustrative requirement areas for furniture and relevant standards/work (indicative, based on EU legal and technical sources and peer-reviewed studies).

Requirement area	Example operationalisation	Relevant standards/work
Durability and Reliability	Minimum lifespan and resistance to wear, fatigue and deformation; performance testing for common use cases.	EN1728; EN1730
Repairability	Disassembly and replacement of key components (frames, upholstery, mechanisms).	EN17902:2023 (dis/re-assembly capability); EU GPP criteria; EU Ecolabel criteria
Recyclability and recycled content	Use of recyclable materials and, where relevant, minimum recycled content levels.	ISO 14021; EU GPP criteria (circular material flows)
Material traceability and substances of concern	Identification and declaration of materials and, where relevant, substances of concern to support safe recycling and consumer information.	EU Ecolabel criteria; EU GPP criteria; (information requirements can link to the ESPR/DPP context)
Disassembly/reassembly for circularity	Assessment of how furniture can be disassembled and reassembled in relation to circularity criteria.	EN17902:2023

5.2 Disassembly as a Practical Basis for Furniture Circularity

European standardization for furniture circularity includes EN17902:2023, which provides an evaluation method for assessing furniture dis/re-assembly capability. Its importance is that it makes disassembly more than a general design ambition: it offers a structured way to assess whether furniture can be taken apart and reassembled in a manner that supports circular use. This is directly relevant to repair, remanufacturing, refurbishment and component reuse, since these strategies depend on access to parts, non-destructive separation, and the ability to handle products over more than one life cycle (SIS 2023, Formentini *et al.* 2025).

In the ESPR context, EN17902:2023 can therefore serve as a practical bridge between future regulatory expectations and company-level design decisions. It helps identify where furniture design supports circularity, and where it may create barriers, for example through irreversible joints, difficult access to components, or weak reassembly potential. Used together with durability, repairability and product information requirements, the standard can support more comparable assessments and help align furniture design with future delegated acts, GPP criteria and circular business models.

5.3 Remanufacturing Evidence and Digital Product Passports for Furniture

Furniture is particularly suitable for circular strategies (repair, remanufacturing, refurbishment and re-upholstery) because structural components often have long technical lifetimes. A case study in office furniture demonstrates how adaptive remanufacturing can create multiple life cycles and reduce environmental impacts relative to producing new furniture, provided that products and supply chains are organized to enable repeated disassembly and component replacement (Krystofik *et al.* 2018).

Assessing remanufacturability can be operationalized using multi-criteria approaches that integrate environmental, economic and social aspects. Such frameworks help identify design and process parameters that limit circular options (e.g., material mixes, irreversible joints, insufficient documentation, or missing take-back logistics) (Otieno *et al.* 2024).

Design for Remanufacturing (DfRem) deals with design criteria that facilitate the furniture remanufacturing as exemplified by Lindkvist Haziri and Sundin (2020):

- Use of standardized parts
- Robust material selections
- Modular design
- Upgradeability
- Assembly methods that allow for non-destructive disassembly and reassembly
- Minimal number of connectors
- Reusable connectors
- Easy access to wear and tear parts
- Shapes/Materials that are easy to clean
- Corrosion-resistant parts
- Timeless design

Design for Disassembly (DfD) in furniture is strongly shaped by joinery and fastening choices. A recent open-access review analyses joinery solutions and proposes practical design guidelines such as: web-accessible disassembly instructions, modularity, component labelling, independent component removal, and choosing fastening systems that withstand repeated assembly/disassembly (Sydor and Stańczyk 2025).

DPPs can help scale these strategies by ensuring that material composition, fasteners, and repair/remanufacturing/refurbishment instructions remain available over multiple ownership cycles. A peer-reviewed paper proposes a blueprint for introducing DPPs in the furniture industry and discusses how existing data practices can be adapted to meet passport requirements (Steinwender *et al.* 2024). The FurnCIRCLE handbook complements this with company-oriented guidance across design, use, repair, collection and recycling, making it a relevant implementation source for ESPR preparedness (European Furniture Industries Confederation 2024, Ambit 2025).

6. A Practical Roadmap for ESPR Preparedness

The conclusions of this study are that the ESPR creates a strong framework that progressively makes sustainable products the norm on the EU internal market, and that the practical requirements take shape through delegated acts and multi-annual working plans. This means the “exact rules” arrive stepwise, but the capability to comply is something organizations need to build in advance, especially for early priorities such as horizontal repairability measures (including scoring) and furniture (European Commission 2024d, European Parliament - the Council of the European Union 2024a, European Commission 2025c)

The key messages are:

- **Preparation starts now, even before delegated acts are finalized.** Companies should strengthen Design for Repair, documentation, spare parts provision strategies and internal compliance evidence so that future requirements are easier to meet and defend in market surveillance (European Parliament - the Council of the European Union 2024a, European Commission 2025c).
- **Standards are the operational backbone, not a side activity.** Standards define measurable methods, testing protocols, and reporting formats that make requirements enforceable and comparable across the EU. Monitoring and participating in standardization therefore become a strategic competitiveness activity (European Commission 2016b, Bundgaard and Huulgaard 2023, CEN-CENELEC 2026).
- **For furniture, durability and disassembly are central.** Improving product architecture (e.g., avoiding irreversible joints where feasible) and strengthening material traceability reduces compliance risk and enables circular offerings such as take-back, resale, repair, remanufacturing and refurbishment (European Commission 2014, European Commission 2016a, Donatello *et al.* 2017, SIS 2023, European Commission 2025c, Formentini *et al.* 2025).

6.1 What Swedish EPA Should Do and Why

Based on the findings of this study, the recommendation is that the Swedish EPA should take a more active coordinating role in preparing Swedish actors for the ESPR. The ESPR is not only a product compliance regulation. It is a central instrument for reducing environmental impacts from products across their life cycle, increasing resource efficiency, preventing waste, improving repairability and recyclability, and supporting circular business models. This makes the Swedish EPA a natural lead authority for the broader ESPR preparedness agenda. Other authorities will continue to have important roles: the Swedish Energy Agency (sv. Energimyndigheten) has strong expertise in energy-related products and energy labelling, while the Swedish Chemicals Agency (sv. Kemikalieinspektionen) has a

central role in relation to substances of concern and chemicals regulation. However, the ESPR is broader than energy performance and broader than chemical safety. It concerns product durability, repairability, reusability, refurbishment, recyclability, recycled content, DPPs, waste prevention and circularity. These areas are closely linked to the Swedish EPA's environmental policy mandate, its responsibility for waste prevention and circular economy implementation, and its role in supporting national environmental objectives.

At the same time, the Swedish EPA should not act alone. ESPR preparedness also has a strong business development and SME dimension. The Swedish Agency for Economic and Regional Growth (sv. Tillväxtverket) should therefore be included as a key partner in areas concerning SME support, competitiveness, administrative burden reduction and company-oriented capacity building. This is consistent with Article 22 of the ESPR, which requires Member States to take appropriate measures to help SMEs, in particular micro-enterprises, comply with ecodesign requirements, including one-stop shops or similar mechanisms, and where appropriate financial support, access to finance, specialised training and organisational or technical assistance (European Parliament - the Council of the European Union 2024c).

The Swedish EPA should lead on the environmental rationale, circular economy objectives, resource efficiency, waste prevention and market surveillance logic, while the Swedish Agency for Economic and Regional Growth should contribute expertise on how support can be designed so that it reaches SMEs in a practical and proportionate way. The Swedish EPA should act as a national convenor and knowledge-building authority. Its role should not be to replace sector authorities, standardisation bodies, business development agencies or industry organisations, but to connect them and ensure that Swedish implementation of the ESPR leads to real environmental benefits, practical compliance pathways and stronger competitiveness for Swedish companies.

The Swedish EPA should also assess, together with relevant ministries and agencies, whether dedicated resources are needed for ESPR preparedness. This may include resources for guidance, coordination, participation in standardisation, pilot projects, SME-oriented support and market surveillance capacity. ESPR itself does not allocate Swedish national funding, but it provides a clear policy basis for Member States to support SMEs and prepare market surveillance systems. It also provides for EU-level coordination and, where appropriate, financing of joint market surveillance and testing projects, joint investments in market surveillance capacity and common training programmes (European Parliament - the Council of the European Union 2024c). Such support should primarily be capacity-building rather than compensation for ordinary compliance costs.

6.1.1 Build national alignment around “what good looks like”

What the Swedish EPA should do – The Swedish EPA should convene a structured national dialogue on ESPR preparedness. This dialogue should include industry, SIS and SEK, relevant sector associations, OEMs, SMEs, public procurers, repair actors, refurbishers, remanufacturers, recyclers, digital product data providers, the Swedish Agency for Economic and Regional Growth, and other circularity actors. The purpose should be to create a shared understanding of:

- which ESPR requirements are likely to affect Swedish companies first;
- how horizontal repairability requirements and furniture-specific delegated acts may develop;
- what practical readiness means for companies, especially SMEs;
- how product information, documentation, product identifiers and DPPs should be prepared;
- what companies should be able to show in future market surveillance;
- how Swedish actors can avoid fragmented interpretations of EU requirements.

The Swedish EPA should also translate EU-level policy direction into Swedish implementation pathways. This could include guidance notes, sector-specific readiness checklists, workshops, interpretation support and examples of good practice.

This work should be coordinated with the Swedish Agency for Economic and Regional Growth where SME support is concerned. SMEs often need practical tools rather than general policy information. Examples include simplified checklists, template documentation, sector-specific training, access to expert advice, support for product data readiness and guidance on how to participate in standardisation.

Why this is important – As noted in Subsection 2.2, delegated acts, standards and DPP requirements are developing quickly. Building on the European Commission’s ESPR and Energy Labelling Working Plan 2025–2030, this includes both priority product groups and horizontal measures on repairability, including a repairability score (Directorate-General for Environment 2025). Without national coordination, different companies and sectors may interpret the same EU signals in different ways. This creates uncertainty, unnecessary costs and uneven preparedness.

National alignment would reduce uncertainty and help Swedish industry understand what “good enough” preparation looks like before binding requirements arrive. This is especially important for SMEs, which often lack dedicated regulatory, standardisation, product data and compliance teams. SMEs should be supported because ESPR preparedness may require new capabilities in product documentation, supplier data, repairability information, standardisation, testing, DPP readiness and market surveillance preparation. However, support should be targeted and proportionate. It should help SMEs build capacity and understand requirements, not remove their responsibility to comply with binding rules.

A coordinated Swedish approach would also help industry move from reactive compliance to strategic preparation. Instead of waiting for final delegated acts, companies can begin strengthening repair documentation, spare part strategies, design-for-disassembly practices, material traceability and product data governance. This reduces later compliance costs and supports circular business model operations such as take-back, resale, repair, remanufacturing, refurbishment and material recovery.

6.1.2 Treat standardisation as a strategic environmental and competitiveness lever

What the Swedish EPA should do – The Swedish EPA should treat standardisation as a strategic policy tool, not as a purely technical side activity. It should

support Swedish participation in relevant SIS and SEK mirror committees and help stakeholders follow high-impact European standardisation workstreams, including:

- repairability (including scoring);
- disassembly and reassembly evaluation;
- durability and material efficiency standards;
- DPP interoperability;
- product identifiers, data access rights and data quality;
- furniture circularity standards, including disassembly and refurbishment-related methods.

The Swedish EPA should also create support mechanisms that make it easier for Swedish actors to contribute expertise to standardisation. This could include funding for SME participation, expert networks, national briefings before important European committee meetings, and coordination between authorities, industry, research actors and industry associations.

Industry associations (e.g. The Association of Swedish Engineering Industries (sv. Teknikföretagen) and The Swedish Federation of Wood and Furniture Industry (TMF)) should play an important role here. They can identify common sector concerns, nominate experts, coordinate input from companies, translate draft standards into practical implications for their members, and help ensure that SME perspectives are included. From a Swedish EPA perspective, this participation should be encouraged because it improves the practical relevance of standards while still keeping environmental objectives at the centre.

Why this is important – Standards define how ESPR requirements become measurable in practice. They shape test methods, scoring methods, evaluation methods, reporting formats, documentation requirements and the type of product information that companies must provide. In practice, standards will strongly influence what market surveillance authorities can check, what companies must demonstrate, and how products are compared across the EU market (European Commission 2016b, Bundgaard and Huulgaard 2023, CEN-CENELEC 2026).

This means that standardisation is also an opportunity. If Swedish actors participate early, Sweden can help shape standards that are practical, environmentally meaningful and innovation-friendly. This can help avoid standards that create administrative burden without real environmental benefit. It can also help promote methods that reward qualities where Swedish companies may already be strong: durable design, high-quality materials, repairable products, responsible sourcing, circular services, traceability and long product lifetimes. Strategic engagement in European standardisation can therefore support three goals at the same time.

First, it can improve environmental outcomes by ensuring that standards measure real circularity, not only formal compliance. For example, a repairability score should reflect whether a product can actually be repaired in practice, with available spare parts, clear instructions and non-destructive disassembly. *Second*, it can strengthen Swedish competitiveness by helping Swedish companies prepare early and influence rules that will apply across the EU internal market. *Third*, it can improve product quality by encouraging standards that reward durability, repair-

rability, resource efficiency and circular value retention rather than short product lifetimes and difficult end-of-life management.

The same logic applies to DPPs. The Commission's standardisation request M/604 asks CEN, CENELEC and ETSI to develop standards for DPPs in support of ESPR and batteries legislation, covering issues such as identifiers, data carriers, data exchange, access rights and interoperability (European Commission 2024a). Swedish engagement in this work can help ensure that DPP implementation supports circularity and market surveillance without creating unnecessary complexity for SMEs.

6.1.3 Prepare for market surveillance by clarifying what companies must be able to show

What the Swedish EPA should do – The Swedish EPA should develop clear guidance on what companies should be able to show when products are assessed under future ESPR requirements. The guidance should use practical language and explain what information companies need to retain, update, and make available, for example:

- product documentation that shows how requirements are met;
- test reports and assessment results based on relevant standards;
- repair and disassembly instructions;
- spare part lists, availability periods and compatibility information;
- product version history and changes to materials, components or suppliers;
- material and component information from suppliers;
- DPP-related product data, access rights and identifiers;
- records showing how information has been checked, updated and approved.

The Swedish EPA should encourage companies to establish simple but robust routines for keeping product information organised, traceable and up to date. Companies should be able to find the right information quickly, show which product version it applies to, and explain how the information has been verified.

The Swedish EPA should also assess what national resources are needed for credible market surveillance. This may include competence development, coordination between authorities, access to testing capacity, methods for document checks, and participation in EU-level cooperation. ESPR requires market surveillance priorities to be based on objective criteria, including observed non-compliance, environmental impacts of non-compliance, complaints, market volume and the number of relevant economic operators (European Parliament - the Council of the European Union 2024c).

Where legal clarity is needed, Sweden should consider whether responsibilities, powers, sanctions and cost-recovery mechanisms need to be clarified in law or regulation. ESPR also provides that market surveillance authorities may recover costs for document inspection and physical product testing from the responsible economic operator in cases of non-compliance with delegated acts (European Parliament – the Council of the European Union 2024c). However, not all ESPR preparedness should be regulated in law. Legal regulation is most appropriate for authority responsibilities, inspection powers, sanctions, market surveillance procedures and formal obligations for economic operators. Support measures, pilot

programmes, guidance, training and SME capacity-building may often be better handled through government assignments, agency instructions, funding programmes or time-limited support schemes. This allows Sweden to adapt support as delegated acts and standards develop.

Why this is important – Market surveillance will be central to whether the ESPR becomes credible and effective. If authorities cannot check compliance in a consistent way, requirements risk becoming weak in practice. If companies do not understand what they must be able to show, they may either do too little and face compliance risks, or do too much and create unnecessary costs.

Clear expectations would help companies prepare in a proportionate way. They would know what documentation, test results and product information they need to keep ready. This is particularly important because many future ESPR requirements will depend not only on product design, but also on supporting information. For example, a product may be designed for repair, but the company must also be able to show repair instructions, spare part availability, component compatibility and version history control.

For industry, clearer market surveillance expectations reduce uncertainty. Companies can build compliance into normal product development, quality assurance, supplier management and after-sales operations. This lowers the risk of last-minute documentation work when delegated acts enter into force. For regulators, clearer expectations make enforcement more consistent, fair and credible. They also help distinguish between companies that have genuinely prepared for circularity and companies that only make broad sustainability claims without verifiable support. For environmental outcomes, this is essential. ESPR requirements will only deliver real benefits if durability, repairability, remanufacturability, recyclability and product information can be checked in practice.

6.1.4 Use pilots to turn regulatory uncertainty into practical capability

What the Swedish EPA should do – The Swedish EPA should initiate or co-sponsor targeted pilots that help Swedish actors test ESPR readiness before requirements become binding. These pilots should be designed as learning environments where companies, authorities, standardisation actors, industry associations and circular value-chain partners can identify practical barriers and solutions. Priority pilots could include:

- repairability scoring readiness for selected product groups;
- furniture DPP or product identity card pilots;
- pilots linking product identifiers to take-back, resale, repair, remanufacturing and refurbishment;
- tests of disassembly and reassembly assessment methods for furniture;
- pilots on how SMEs can collect and maintain supplier, material and component information;
- pilots that explore how product data can support repair, remanufacturing/refurbishment actors and material recyclers;
- pilots that test what information companies must be able to present during market surveillance.

The Swedish EPA's role should be to frame the environmental purpose of the pilots, ensure that learning is shared across sectors, and connect pilot results to future guidance, standardisation input and market surveillance preparation. The agency does not need to run all pilots directly, but it should help define the questions, convene the right circular value chain actors, and ensure that results are translated into practical recommendations. The Swedish Agency for Economic and Regional Growth should be involved where pilots are designed to support SMEs, business development or competitiveness. Industry associations can help recruit companies, define sector-specific use cases, organise joint learning and disseminate results to their members. The Swedish EPA should publish anonymised lessons learned from pilots. These should identify common barriers, workable solutions, cost drivers and examples of good practice.

Why this is important – Many ESPR requirements are still under development, but companies cannot wait until every detail is final. Pilots allow Swedish actors to prepare early without assuming that all future rules are already known. Pilots reveal practical “deal-breakers” that are often invisible in policy documents. For example, a product may appear repairable in theory, but actual repair may be blocked by irreversible joints, missing instructions, unclear spare part numbering, unavailable replacement parts, incompatible product versions, poor supplier data, unclear access rights or lack of take-back logistics.

For furniture, pilots are especially valuable because circularity depends on practical product architecture and long-term information flows. A furniture DPP or product identity card can test what information is needed about materials, coverings, upholstery, fasteners, surface treatments, spare parts, repair steps, remanufacturing/refurbishment history and end-of-use routes. It can also test whether this information should be managed at model, batch or item level. This is consistent with the ESPR logic that DPPs may be specified at model, batch or item level depending on the relevant delegated act and product group (European Parliament – the Council of the European Union 2024c).

The Swedish EPA should support pilots because they convert uncertainty into capability. They create Swedish reference cases, help SMEs learn from frontrunners, and provide concrete input to European standardisation and future national guidance. Pilots can also show how ESPR compliance can support business development, not only regulatory burden, by enabling repair services, remanufacturing/refurbishment models, take-back logistics, resale and more resource-efficient product lifecycles. In this way, pilots can help ensure that Swedish ESPR implementation leads to better products, lower environmental impact, stronger circular value chains and improved competitiveness for Swedish companies.

6.1.5 Mobilise industry associations as implementation partners

What the Swedish EPA should do – The Swedish EPA should involve industry associations as structured implementation partners in ESPR preparedness. Their role should be to support knowledge transfer, identify practical barriers, reach SMEs, coordinate sector-specific input and help translate EU-level developments into sector-relevant guidance. Industry associations can contribute by:

- identifying which ESPR requirements are most relevant for their sectors;
- mapping common SME challenges;
- coordinating sector-specific pilot projects;
- supporting participation in SIS and SEK mirror committees;
- disseminating guidance and training;
- developing sector templates for product documentation, repair information and DPP-related data;
- collecting feedback on practical barriers to take-back, resale, repair, remanufacturing, refurbishment, material recovery and product data management.

From a Swedish EPA perspective, industry associations should be used to improve feasibility and uptake, but the environmental purpose must remain clear. The dialogue should not only focus on reducing administrative burden. It should also identify how ESPR implementation can lead to longer product lifetimes, improved repairability, better material traceability, reduced waste, higher-quality products and more circular value chains.

Why this is important – Industry associations are often the most effective channel for reaching companies, especially SMEs. They understand sector-specific products, supply chains, business models and practical constraints. They can therefore help make ESPR guidance more relevant and easier to apply. At the same time, the Swedish EPA has an important role in ensuring that sector dialogue remains aligned with public environmental objectives. Industry participation should help make regulation workable, but it should also help raise ambition where better design, better information and better circular systems can deliver environmental benefits. Used well, industry associations can help connect policy, standardisation and implementation. They can make it easier for Swedish companies to prepare early, influence European standards and turn ESPR requirements into competitive advantages rather than only compliance costs.

6.2 What Industry Associations Should Do to Prepare for Related Legislation

Industry associations should help their members move from general awareness of the ESPR to practical readiness. Their main contribution is to translate emerging EU requirements into sector-specific action that companies can understand and apply, especially SMEs with limited regulatory and technical resources. The recommendation is therefore that industry associations should already begin taking the following actions.

- **Monitor regulatory and standardisation developments continuously** – Track ESPR delegated acts, horizontal repairability measures, DPP requirements, relevant CEN-CENELEC standards and sector-specific guidance, and communicate their practical implications to members.
- **Translate policy into sector-specific tools** – Develop checklists, templates, guidance notes and training materials that reflect the products, supply chains and business models in the sector.

- **Support collective learning** – Organise workshops, peer-learning groups and pilot activities where companies can compare approaches to documentation, repairability, product data, spare parts and circular business models.
- **Identify shared barriers and solutions** – Collect member feedback on practical challenges such as supplier data, product identifiers, spare part availability, repair documentation, disassembly assessment and DPP readiness.
- **Support SMEs build basic compliance capability** – Provide simplified tools for product mapping, documentation routines, evidence storage and supplier-data collection.
- **Represent sector needs in standardisation and policy dialogue** – Coordinate input from members and ensure that both frontrunner companies and SMEs are represented in discussions on standards, delegated acts and implementation guidance.

Why this is important – Industry associations can act as a bridge between EU-level regulation and company-level implementation. They can reduce uncertainty, avoid fragmented interpretations and help companies prepare earlier and more consistently. Their role is not to replace company responsibility, but to coordinate with the sector, and make preparedness more practical, proportionate and sector-relevant. This is particularly important where future requirements depend on new routines for documentation, repair information, product data and evidence of circular performance.

6.3 What Companies in General Should Do and Why

Companies should treat ESPR preparedness as a product-management and business-development issue, not only as a compliance task. Future requirements are likely to depend on whether companies can demonstrate product durability, repairability, disassembly potential, material information and data traceability in a structured and verifiable way. The recommendation is therefore in line with above to prepare now and, where possible, already begin taking the following actions.

6.3.1 Build evidence-based repairability

What companies should do:

- Prepare disassembly and replacement instructions that identify tools, steps, priority parts and possible risks of damage.
- Maintain spare part lists with part numbers, compatibility rules, expected availability periods and ordering procedures.
- Define who may access repair information, including professional repairers, service partners and, where relevant, consumers.
- Link repair information to product models, versions and component changes.

Why – Repairability will increasingly need to be demonstrated, not only claimed. A product may be designed for repair, but companies must also be able to show

that repair is practically possible through instructions, spare parts, compatibility information and version control. This evidence can also support future DPP information requirements.

6.3.2 Integrate Design for Repair into product development

What companies should do:

- Screen product portfolios to identify products most likely to be affected by early ESPR measures.
- Map critical components, wear parts, fastening systems, failure modes and replacement procedures.
- Include Design for Repair principles in product development gates, including modularity, accessible fasteners, replaceable wear parts and non-destructive disassembly.
- Review existing products to identify where redesign may be needed before future requirements become binding.

Why – Design choices made early determine whether compliance can be achieved through documentation and testing, or whether costly redesign will be needed later. Early integration of repairability reduces compliance risk and can also support longer product lifetimes, service models and customer value.

6.3.3 Treat documentation and spare parts as strategic product assets

What companies should do:

- Establish ownership for repair manuals, spare parts catalogues, service documentation and version control.
- Develop routines for updating documentation when products, suppliers, materials or components change.
- Plan spare part availability, storage, lead times, pricing and service logistics.
- Ensure that repair information is consistent across internal systems, service partners and customer-facing channels.

Why – Mechanical repairability is not enough if documentation is missing or spare parts are unavailable. Governance turns repairability from an informal service activity into an auditable company capability. This will become increasingly important as repairability, DPP data and market surveillance expectations develop.

6.3.4 Build test and evidence systems fit for future requirements

What companies should do:

- Identify relevant standards and assessment methods, such as EN45554 for repairability and, where applicable, furniture durability and disassembly standards.

- Define how test results, supplier declarations, repair instructions and product data are stored and retrieved.
- Create version-controlled evidence packages for products likely to fall under ESPR delegated acts.
- Ensure that product, quality, compliance, sustainability and after-sales teams use consistent information.

Why – Future requirements will depend on repeatable methods and verifiable evidence. Companies that organise evidence early will be better prepared for market surveillance, customer requirements and public procurement criteria.

6.3.5 Prepare structured product data and DPP readiness

What companies should do:

- Map existing product data across PLM, ERP, quality, supplier, sustainability and service systems.
- Identify gaps in material data, component information, substances of concern, spare parts, disassembly instructions and compliance evidence.
- Establish product identifiers and version-control routines at model, batch or item level where relevant.
- Pilot a minimum viable DPP or product information structure for one product line.

Why – DPP readiness is mainly a data governance challenge. Companies need reliable, structured and updateable product information. The same data can support compliance, take-back, resale, repair, remanufacturing, refurbishment and material recovery.

6.4 Furniture focus: What Furniture Companies Should Do and Why

Furniture companies should treat durability, reliability, repairability and disassembly as the practical core of ESPR preparedness. Furniture is already identified as a priority product group, and many likely requirement areas are visible in existing EU GPP criteria, EU Ecolabel criteria, circularity standards and emerging DPP discussions. The recommendation is therefore that furniture actors should prepare now and, where possible, already begin to:

- **Design for multiple life cycles** – Strengthen product architectures so that products can be repaired, refurbished, re-upholstered, upgraded, reused or remanufactured.
- **Avoid irreversible solutions where feasible** – Review adhesives, joints, coverings, upholstery, fasteners and surface treatments to identify where non-destructive disassembly can be improved.
- **Prioritise replaceable wear parts** – Identify components most likely to fail or wear out, such as coverings, upholstery, mechanisms, glides, legs, hinges, fasteners and high-use surfaces.

- **Develop furniture-specific repair and disassembly documentation** – Prepare manuals that explain how products can be taken apart, repaired, reassembled and prepared for refurbishment or end-of-use management.
- **Align with relevant standards and guidance** – Use EN17902 on dis/re-assembly capability, relevant durability standards and design-for-disassembly guidance as practical preparation tools.
- **Pilot a furniture DPP or product identity card** – Include material composition, substances of concern, coatings, textiles, fasteners, spare parts, repair steps, refurbishment options and recommended end-of-use routes.
- **Work with repairers, remanufacturers, refurbishers and recyclers** – Test whether products can actually be repaired, separated, reused and recycled in practice, and use the findings to improve design and documentation.
- **Use public procurement and voluntary criteria as preparation benchmarks** – Apply EU GPP and EU Ecolabel criteria as proxies for likely future themes, including durability, restricted substances, take-back, maintenance, repair and remanufacturing/refurbishment traceability.

Why – Furniture can achieve a long life by strategies of durable and reliable design choices. Furthermore, circularity depends on practical design and long-term information flows. A chair, table, sofa or office system may have a long potential lifetime, but that potential is only realised if components can be accessed, replaced, documented and handled across several use cycles. Early improvements in disassembly, repair documentation, material traceability and product data can reduce compliance risk while supporting new business models based on take-back, resale, repair, remanufacturing and refurbishment (European Furniture Industries Confederation 2024, European Furniture Industries Confederation 2025).

7. Conclusions

The ESPR shifts sustainability from voluntary ambition to verifiable product compliance. For Swedish circular value chain actors, the key issue is no longer whether products can be described as sustainable, but whether durability, reliability, repairability, remanufacturability, disassembly, material information and product data can be proven through reliable evidence. Therefore, preparation should start before delegated acts are finalised. The direction is already clear: companies will need repair documentation, spare part strategies, standards-based testing, supplier data, version control and readiness for DPPs. Waiting for final rules risks costly redesign and rushed compliance work.

Repairability must be treated as a practical capability, not a design claim. To achieve an extended life many products need accessible components, non-destructive disassembly, available spare parts, clear instructions and service routes that work in practice. Future repairability scoring should therefore be built on evidence, not assumptions. Standards will define how ESPR compliance is measured. Swedish participation in standardisation development is therefore strategically important. It can help ensure that future requirements are environmentally meaningful, technically workable and proportionate for SMEs. For furniture, the priority is clear: design for longer life, repair, remanufacturing/refurbishment, disassembly and traceable product information. Furniture companies should focus on longevity, replaceable wear parts, reversible joints where feasible, repair and disassembly manuals, material traceability, and pilot DPP or product identity-card solutions.

The Swedish EPA should act as a national convenor for ESPR preparedness. Its role should be to align authorities, industry, standardisation bodies, procurers and SME-support circularity actors around clear guidance, pilots, evidence expectations and practical implementation pathways. The immediate priority is to move from awareness to action:

- build evidence packages for durability, repairability and material information;
- identify products at risk of future redesign;
- use standards, EU GPP and EU Ecolabel criteria as preparation benchmarks;
- assign ownership for product data, spare parts and documentation;
- pilot DPP or product identity-card structures;
- test repair, remanufacturing, refurbishment and recycling in practice.

Overall, ESPR preparedness should be treated as capability-building. Done well, it can reduce environmental impacts, lower compliance risk and strengthen Swedish competitiveness through better products, better data and stronger circular services.

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Appendix: Selected priority products

Table A. Selected priority products according to the European Commission, Ecodesign and Energy Labelling Working Plan 2025–2030, COM(2025) 187 final (European Commission 2025c).

Product / Measure	JRC ranking	Stakeholders' opinion	Market size (EU)	Improvement potential	Indicative timeline for adoption
Final products					
Textiles / Apparel	1 st	High support	EUR 78 billion (out of EUR 142 billion of all textiles and footwear in market size, 2019)	High potential to improve product lifetime extension, material efficiency and to reduce impacts on water, waste generation, climate change and energy consumption. Information requirements under the ESPR will work in synergy with the Textile Labelling Regulation, currently under review.	2027
Furniture	2 nd	Support	EUR 140 billion (2021)	High potential to improve aspects of resource use, with impacts of production and supply of materials often being the main contributor across different environmental impact categories (e.g. climate change, acidification, eutrophication), and waste generation. Positive impact on other categories such as air, soil and biodiversity.	2028
Tyres	3 rd	High support	EUR 45 billion (2021)	Though already regulated by other pieces of EU legislation (including the Tyre Labelling Regulation (EU) 2020/740), potential to improve recyclability and recycled content and to mitigate risks related to waste management of end-of-life tyres.	2027
Mattresses	4 th	High support	EUR 10 billion (2022)	High potential to improve waste generation, lifetime extension and material efficiency.	2029
Intermediate products					
Iron & Steel	1 st	High support	EUR 152 billion (2023)	High potential to improve the impacts on climate change, energy consumption, water, air and to boost the EU's resilience, strategic autonomy and technological innovation. Measures under the ESPR will complement the green steel label announced in the Clean Industrial Deal as well as existing environmental and climate measures on steel products and production such as the ETS and CBAM.	2026

Product / Measure	JRC ranking	Stakeholders' opinion	Market size (EU)	Improvement potential	Indicative timeline for adoption
Aluminium	4 th	Support	EUR 40 billion (2019)	Potential to improve effects on climate change, energy consumption, air, water, biodiversity, soil pollution and raw materials. Incorporating secondary materials during manufacturing can reduce greenhouse gas emissions by up to 11 times. Aluminium is one of the metals with the highest potential for recyclability and for increasing EU supply resilience. Measures under ESPR are expected to complement existing environmental and climate measures on aluminium products and production such as ETS and CBAM.	2027
Horizontal requirements					
Repairability (including scoring)	N/A	High support	N/A	High potential for improvement; depending on the scope of the measure and coverage of resource use, increased circularity for (critical) raw materials, climate change, and targeted requirements on durability (reliability) could also be included. The scope, to be refined during the preparatory study, could include products such as consumer electronics and small household appliances.	2027
Recycled content and recyclability of electrical and electronic equipment	N/A	Support	N/A	High potential for improvement, depending on the exact scope of the measure and coverage of resource use, increased circularity for (critical) raw materials, climate change and waste prevention.	2029



Mattias Lindahl, Professor

Researches and teaches in circular economy, environmentally driven product development, and product-service innovation.

<https://liu.se/en/employee/matli36>



Erik Sundin, Professor

Researches, teaches, and speaks on sustainable manufacturing, with a particular focus on remanufacturing.

<https://liu.se/en/employee/erisu71>



John Laurence Esguerra, Assistant Professor

Researches environmental and techno-economic assessment of emerging technologies and systems.

<https://liu.se/en/employee/johes64>

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Preparing for the Eco-design for Sustainable Products Regulation

Implications for horizontal repairability requirements and with focus on the furniture sector

This report describes how Swedish industry can prepare for forthcoming requirements under the Ecodesign for Sustainable Products Regulation (ESPR), with a particular focus on horizontal repairability requirements and on the furniture sector as a priority product group.

The ESPR delegated acts will progressively define binding requirements for product groups and horizontal measures, including durability, reliability, repairability, remanufacturability, disassembly, material traceability, recycled content, recyclability and Digital Product Passports. Although the exact requirements will be introduced stepwise, the direction is already clear. Swedish companies, authorities and industry associations therefore need to begin preparing before final delegated acts are adopted.

For the furniture sector, the main preparedness priorities are durability, repairability, disassembly, remanufacturing/refurbishment and traceable product information. Furniture companies should already begin reviewing product architectures, joints, adhesives, upholstery, coverings, mechanisms, fasteners, wear parts, repair manuals and material information.

Companies should treat ESPR preparedness as product management and business development, not only as regulatory compliance, and should be understood as capability-building. These capabilities will support both compliance and circular business models such as take-back, resale, repair, refurbishment, remanufacturing and material recovery.

