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Discussion Paper

# Setting the Green Standard

Examination of European Environmental Performance Standards  
for Products and their Relevance Beyond EU Borders



# Setting the Green Standard

## Examination of European Environmental Performance Standards for Products and their Relevance Beyond EU Borders

### Author

Carl Dalhammar

### Commissioned by

Heinrich Böll Foundation Tel Aviv

Website: [www.il.boell.org](http://www.il.boell.org)

→ [info@il.boell.org](mailto:info@il.boell.org)

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### Project Coordination

Israel Public Policy Institute (IPPI)

Website: [www.ippi.org.il](http://www.ippi.org.il)

→ [office.israel@ippi.org.il](mailto:office.israel@ippi.org.il)

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## Executive Summary

The European Union (EU) is pioneering a transformative approach to sustainability, setting a global precedent through its regulatory frameworks and standardization efforts. This paper examines the EU's role in embedding sustainability within product regulations, illustrating its significant influence both within the bloc and globally. At the heart of the EU's strategy are the Ecodesign Directive, the Energy Labeling Regulation, and the forthcoming Ecodesign for Sustainable Products Regulation (ESPR), which emerges as a cornerstone, aiming to reshape product sustainability by encompassing durability, reparability, and the inclusion of recycled materials, thereby reducing environmental impacts throughout product lifecycles.

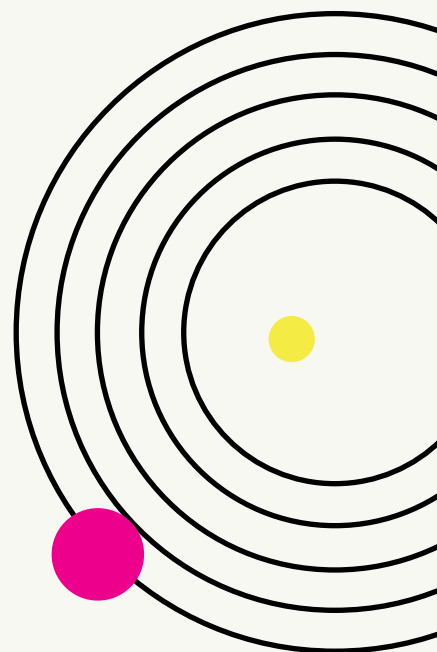
A distinctive feature of the EU's approach is its combination of mandatory regulations and voluntary schemes, fostering innovation and setting standards that aspire to influence and shape global norms. This influence, known as the "Brussels effect," extends the impact of EU standards beyond its borders, contributing to international standardization efforts with bodies like the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).

The EU's quest to enhance environmental performance standards for products within its boundaries is an ambitious and long-term undertaking fraught with multiple challenges, most notably the alignment of national regulations with broader EU policies and ensuring robust market surveillance. These challenges demonstrate the complexities inherent in implementing wide-ranging sustainability policies and call for continuous refinement of market practices and strategic innovations to surmount these obstacles effectively. This paper delves into the governance

processes that underpin the EU's regulatory frameworks, including the intricate balance between environmental regulations and technical standards, and offers insights into the ways, in which the EU has sought to refine its internal market practices.

For policymakers outside the EU, the following paper provides insights into the EU's sustainability paradigms, underscoring the pivotal roles of regulatory frameworks, innovation, and standardization in catalyzing market transformation. By distilling lessons from the EU's framework and tailoring them to their respective contexts, non-EU jurisdictions could bolster their sustainability initiatives and join a worldwide march towards more sustainable patterns of product consumption and production.

Ultimately, the EU's environmental product regulations present a transformative approach with the potential to foster a more sustainable, integrated, and efficient global market. The paper underscores the potential of harmonizing standards across borders to enhance global market consistency and catalyze a worldwide shift towards sustainability.



# 1. Introduction

At present, the European Union (EU) stands at the forefront of legislative progress in sustainability. This leadership is evident through its comprehensive suite of existing and forthcoming regulations covering a broad spectrum of areas. These areas include the management of toxic substances, the enhancement of product energy efficiency, the promotion of sustainability within supply chains, the pioneering of green finance, the enforcement of right-to-repair (R2R) policies, the innovation in sustainable packaging, and the advancement of waste and recycling practices.<sup>1</sup>

Among the plethora of EU mandates, the most pivotal for corporations, including those operating outside the EU, pertain to product-related regulations. These encompass directives on product composition and chemical makeup, stipulations on performance standards (such as noise, energy, and water efficiency), and labeling requirements focusing on energy efficiency. Moreover, the EU mandates extend to transportation and packaging protocols, alongside R2R responsibilities that emerge post-market introduction (for instance, the availability of spare parts). It is imperative for all products introduced to the EU internal market to adhere to these guidelines.

Furthermore, the EU has instituted regulations surrounding eco-labeling and green marketing, or green claims. These rules critically assess and govern the legitimacy of environmental claims made by manufacturers or importers regarding their products. This regulatory framework ensures that product claims are transparent, verifiable, and meaningful, thereby fostering a more sustainable and trustworthy marketplace.

The phenomenon known as the "Brussels effect"<sup>2</sup> underscores the EU's leadership in environmental standards. This effect emerges from the EU

setting the most rigorous environmental criteria and the extensive reach of its Internal Market. Consequently, numerous corporations outside the EU opt to design their products in alignment with EU legislation, manifesting a *de facto* Brussels effect. Simultaneously, policymakers in various jurisdictions are inspired to adopt laws and standards that mirror those of the EU, resulting in a *de jure* Brussels effect.

Central to ensuring adherence to these product requirements is the process of standardization. This process is instrumental in fostering European integration and establishing consistency within the CE marking system, which is essential for marketing products across the European Economic Area (EEA).<sup>3</sup> To achieve this, "harmonized standards" are employed. These standards are crafted in response to requests from the European Commission to recognized European Standards Organizations (ESOs), namely CEN, CENELEC, or ETSI. By adhering to these harmonized standards, manufacturers, other economic operators, or conformity assessment bodies can demonstrate or ascertain that their products, services, or processes are in compliance with pertinent EU legislation. This compliance, in turn, qualifies these offerings for the CE marking, symbolizing their eligibility to be traded freely within the EEA.<sup>4</sup>

In addition to the standards tailored specifically for the European Union, which enable economic operators to demonstrate their adherence to EU law, there is a dynamic collaboration underway between European standardization organizations and international entities like the ISO and the IEC. This collaboration is designed to ensure that standards are harmonized across borders, enhancing global consistency and interoperability. Moreover, a significant number of countries

outside the EU are actively evaluating or integrating European Standards into their national frameworks, highlighting the influence and appeal of EU standards worldwide.<sup>5</sup>

**The European Commission has articulated a clear vision in its latest standardization strategy, aiming for the EU to not only refine its standardization processes but also to assume a more pronounced leadership role on the international stage.**

Building on this momentum, the European Commission has articulated a clear vision in its latest standardization strategy, aiming for the EU to not only refine its standardization processes but also to assume a more pronounced leadership role on the international stage. This initiative reflects the EU's ambition to shape global standardization efforts, thereby extending its influence and fostering a more integrated, efficient, and sustainable global market. The commitment to this vision underscores the EU's dedication to promoting high standards of quality, safety, and environmental stewardship worldwide.<sup>6</sup>

The landscape of product regulation and standardization within the European Union is undergoing significant and dynamic changes for a variety of reasons:<sup>7</sup>

- **Environmental Sustainability Initiatives:** The European Commission has initiated the Sustainable Products Initiative<sup>8</sup>, a comprehensive effort that includes a series of pivotal legislative proposals. Among these is the Ecodesign for Sustainable Products Regulation (ESPR)<sup>9</sup>, set to supersede the existing Ecodesign Directive. This directive currently establishes compulsory energy efficiency
- standards for products. The ESPR promises a broad application, encompassing all product categories with the exceptions of foodstuffs and medical products, thereby extending substantial authority to EU bodies. It introduces innovative mechanisms such as digital product passports (DPPs) and lays the groundwork for regulating novel product characteristics, including durability, reparability, micro plastics, and the incorporation of recycled materials in new products. Moreover, it encompasses directives regarding the reporting and prohibition of the destruction of unsold and returned items, alongside establishing mandatory product labeling criteria concerning lifespan and reparability;
- **Need for Regulatory Consistency:** Several EU Member States have enacted national product regulations, presenting compliance challenges for businesses.<sup>10</sup> Notably, France's compulsory Repair Index and its recent legislation requiring producers to disclose information on marketed products exemplify this trend. These disparate national regulations threaten the cohesion of the EU's internal market by causing legal fragmentation. In response, businesses are advocating for the establishment of uniform EU-wide regulations and the standardization of practices across the bloc. The ESPR is a response to these harmonization demands;
- **Ensuring Credibility of Environmental Claims:** The EU is introducing comprehensive regulations to enhance the authenticity of eco-labeling schemes and the environmental claims made by producers. This initiative aims to ensure that future labeling programs meet specific standards;<sup>11</sup>

### → Promoting Consumer Rights and

**Sustainability:** In support of the right-to-repair movement, the EU has enacted various product regulations as well as amendments to consumer laws.

These developments signify the EU's commitment to sustainability, consumer rights, and the harmonization of internal market practices, aiming to set a new standard for product regulation and standardization on a global scale.

**With a series of pivotal regulations and standards, the EU is shaping the future of product design, manufacturing, and consumer protection.**

The European Union's leadership in legislative progress on sustainability sets a comprehensive framework that impacts a broad spectrum of areas, from toxic substances management and product energy efficiency enhancement to the pioneering of green finance and the promotion of sustainable packaging. With a series of pivotal regulations and standards, the EU is shaping the future of product design, manufacturing, and consumer protection. This framework not only mandates adherence to stringent environmental performance standards but also fosters innovation and global market practices that emphasize sustainability and consumer rights. The detailed exploration of these regulatory frameworks will highlight the governance processes within the EU system, the dynamic interplay between EU and member state regulations, and the broader implications for environmental regulation and market surveillance. Through this analysis, the intricate ways in which EU policies influence product lifecycles, corporate compliance, and global standardization efforts will be unveiled, offering insights into the challenges and opportunities presented by the EU's approach to harmonizing market practices with sustainability goals.

## 2. Objective and Outline

This paper is structured around several key objectives, categorized into four main areas. Initially, it offers an in-depth analysis at the European Union (EU) level by delineating the governance frameworks within the EU system that pertain to product legislation. This includes a detailed examination of the roles, authorities, and responsibilities of EU institutions and Member States in the regulatory process, standardization efforts, and market surveillance activities. It also provides a comprehensive review of EU regulations and standards that impact the environmental performance of products.

At the national level, the paper explores how EU Member States have developed their regulatory and surveillance systems to address product regulations and standards. This segment highlights the interactions between institutions focused on product environmental performance standards and those dealing with broader, non-environmental product aspects.

In the context of environmental regulation, the paper delves into the interplay between legislation covering environmental facets of production, manufacturing, supply chains, and waste management, and the technical regulations and standards governing the environmental attributes and performance of products. Moreover, it examines the connections between laws governing product design and performance and those concerning eco-labeling (both mandatory and voluntary) as well as green claims made by manufacturers. The paper aims to illustrate how mandatory product design requirements and standards intended to facilitate legal compliance manifest in practical terms across different product features e.g., noise, energy efficiency, and lighting performance. It concludes with an analysis of how these legal frameworks and institutional mechanisms have shaped specific product standards.

The subsequent sections of the paper are organized as follows:

- **Section 3** introduces key terminology utilized throughout the paper, setting a foundation for the discussion;
- **Section 4** elucidates the governance system for product regulation within the EU, covering the adoption of laws, the nuances between various types of legislation, the significance of delegated acts via comitology, the functioning of standardization processes, and the linkage between these processes and legal mandates. Additionally, it surveys the interaction between EU laws and Member State laws concerning products;
- **Section 5** details existing and proposed product regulations in the EU, significant laws enacted by Member States, and recent legislative initiatives at the EU level. It differentiates between mandatory laws and voluntary labeling schemes and underscores the necessity for a coordinated policy approach;
- **Section 6** addresses how Member States implement EU laws and conduct market surveillance;
- **Section 7** discusses the relationship between entities engaged in environmental performance standards for products and those involved with non-environmental aspects of products;
- **Section 8** summarizes the major implications for stakeholders outside the EU, emphasizing the global impact of EU regulatory practices.

While the report predominantly focuses on EU rules related to energy efficiency—highlighting the Ecodesign Directive, the Energy Labeling Regulation, and the forthcoming ESPR—it also touches upon additional product regulations to

provide a holistic view of the EU's regulatory landscape.

### 3. Key Terminology

This section elucidates the usage of specific terms within this report and emphasizes the crucial need for a harmonized approach across various policy frameworks.

**Public Policy** is defined as a comprehensive system encompassing laws, regulatory measures, objectives, action plans (e.g., roadmaps, strategies), and funding priorities set forth by a public entity to address specific societal issues.<sup>12</sup> Policies are formulated and implemented across different layers of governance, including international, European Union (EU), national, regional, and local levels. The term 'policy' encompasses a wider spectrum than 'law', which refers to a codified set of binding rules established by a society or governmental authority to govern aspects such as criminal justice, commercial transactions, and social conduct.

**Policy Instruments** represent targeted interventions by the government to achieve specific policy goals, offering incentives for behavioral change among stakeholders. These instruments are categorized mainly into administrative, economic, or informative tools. Laws serve two primary functions in relation to policy instruments: firstly, as the vehicle for implementing policy instruments (for instance, a national law imposing a carbon dioxide tax or an EU regulation controlling the use of hazardous substances in products); secondly, they create the framework within which policy instruments are applied. An example of the latter is the EU's public procurement legislation, which does not directly prescribe sustainability requirements for public sector purchases. However, it mandates compliance with EU procurement principles, such as non-discrimination, thereby indirectly

influencing sustainability criteria set by EU member states for procurement. These principles are applicable to EU-based entities as well as non-EU firms that have access to the EU market, as detailed in the European Commission's guidelines.<sup>13</sup>

In the context of this report, the terms 'rules', 'laws', and similar expressions denote legally enforceable obligations. The term "**Standard**" is multifaceted, referring to agreed-upon norms or criteria within specific contexts. An exploration of global standard typologies is presented in Table 1, providing insights into the diverse applications and implications of standards in the international arena.

In this paper, distinctions are made between the terms "standard" and "legal standard." The term "Standard" refers to voluntary standards developed by various standardization bodies (SBs), such as ISO, IEC, CENELEC, ETSI, and CEN. These documents, established by consensus and approved by a recognized body, provide rules, guidelines, or characteristics for activities or outcomes, aiming to achieve an optimal degree of order within specific contexts.

On the other hand, "legal standard" denotes a mandatory standard encoded within legal statutes. The International Organization for Standardization (ISO) defines a voluntary standard as a document "*established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines, or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.*"<sup>15</sup> Voluntary standards may transition to "semi-voluntary" status when a major corporation requires all its suppliers to adhere to a specific standard, or when companies adopt a standard to facilitate demonstration of legal compliance. Harmonized standards, issued by European Standards Organizations and addressed later in this report, exemplify such semi-voluntary standards, commonly utilized by manufacturers, economic operators, and conformity assessment bodies to demonstrate compliance with relevant EU legislation.

**Table 1.**  
Typologies of Global Standards

Field of Application	Form	Coverage	Key Drivers	Certification Process	Regulatory Implication
<ul style="list-style-type: none"> <li>→ Quality assurance</li> <li>→ Environmental</li> <li>→ Health</li> <li>→ Labor</li> <li>→ Social</li> <li>→ Ethical</li> </ul>	<ul style="list-style-type: none"> <li>→ Codes of conduct</li> <li>→ Labels</li> <li>→ Standard</li> </ul>	<ul style="list-style-type: none"> <li>→ Firm-specific/ value-chain specific</li> <li>→ Sector-specific</li> <li>→ Generic</li> </ul>	<ul style="list-style-type: none"> <li>→ International business</li> <li>→ International NGOs</li> <li>→ International labor unions</li> <li>→ International organizations</li> </ul>	<ul style="list-style-type: none"> <li>→ First-party</li> <li>→ Second-party</li> <li>→ Third-party</li> <li>→ Private-sector auditors</li> <li>→ NGOs</li> <li>→ Government</li> </ul>	<ul style="list-style-type: none"> <li>→ Legally mandatory</li> <li>→ Voluntary</li> <li>→ Semi-voluntary (required by market actors or easiest way to prove legal compliance)</li> </ul>

Source: Nadvi & Wältring, 2002 with additions by the author<sup>14</sup>

**Additional terms relevant to this paper include:**

- **Standardization:** The activity conducted by standardization bodies to develop new standards (including ISO, IEC, CENELEC, ETSI and CEN);
- **Product Standards:** Specifications and criteria that define the characteristics of products, including all technical specifications present in product labels and testing procedures used to demonstrate compliance;
- **Process Standards:** Criteria that specify the manufacturing methods of products;
- **Laws, Rules, and Regulations:** Compulsory legal obligations that entities must adhere to. Product laws comprise specific regulations concerning product design, performance, labeling, etc., to which manufacturers, importers, retailers, and producers must conform. These laws refer both to laws that were legislated by the EU as well as ones legislated by its member states.

EU product regulations encompass a broad spectrum of criteria that products must meet, including:

- **Performance:** This category includes metrics such as energy efficiency during operation and acceptable noise levels, ensuring products not only meet functional expectations but also contribute to environmental sustainability;
- **Content and Toxicity:** Regulations mandate that products avoid hazardous substances and, in some cases, require the inclusion of a specified percentage of recycled content. These rules aim to protect consumer health and encourage sustainable production practices;

- **Labeling Obligations:** Products must display the mandatory EU energy label, indicating their classification based on energy consumption and other environmental impacts. This requirement helps consumers make informed choices regarding the environmental footprint of their purchases;
- **Producer Responsibility:** Manufacturers and other entities placing products on the market are tasked with the collection of waste products to meet established targets for material recycling and energy recovery. This principle ensures a lifecycle approach to product management, emphasizing the importance of post-consumer phases;
- **Post-Market Obligations:** Once a product is introduced to the market, there are ongoing responsibilities such as the availability of spare parts and software updates for a defined minimum period. This requirement supports product longevity and consumer rights to repair and maintenance;
- **Compliance Testing Guidelines:** The regulations set forth procedures for testing and verifying compliance with all aforementioned aspects, ensuring products adhere to EU standards throughout their lifecycle.

In addition to regulations specifically focused on product standards, various other legal frameworks play a crucial role in influencing the environmental performance and safety of products. These include:

- **Consumer Law:** This area of law upholds consumer rights, including the provision of mandatory product guarantees. While EU legislation stipulates minimum standards for these guarantees, several EU member states have opted to extend the duration of

consumer guarantees to as much as three years. This extension serves as an incentive for manufacturers to develop products with enhanced durability. Beyond these statutory requirements, manufacturers have the discretion to offer extended commercial warranties, which could surpass the mandated guarantees, such as offering a five-year warranty;

- **Product Safety Regulation:** The safety of consumer products is governed by the General Product Safety Regulation, an evolution from the earlier General Product Safety Directive. This regulation establishes universal safety standards applicable to a broad array of product categories, ensuring a high level of protection for consumers. It is supported by additional EU regulations targeting specific product categories that present unique risks, including toys and electromagnetic devices, to ensure comprehensive safety coverage;
- **Advertising and Marketing Regulations:** The EU enforces stringent guidelines on advertising and marketing to safeguard consumers against deceptive practices. This includes the regulation of environmental claims and the use of eco-labels, ensuring that such claims are accurate and not misleading, thereby promoting honest communication about the environmental impact of products.

In the realm of product labeling and the assertion of green credentials, it is crucial to recognize the distinctions among various schemes and claims:

- **Mandatory Information Provision Schemes:** This category includes regulations such as the EU's Energy Labeling Regulation and the French Repair Index, which require products to be accurately labeled under the threat of sanctions for non-compliance;

- **Voluntary Labeling Schemes with Third-Party Certification:** These are labeling programs where an independent third party verifies the accuracy of the information provided;

- **Voluntary Labeling Schemes without Third-Party Certification:** Schemes in this category do not involve an independent verification process, relying instead on the manufacturer's or retailer's self-assessment;

- **Green Claims with Third-Party Verification:** These are environmental claims verified by an independent entity, enhancing their credibility;

- **Green Claims without Third-Party Verification:** Such claims have not undergone independent verification, which may affect their reliability and trustworthiness.

Given the issues with transparency and the reliability of many European eco-labeling schemes—as well as the prevalence of ambiguous, inaccurate, or misleading green claims by manufacturers—the European Commission has put forth the Green Claims Directive. This directive aims to establish uniform criteria for all labeling schemes, advocating for the necessity of third-party certification to ensure accuracy and reliability. Moreover, it delineates guidelines for the articulation of green claims and their validation process.<sup>16</sup>

Complementing this initiative, the Commission has introduced the Directive on Empowering Consumers in the Green Transition, aiming to enhance consumer understanding and trust in green claims.<sup>17</sup> This directive proposes standards for how manufacturers and retailers

should disclose specific product attributes and prohibits deceptive or unethical business practices. Together, these directives represent significant steps towards improving the integrity of environmental labeling and marketing, thereby facilitating a more informed and sustainable consumer choice in the European market.

The role of standards in environmental governance is becoming increasingly significant, impacting various aspects of the global marketplace:

- **Supply Chain Communication:** Corporations leverage standards to facilitate communication across supply chains, with larger corporations often requiring their suppliers to comply with or obtain certification in specific standards. These standards typically encompass quality and environmental management, for example, ISO 9001 and ISO 14001, ensuring a uniform approach to quality control and environmental stewardship;
- **Legal Compliance:** The reference to industrial standards within legislation is growing, serving as a mechanism for corporations to demonstrate adherence to environmental laws and regulations. This integration underscores the pivotal role of standards in bridging corporate practice with legal environmental expectations;
- **Sustainability Support and Challenges:** Standards play a significant role in promoting sustainable practices, such as through fair trade labels and eco-labels, however they can also pose potential challenges for exporters, especially in developing countries. The difficulty in meeting these standards, due to the high costs of certification and compliance, can act as a barrier to entry into sustainably labeled markets;<sup>18</sup>

→ **Economic Implications:** The economic impact of standards on market actors is profound, prompting increased scrutiny and engagement in the standard-setting process from both corporations and governments. As noted by Blind (2004)<sup>19</sup>, the strategic design of standards is crucial; well-crafted standards facilitate compatibility across products and technologies, enhancing trade opportunities. Conversely, poorly designed standards may hinder innovation and economic growth. The challenge of compliance is often more pronounced in developing countries, where proving adherence to standards can be both difficult and expensive due to lower production costs but higher compliance costs;

Given these dynamics, industries actively participate in shaping laws, policies, and standards to protect their interests, such as ensuring their patents are recognized within these frameworks. Concurrently, the public sector bears the responsibility of ensuring that such policies serve the broader public interest, balancing industrial influence with the need for equitable and sustainable environmental governance.

European Union (EU) law distinguishes itself from international law primarily due to its applicability exclusively within the EU's boundaries. A fundamental aspect of EU membership involves member states ceding a degree of sovereignty to the Union. This means that EU Member States are obligated to adhere to EU legislation formulated in Brussels, even in instances where they may have opposed such laws. It's important to note, however, that this transfer of sovereignty is limited to specific areas, with national autonomy preserved in sectors such as defense, foreign policy, taxes, and land use. A key principle of EU law is its supremacy over conflicting national laws once it has been established.

## EU legislation can be categorized into two main types:

**1. EU Regulations:** These are legally binding across all member states as soon as they come into force, without the need for any national legislation to enact them. Regulations have direct applicability, meaning they are immediately enforceable as law in all member states in their entirety. This ensures that the same rules are applied uniformly across the EU;

**2. EU Directives:** Directives, on the other hand, set out objectives that all EU countries must achieve. However, they grant member states the flexibility to decide how to transpose these objectives into their national laws within a specified timeframe. This process involves crafting national legislation that can achieve the directive's goals, allowing for variation in implementation based on local conditions and legal frameworks.

There has been a noticeable shift towards the adoption of regulations over directives in the domain of EU product law. This trend aims for a more standardized enforcement of laws across member states, facilitating the free movement of goods within the Internal Market. For instance, the General Product Safety Directive has been superseded by the General Product Safety Regulation, and plans are underway to replace the Ecodesign Directive with the Ecodesign for Sustainable Products Regulation (ESPR). Nonetheless, certain product-specific directives remain active, like the WEEE Directive, which assigns producer responsibility for electrical and electronic products, and the RoHS Directive, prohibiting hazardous substances in such products.<sup>20</sup>

The rationale behind the EU's formulation of product laws and standards is to achieve harmonization across member states, preventing the fragmentation of regulations

that could hinder the free flow of goods and negatively impact trade. This approach, known as “positive harmonization,” establishes a cohesive framework applicable throughout the EU. Although the EU strives for uniformity, it acknowledges the necessity for member states to retain legal independence in certain areas. The Treaty of the Functioning of the European Union (TFEU) outlines provisions, particularly in Article 34, aimed at preventing member states from enacting trade-restrictive national measures unless they meet specific criteria, a concept referred to as “negative harmonization.”<sup>21</sup> Despite these guidelines, member states occasionally implement measures that could restrict trade, such as national packaging markings and the French Repair Index, demonstrating the complexities of balancing national interests with EU-wide objectives.

**There has been a noticeable shift towards the adoption of regulations over directives in the domain of EU product law. This trend aims for a more standardized enforcement of laws across member states, facilitating the free movement of goods within the Internal Market.**

It's essential to highlight the role of the “mutual recognition” principle within the EU framework. This principle, underpinned by Regulation (EU) 2019/515, is designed to ensure that goods legally sold in one EU member state can be marketed in another, notwithstanding potential disparities in the technical regulations of the importing country. This regulation provides a structured approach for member states to facilitate mutual recognition, further details of which can be found on the European Commission's website.<sup>22</sup>

Nevertheless, it's important to note that exceptions to this principle exist, particularly when public policy issues such as safety, health, or environmental protection are at stake. These exceptions underscore the balance between facilitating trade and safeguarding essential public interests.

Exporters should temper their expectations regarding the seamless application of mutual recognition, as practical challenges persist. Despite the principle's intent to reduce trade barriers within the EU, obstacles remain, especially for certain product and service categories, indicating that the principle's implementation is not without its complications.

## 4. The Governance System for Product Law in the EU

Initially, the European Union's legislative process required unanimous agreement among all member states for the adoption of new EU laws. This consensus-based approach often resulted in slow legislative progress. Recognizing the need for more efficient law-making, the EU reformed its legislative procedures to enhance its ability to adapt and evolve.

Nowadays, the majority of EU laws are enacted through a legislative process that involves both the European Parliament, directly elected by EU citizens, and the Council of the European Union, which consists of representatives from the governments of the EU Member States. In this bicameral system, the European Commission plays a pivotal role by drafting and presenting legislative proposals to both the Parliament and the Council. For a proposal to become law, it requires the concurrence of these two legislative bodies, ensuring that both the interests of the member states and the EU's citizenry are represented in the law-making process.

### 4.1. Legal Standards and Regulations

Within the realm of product-specific legislation, the EU has the capability to establish legal standards directly within the texts of laws. A prominent example is the Restriction of Hazardous Substances (RoHS) Directive, which targets the use of toxic substances in electrical and electronic equipment (EEE). The directive explicitly outlines prohibited substances and their maximum concentration values in Table 2, serving as a direct mandate for compliance.<sup>23</sup>

The Restriction of Hazardous Substances (RoHS) Directive specifies the requirements for limiting hazardous substances in electrical and electronic products. Complementing these requirements, the harmonized standard '2EN IEC 63000:2018'

**Table 2.**  
Restricted substances and maximum concentration values according to the RoHS

Restricted substances referred to in Article 4(1) and maximum concentration values tolerated by weight in homogeneous materials:

Lead	(0,1 %)
Mercury	(0,1 %)
Cadmium	(0,01 %)
Hexavalent chromium	(0,1 %)
Polybrominated biphenyls (PBB)	(0,1 %)
Polybrominated diphenyl ethers (PBDE)	(0,1 %)
Bis(2-ethylhexyl) phthalate (DEHP)	(0,1 %)
Butyl benzyl phthalate (BBP)	(0,1 %)
Dibutyl phthalate (DBP)	(0,1 %)
Diisobutyl phthalate (DIBP)	(0,1 %)

serves as a guide for preparing the technical documentation necessary for evaluating compliance with these restrictions.

## 4.2. Framework Laws and Comitology

In certain instances, EU legislation functions as “framework laws,” which, in themselves, do not prescribe specific requirements. Instead, detailed requirements are defined through delegated acts, specifically Commission Regulations. This process, known as comitology<sup>24</sup>, involves the European Commission drafting laws with assistance from experts across EU Member States. Representative committees from the member states play a crucial role in this process, contributing to the development of implementing acts and ensuring member states’ perspectives are incorporated. The European Parliament retains the authority to examine the decisions made by these committees.

Not all implementing acts require the comitology process; the Commission may adopt some acts independently.<sup>25</sup> However, for a significant portion of legislation, including that concerning mandatory energy performance standards (MEPS) for products under the Ecodesign Directive and mandatory energy labeling rules under the Energy Labeling Regulation, comitology is essential. These procedures typically involve majority voting within committees that include an expert from each member state, emphasizing the collaborative nature of EU law-making and ensuring a balanced approach to regulation that reflects the diverse interests of the EU’s constituents.

### Committee on Ecodesign and Energy Labelling of Energy-Related Products (C07900)

The Committee on Ecodesign and Energy Labelling of Energy-Related Products (C07900) plays a pivotal role in the decision-making process for Mandatory Energy Performance Standards (MEPS) under the Ecodesign Directive and the introduction of new labeling requirements pursuant to the Energy Labeling Regulation. This committee operates according to a well-defined procedure, ensuring a structured approach to the adoption of these critical regulations.<sup>26</sup>

As outlined in Article 19 of the Ecodesign Directive, the European Commission is supported by this committee in line with the Comitology Regulation’s stipulations.<sup>27</sup> A similar provision is found in Article 18 of the Energy Labeling Regulation, reinforcing the collaborative framework between the Commission and the committee.

When it comes to delegated acts—such as the introduction of new rules pertaining to ecodesign or labeling—the committee’s decision is reached through a majority vote among its members. These members are typically recognized as experts in energy-related fields, contributing their knowledge and expertise to the committee’s deliberations.

With the forthcoming Ecodesign for Sustainable Products Regulation (ESPR), which is set to supersede the current Ecodesign Directive, it is anticipated that this comitology procedure will continue to be utilized. However, given the ESPR’s broader scope, which includes establishing new criteria for product durability, reparability, and the regulation of product groups less focused on energy efficiency (such as furniture and textiles), the composition of the committee might evolve to include experts from a wider array of disciplines. The exact nature of these changes and the composition of the committee under the ESPR framework remains to be finalized, highlighting the dynamic nature of the EU’s regulatory approach to ecodesign and energy labeling.

Thus, in some cases mandatory requirements for products are set directly through EU Regulations and EU Directives, while in others they are set through comitology, where each Commission Regulation typically address one specific product group at a time, such as televisions, or dishwashers.

**The European Commission strongly advocates for the harmonization of EU regulations concerning product design, performance, and chemical substance use.**

A further distinction exists between broad-scope legislation and more targeted regulations. Legislation like the RoHS Directive, which governs the use of hazardous substances in electrical and electronic equipment, or the Toy Safety Directive, addresses wide-ranging product categories. Conversely, specific Commission Regulations under the Ecodesign Directive and the Energy Labeling Regulation usually concentrate on distinct product groups. These regulations aim to standardize aspects like energy efficiency or safety features for individual categories, such as televisions, dishwashers, mobile phones, and electric motors.

### 4.3. Ecodesign and Energy Labelling Regulations

However, the regulatory landscape can be complex, as some Commission Regulations may encompass multiple product groups. An illustrative example is the Regulation on Standby Modes<sup>28</sup>, which establishes energy efficiency criteria for a variety of product categories, including but not limited to toasters, microwaves, media streaming devices, and audio speakers.

The European Commission strongly advocates for the harmonization of EU regulations concerning product design, performance, and chemical substance use. The rationale behind this preference is to ensure uniformity across the EU, preventing the fragmentation that occurs when member states implement divergent regulations. Such disparities could lead to varying standards for the same products within the EU Internal Market, potentially disrupting the free flow of goods. The Court of Justice of the European Union (CJEU) has frequently expressed support for harmonized rules, particularly when they serve to safeguard the Internal Market's integrity.<sup>29</sup>

Despite these efforts towards harmonization, recent initiatives by individual EU Member States, such as France's implementation of a mandatory repair index, have introduced a layer of regulatory diversity. These national regulations have sparked concern among EU industries, which argue that inconsistency undermines the Internal Market's efficiency.<sup>30</sup> To address these challenges, the EU has proposed several measures, including the Ecodesign for Sustainable Products Regulation (ESPR), aimed at aligning national regulations with EU-wide standards.

**Despite these efforts towards harmonization, recent initiatives by individual EU Member States, such as France's implementation of a mandatory repair index, have introduced a layer of regulatory diversity.**

Voluntary standards also play a critical role in the regulatory ecosystem, serving multiple purposes in product regulation. They form the foundation for establishing mandatory product criteria under EU product laws, facilitating the definition of requirements and enabling companies to prove

compliance. Additionally, market surveillance authorities (MSAs) rely on these standards to verify that products in the market adhere to the applicable laws, underscoring the importance of both mandatory and voluntary standards in maintaining regulatory coherence and ensuring product conformity across the EU.

**Standards play a vital role in ensuring consistency and quality across various domains.**

They can be categorized as follows:

- **Fundamental Standards:** These cover the basic elements like terminology, signs, and symbols, providing a common language for stakeholders across different sectors.
- **Test Methods and Analysis Standards:** These are designed to assess specific characteristics, including but not limited to chemical composition, ensuring products meet defined safety and quality benchmarks.
- **Specification Standards:** These detail the requirements for products and services, outlining the criteria that must be met for compliance and consumer satisfaction.
- **Organizational Standards:** These focus on the internal processes within organizations, including quality management standards, to promote efficiency, quality, and continuous improvement.

**Voluntary standards also play a critical role in the regulatory ecosystem, serving multiple purposes in product regulation.**

Product standards cover a broad array of technical specifications applied to products, including the testing procedures utilized to demonstrate compliance, as discussed in earlier sections. These standards not only involve mandatory criteria

but also voluntary product standards, which encompass eco-labels, certification schemes, and standards formulated by various standardization organizations.

**The interplay among product standards, EU product legislation, and law enforcement through market surveillance activities by EU Member States is crucial for ensuring product compliance.**

The interplay among product standards, EU product legislation, and law enforcement through market surveillance activities by EU Member States is crucial for ensuring product compliance. This dynamic relationship involves the application of technical specifications, legal frameworks, and compliance checks to maintain product integrity within the EU market. Product standards encompass metrics, test methods, and categories developed by standardization bodies. EU product legislation sets the legal parameters these products must meet. Enforcement activities, conducted by Member States, ensure adherence to these standards and laws, upholding the quality and safety of products in the EU. Together, these components form a comprehensive system for managing product compliance and integrity.

The establishment of relevant standards is often a prerequisite for regulating a product's environmental performance, enabling both the legal system and industries to assess and demonstrate compliance with essential product performance criteria. While existing standards frequently facilitate the definition of legal requirements, there are instances where this process is inverted: the European Commission may commission European Standards Organizations (ESOs) to create new standards that lay the groundwork for forthcoming legal regulations.

A notable instance of this proactive approach is the development of ecodesign standards concerning the longevity and reparability of products. The European Commission tasked ESOs with formulating a suite of standards designed to support these criteria, thereby preempting and shaping future legislative mandates. This strategy ensures that standards evolve in tandem with regulatory expectations, providing a foundation upon which to build robust legal requirements.

The table provided below showcases general standards which are further augmented by specifications tailored to particular product categories, such as those enabling the evaluation of durability and reparability in items like

furniture. This holistic approach to standard development not only addresses current regulatory needs but also anticipates and prepares for future legislative directions.

**The establishment of relevant standards is often a prerequisite for regulating a product's environmental performance, enabling both the legal system and industries to assess and demonstrate compliance with essential product performance criteria.**

**Table 3.**

List of European standards relevant for the durability and reparability of products

Standard	Main purpose
<b>EN 45552: 2020 General method for the assessment of the durability of energy-related products</b>	Contains definitions of concepts such as “durability” and “reliability”  Provides a framework comprising of parameters and methods for assessing the reliability and durability of energy-related products
<b>EN 45554: 2020 General methods for the assessment of the ability to repair, reuse and upgrade energy-related products</b>	Defines parameters and methods relevant for assessing the ability to repair and reuse products; the ability to upgrade product (excluding remanufacturing); the ability to access or remove certain components, consumables or assemblies from products to facilitate repair, reuse or upgrade; defines reusability indexes or criteria (supporting “reparability scorecard”).
<b>EN 45556: 2019 General method for assessing the proportion of reused components in energy-related products</b>	Deals with assessing the proportion of reused components in energy-related products, on a generic level, which can be applied at any point in the life of the product.
<b>EN 45553: 2020 General method for the assessment of the ability to remanufacture energy-related products</b>	Provides a general methodology for the assessment of the ability to re-manufacture energy-related products. Elaborates on the assessment and process of horizontal, cross-product re-manufacturability. However, product group-specific standards are needed to properly assess individual product groups.

Source: Dalhammar et al., 2021.<sup>31</sup>

The evolution of legal product requirements, alongside the development of corresponding standards that enable companies to demonstrate compliance, is an iterative and dynamic process. This process acknowledges the complexity of implementing universal mandatory criteria for product lifetime and reparability across all product categories. European Standards Organizations (ESOs) have highlighted that with the introduction of the Ecodesign for Sustainable Products Regulation (ESPR), the EU's ambition to regulate a broader range of environmental attributes for an expanded array of product groups may face challenges.<sup>32</sup>

Manufacturers and importers aiming to ensure their products adhere to legal, eco-labeling, or other standards can employ several strategies:

- **Certification:** Obtaining certification verifies that products meet the relevant criteria, serving as a robust guarantee of compliance;
- **Controls:** Implementing regular inspections during the usage of a product to verify compliance with specific standards is crucial for maintaining quality and safety;
- **Testing:** Conducting tests to evaluate specific product attributes, such as strength and flammability, is vital, especially for products with potential adverse effects on human health and the environment.

While these activities can be initiated voluntarily by manufacturers, legal requirements sometimes mandate their execution, often involving independent third parties to ensure impartiality and accuracy.

This paper primarily focuses on mandatory product standards and the methodologies for assessing legal compliance, highlighting the importance of measurement and testing

procedures. The European Commission's Blue Guide<sup>33</sup>, published in 2022, provides an exhaustive overview of the evolution and current practices of EU product regulation. Since 1985, the EU has adopted the "new approach" to technical harmonization and standards,<sup>34</sup> centering on essential, mandatory criteria that products must satisfy before entering the market. An illustrative case is the Mandatory Energy Performance Standards (MEPS), which articulate the outcomes or risk mitigation measures required without prescribing the specific technological solutions to achieve these objectives. This approach underscores the EU's commitment to innovation while ensuring products meet high standards of performance and safety.

**The evolution of legal product requirements, alongside the development of corresponding standards that enable companies to demonstrate compliance, is an iterative and dynamic process.**

To demonstrate compliance with specified requirements, manufacturers and economic operators have the option to utilize "harmonized standards." These are European standards developed by European Standardization Organizations (ESOs) such as CEN, CENELEC, or ETSI, following a request from the European Commission. Additionally, international standards from global standardization bodies can be harmonized upon mandate. These harmonized standards are then published in the Official Journal of the European Union.

While the use of these standards is not mandatory for proving product conformity, they play a crucial role in the regulatory process. National authorities must recognize products aligned with harmonized standards as meeting the

essential requirements, a principle known as the ‘presumption of conformity.’ Consequently, manufacturers not adhering to harmonized standards are tasked with demonstrating that their products satisfy the directive's essential requirements through other approaches. This means that applying harmonized standards is the common choice for proving compliance.

**The process undertaken by a manufacturer, or any entity responsible under EU product law, to verify and document that a product meets all legal requirements before it is introduced to the market is referred to as a “conformity assessment.”**

The process undertaken by a manufacturer, or any entity responsible under EU product law, to verify and document that a product meets all legal requirements before it is introduced to the market is referred to as a “conformity assessment.” This critical step ensures that products entering the EU market adhere to established safety, health, and environmental protection standards.<sup>35</sup>

### Conformity Assessment in the Ecodesign Directive

Article 8 in the Ecodesign Directive states:

#### *Conformity assessment*

*1. Before placing a product covered by implementing measures on the market and/or putting such a product into service, the manufacturer or its authorized representative shall ensure that an assessment of the product's conformity with all the relevant requirements of the applicable implementing measure is carried out.*

*2. The conformity assessment procedures shall be specified by the implementing measures and shall leave to manufacturers the choice between the internal design control set out in Annex IV to this Directive and the management system set out in Annex V.*

The conformity assessment is related to documentation which the responsible economic operator must store, and when requested, present to relevant authorities. Article 8.3 in the Directive states:

*3. After placing a product covered by implementing measures on the market and/or putting it into service, the manufacturer or its authorized representative shall keep relevant documents relating to the conformity assessment performed and declarations of conformity issued available for inspection by Member States for a period of 10 years after the last of that product has been manufactured.*

*The relevant documents shall be made available within 10 days of receipt of a request by the competent authority of a Member State.*

*4. Documents relating to the conformity assessment and the EC declaration of conformity referred to in Article 5 shall be drawn up in one of the official languages of the institutions of the European Union.*

In practice, several directives related to products make use of the regulatory technique where legal requirements are set in laws, while harmonized standards are usually used in order to prove compliance. This is the case for several Regulations set under the Ecodesign Directive and the Energy Labeling Regulation (see below). The references to harmonized standards must be published in the Official Journal of the European Union (OJEU).<sup>36</sup>

The ‘CE mark’ is also a key element of EU product law. By affixing the CE marking to a product, a manufacturer declares that the product meets all the legal requirements for CE marking and can be sold throughout the EEA. This also applies to

products made in other countries that are sold in the EEA. Many EU product laws (but not all of them), including the Ecodesign Directive, require that products are marked with the CE logo. The primary advantages of the CE marking include providing businesses with the assurance that products adorned with the CE mark are eligible for unrestricted trade within the European Economic Area (EEA). Simultaneously, consumers are guaranteed a consistent level of health, safety, and environmental protection across the entirety of the EEA. The CE mark, established in the 1990s, serves as a key facilitator of this dual assurance.

Over time, the delineation of responsibilities among various stakeholders within EU legislation has become increasingly precise, with the legal obligations of economic entities, such as importers, being more sharply defined. A significant milestone in this evolution was the enactment of the New Legislative Framework in 2008<sup>37</sup>, which introduced novel regulations establishing a solid foundation for accreditation and market surveillance. This framework further laid down regulations concerning several critical processes, including conformity assessments, notifications, duties of economic operators, and traceability of products.

A pivotal element of the New Legislative Framework, Decision No 768/2008/EC, addressed a crucial void in the legislative network by providing additional guidance on the conformity assessments occasionally necessitated by EU laws.<sup>38</sup> It also offered clear definitions for key terms such as "manufacturer," "placing on the market," "recall," and "withdrawal" of products.

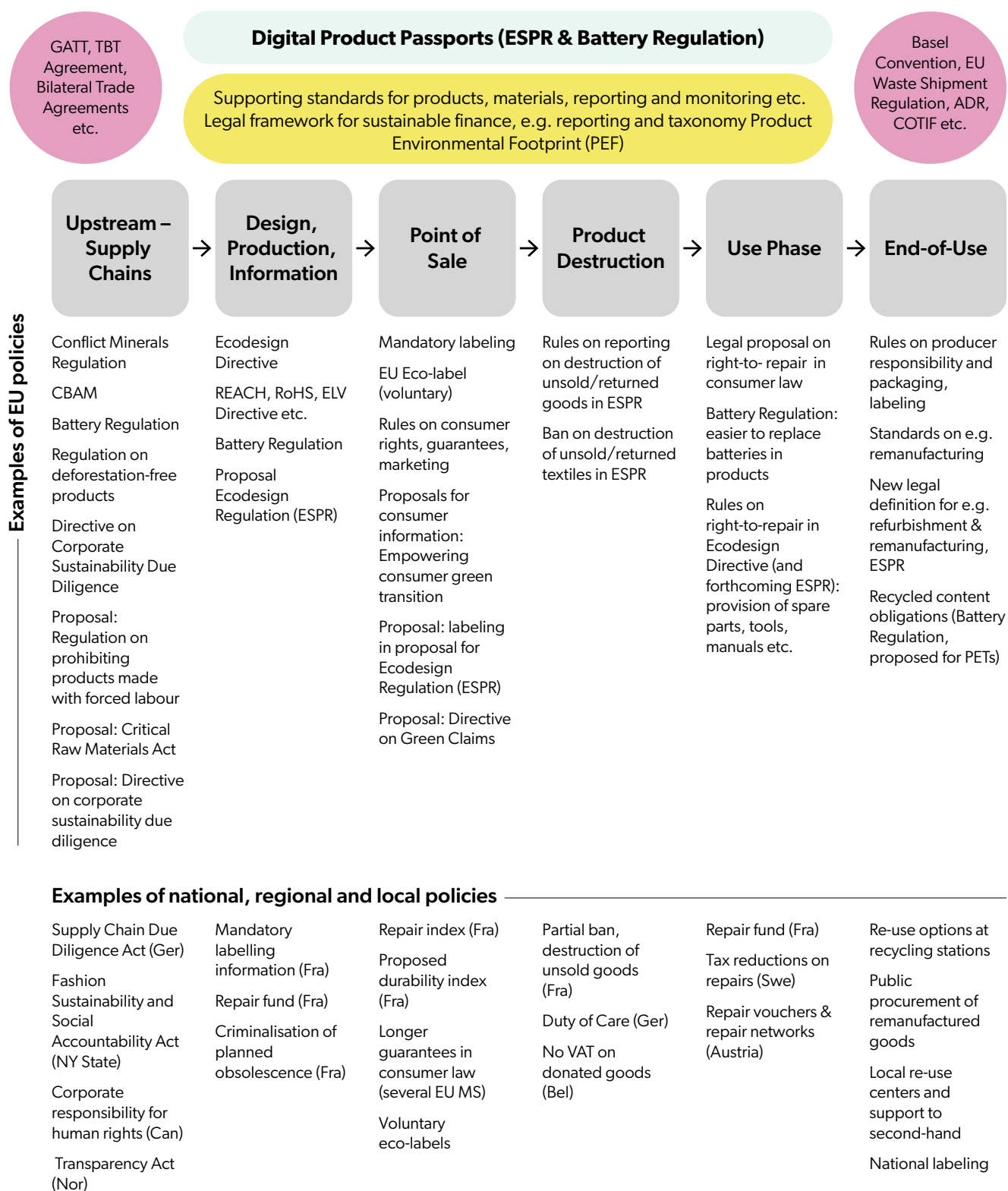
For product-related matters and specifications not governed by harmonizing EU legislation, Member States are directed, particularly through Regulation 2019/515<sup>39</sup>, to adhere to the principle of "mutual recognition" to circumvent trade

barriers within the EU.<sup>40</sup> The EU also strives to enhance the application of mutual recognition with non-EU jurisdictions, although such mutual recognition agreements (MRAs) typically have a more restricted scope compared to intra-EU arrangements. MRAs may be established independently or in conjunction with broader free trade agreements (FTAs).

The EU collaborates with jurisdictions beyond its borders to establish mutually agreed-upon standards. This includes countries seeking EU membership. Bilateral agreements facilitate the alignment of conformity assessments, certification, and product marking, supporting trade while circumventing expensive testing and certification procedures.<sup>41</sup> Additionally, there are initiatives designed to harmonize standards between European standardization organizations (ESOs) and global standard-setting bodies, such as the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC).

## 5. Product Regulation in the EU

After exploring various significant governance topics, the following section will detail the specific product regulations within the European Union. Presently, Europe possesses a comprehensive array of both existing and proposed regulations (i.e., legislative proposals) that oversee supply chains, products, and waste and recycling processes. This collection encompasses regulations and policies at the EU level, alongside those enacted by EU Member States. The figure provided below offers a succinct summary of these principal policies.

**Figure 1.****Integrating Lifecycle Phases with EU Policies through Digital Product Passports**

Created by C. Dalhammar, L. Milios, J. Luth Richter

Figure 1 shows an overview of different EU, national, regional and local policies in relation to different life cycle phases as well as how digital product passports and different supporting standards and legal frameworks can support the link between the policies of these different lifecycle phases.

The current discussion primarily addresses policies related to products rather than those focusing on supply chains and waste management. However, it's crucial to acknowledge the intersections between these areas. For example:

- **Preventing waste via durable products:** EU product legislation increasingly aims to prevent products from prematurely becoming waste by encouraging extended product lifespans and supporting initiatives like reuse, repair, and remanufacturing. The Ecodesign for Sustainable Products Regulation (ESPR) intends to introduce legal definitions for terms such as "refurbishment" and "remanufacturing." This step, while significant, is insufficient on its own. For the successful reduction of waste and the promotion of reuse and remanufacturing, it is essential to design and interpret laws in ways that facilitate these processes. A case in point is the need for precise waste classification, as vague definitions can impede reuse and remanufacturing efforts;<sup>42</sup>
- **Encouraging recycling towards reuse:** The product regulations pertaining to producer responsibility require the collection and recycling of products at the end of their life cycle. Anticipated future amendments to legal frameworks aim to redirect material flows from recycling towards reuse. Certain countries have already implemented strategies to achieve this goal. For instance, France has introduced "modular fees," allowing producers of environmentally superior products to incur lower fees within the producer responsibility frameworks. Additionally, France has set up a 'repair fund'—financed through its producer responsibility schemes—to provide consumers with financial support for product repairs.<sup>43</sup>

The evolution of product-related regulations will increasingly necessitate documentation from supply chains. A notable instance is the forthcoming EU Battery Regulation, which establishes compulsory minimum levels of recycled content for certain types of batteries. Consequently, battery manufacturers will be obligated to provide documentation verifying the recycled content. Additionally, within the European Strategy for Plastics in a Circular Economy (ESPR) and its impending Ecodesign Regulations, there is an expectation for rules that require detailed supply chain information. The introduction of Digital Product Passports (DPPs) in the new Battery Regulation and the ESPR will facilitate the communication of comprehensive information about the product across its entire lifecycle.

This report primarily examines key legislation concerning the energy efficiency and design of products, including the Ecodesign Directive, the Energy Regulation, and the forthcoming Ecodesign for Sustainable Products Regulation (ESPR), which is set to supersede the Ecodesign Directive. Additionally, it touches upon other relevant EU product regulations and pertinent rules within EU Member States.

## 5.1. Product Rules at the EU Level

The table below outlines some key existing EU product laws with mandatory requirements for manufacturers and other responsible economic operators.

**Table 4.**

Key EU product laws with mandatory requirements for manufacturers and other responsible economic operators

Intervention Type and Environmental Aspect Addressed	Examples of Environmental Legislation
<b>Eliminating Harmful Substances from Products:</b> These regulations are designed to protect human health, safeguard the environment, and facilitate recycling. Hazardous substances can increase the cost of recycling, render it unfeasible, or even lead to a scenario where there is no demand for the recycled material due to restrictions on its use in new products.	<b>Chemical and Product Safety Regulations:</b> <ul style="list-style-type: none"> <li>→ REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals)</li> <li>→ RoHS (Restriction of Hazardous Substances) Directive</li> <li>→ Toy Safety Directive</li> <li>→ Product Safety Directive</li> <li>→ Battery Directive</li> </ul>
<b>Implementing Mandatory Energy Efficiency Standards:</b> These standards ensure that all products meet specified minimum criteria for energy performance.	<b>Ecodesign Requirements:</b> <ul style="list-style-type: none"> <li>→ Ecodesign Directive, enforced through delegated regulations, setting standards for energy efficiency and environmental design across various products.</li> </ul>
<b>Mandating extended producer responsibility:</b> Producers must reach certain collection and recycling targets, and pay for collection and recycling systems; e.g. for packaging, vehicles, batteries, electronics and fishing gear	<b>Waste Management and Reduction Directives:</b> <ul style="list-style-type: none"> <li>→ Directive on Packaging and Packaging Waste</li> <li>→ ELV (End-of-Life Vehicles) Directive</li> <li>→ WEEE (Waste Electrical and Electronic Equipment) Directive</li> <li>→ Battery Directive</li> <li>→ Directive on the reduction of the impact of certain plastic products on the environment</li> </ul>
<b>Establishing Minimum Durability Standards:</b> Certain products, such as vacuum cleaners and lighting, must meet defined standards for durability and lifespan.	<b>Ecodesign Requirements:</b> <ul style="list-style-type: none"> <li>→ Ecodesign Directive, enforced through delegated regulations, setting standards for energy efficiency and environmental design across various products.</li> </ul>
<b>Requiring Availability of Spare Parts and Repair Manuals:</b> Producers are obliged to supply spare parts and repair guides to both professional repair services and consumers, enhancing product longevity and maintainability.	<b>Ecodesign Requirements:</b> <ul style="list-style-type: none"> <li>→ Ecodesign Directive, enforced through delegated regulations, setting standards for energy efficiency and environmental design across various products.</li> </ul>
<b>Compulsory Energy Efficiency Labeling:</b> Producers must label each appliance with an energy label that clearly displays the product's energy efficiency rating.	<b>Energy Efficiency Labeling:</b> <ul style="list-style-type: none"> <li>→ Energy Labeling Regulation, applied through delegated regulations, mandates clear labeling on products to inform consumers about energy consumption.</li> </ul>
<b>The EU Ecolabel ("The Flower"):</b> This symbol serves as a mark of environmental excellence awarded to products and services meeting high ecological standards throughout their life cycles.	<b>EU Ecolabel:</b> <ul style="list-style-type: none"> <li>→ A voluntary eco-labeling scheme that encompasses various product groups. Manufacturers can apply for this label to denote high environmental performance. For detailed information, see the EU Ecolabel online.</li> </ul>

Regulations governing the use of chemicals in products have been established for some time and are continually updated to incorporate new restrictions on substances. The REACH Regulation, for example, covers a broad spectrum of products and substances, while specific regulations are tailored to certain categories such as electrical and electronic equipment (EEE) and toys. Compliance with these regulations is often a complex task for manufacturers and importers. For instance, a toy manufacturer must navigate not only the REACH Regulation and the Toy Safety Directive but also regulations on persistent organic pollutants (POPs) governed by separate legislation. Additionally, there are reporting obligations under various EU laws, including those concerning chemicals and waste, as well as regulations pertaining to substances used in packaging. The complexity increases if the toy includes a battery and electronic components, introducing further regulatory requirements.<sup>44</sup>

Compliance demands vigilance not only from manufacturers but also from importers of toys. Various regulatory techniques are employed to manage the presence of substances in products. These include direct lists of restricted substances, limit values set in legislation, and specific protocols for product groups. To aid legal compliance, harmonized standards are often developed, such as those supporting the Toy Safety Directive.<sup>45</sup>

The Product Safety Regulation plays a complementary role by establishing a broader legal framework. This framework mandates that manufacturers, representatives, or importers ensure only safe products are marketed. It also includes provisions for consumer information and product traceability, facilitating the recall of unsafe products. Additionally, the Directive introduces the RAPEX system, which allows for the rapid exchange of information on unsafe products among market surveillance authorities (MSAs) and

supports product recalls.<sup>46</sup> Many reports in RAPEX involve health risks associated with chemicals, such as allergic reactions.

### 5.1.1. Mandatory Energy Efficiency Standards

Over the past 15 years, the EU has also implemented minimum energy performance standards (MEPS) for a growing range of energy-consuming products, including household appliances, electronics, and electric motors, through the Ecodesign Directive. Furthermore, the Ecodesign Directive has been instrumental in setting lifetime requirements for specific product groups, such as vacuum cleaners and lighting products, and more recently, it has promoted the Right to Repair (R2R) initiative (see box below).

#### The Ecodesign Directive

The Ecodesign Directive establishes Mandatory Energy Performance Standards (MEPS) for "energy-related products," which include both products that consume energy and those that can influence energy consumption.

Under this directive, regulations set MEPS and provide methodologies for calculations. Manufacturers are encouraged to adhere to harmonized standards to achieve compliance. For illustration, consider the MEPS for dishwashers outlined below:

##### Effective from 1 March 2021:

- Household dishwashers must have an Energy Efficiency Index (EEI) of less than 63.

##### Effective from 1 March 2024:

- Household dishwashers with a capacity of 10 place settings or more must have an EEI of less than 56 (The EEI calculation method is detailed in Annex III of the Ecodesign Directive).

Additionally, the Ecodesign Directive incorporates specific requirements for water usage and noise emission for applicable product categories. For instance, the noise emission standards for vacuum cleaners are defined as follows:

**Effective from 1 September 2017:**

- The sound power level must not exceed 80 dB(A).

Water consumption limits for washing machines are detailed below:

**Effective from 1 March 2021:**

- Household washing machines and washer-dryers must adhere to the following water consumption criteria for the eco 40-60 program:

The weighted water consumption (WW, in liters/cycle) must not exceed:  $WW \leq 2.25 \times c + 30$ , where "c" represents the rated capacity for washing machines or the rated washing capacity for washer-dryers for the eco 40-60 program.

The Ecodesign Regulation establishes performance standards to ensure that products entering the market not only meet environmental criteria but also perform efficiently. It addresses potential issues where products might satisfy environmental standards yet exhibit poor operational performance. For example, it specifies minimum washing and drying efficiency for dishwashers, as well as requirements for the dust pickup efficiency on hard floors and carpets for vacuum cleaners. These functional requirements are detailed, with precise technical specifications and measurement methods.

For smartphones and tablets, new Ecodesign requirements that will be enforced from June 2025 introduce several notable obligations. These include:

- Durability against accidental drops, scratches, and protection against dust and water ingress.
- Battery longevity, mandating that batteries must endure at least 800 charge-discharge cycles while maintaining a minimum of 80% of their original capacity.

- Detailed provisions for disassembly and repair, compelling producers to supply essential spare parts within 5-10 working days and ensuring availability for 7 years following the discontinuation of a product model in the EU market.
- Extended support for operating system updates, guaranteed for a minimum of five years from the date the product is marketed.
- Equitable access for professional repairers to any necessary software or firmware updates required for part replacements, ensuring a more sustainable lifecycle for these devices.

The Ecodesign Regulations encompass a variety of stipulations, including procedures for conformity assessments, mandates for technical documentation, and guidelines for market surveillance activities. These regulations are also designed to curb circumvention tactics by manufacturers, aiming to prevent the manipulation of test conditions to artificially enhance product performance.

For vacuum cleaners, this is addressed as follows:

*Article 7 Circumvention*

*The manufacturer, importer or authorized representative shall not place on the market products designed to be able to detect they are being tested (e.g. by recognizing the test conditions or test cycle), and to react specifically by automatically altering their performance during the test with the aim of reaching a more favorable level for any of the parameters declared by the manufacturer, importer or authorized representative in the technical documentation or included in any of the documentation provided.*

*The energy consumption of the product and any of the other declared parameters shall not deteriorate after a software or firmware update when measured with the same test standard originally used for the declaration of conformity, except with explicit consent of the end-user prior to the update.*

Furthermore, the Ecodesign Directive sets forth lifetime requirements for specific product categories and has recently introduced right-to-repair (R2R) mandates for certain groups of products, as detailed in the table below. These initiatives aim to enhance product longevity and facilitate reparability, aligning with broader sustainability goals.

### **Ecodesign Requirements for Product Longevity and Right-to-Repair (R2R)**

The Ecodesign regulations have introduced specific requirements to extend the lifetime of vacuum cleaners and lighting products, focusing on enhancing the durability of components that are prone to failure. For vacuum cleaners, the regulations emphasize:

- **Hose Durability:** The hose must withstand 40,000 oscillations under a 2.5 kg weight strain without visible damage, ensuring its usability over time.
- **Motor Operational Lifetime:** The vacuum cleaner is tested to operate intermittently for periods of 14 minutes and 30 seconds on, followed by 30 seconds off, with a half-loaded dust receptacle. This test continues for up to 500-600 hours. Key performance indicators such as airflow, vacuum efficiency, and input power are monitored and documented alongside the operational motor lifetime.

**Lighting products are evaluated on various aspects of their lifetime, including:**

- **Lumen Maintenance:** The percentage of lumen maintenance factor (XLMF%) after endurance testing must meet or exceed specified minimum values.
- **Survival Factor:** LED and OLED light sources must remain functional as per the requirements outlined after endurance testing.
- **Color Consistency:** LED and OLED light sources should not vary beyond a six-step MacAdam ellipse in chromaticity coordinates.

Directly regulating the lifetime of many product groups through legislation is challenging due to the absence of suitable standards or the impracticality of simulating years of daily use in a laboratory setting.

Recent developments in legislation have seen the introduction of Right-to-Repair (R2R) obligations, especially for white goods, which include:

#### **Spare Parts:**

- Availability of essential spare parts to all [certified] repairers.
- Defined maximum delivery times for spare parts.
- Spare parts replacement should be feasible with commonly available tools.
- Provision of information regarding professional repair services, ordering spare parts, the minimum guarantee period by the producer, and the availability timeframe for essential spare parts.
- Some of the aforementioned information should be publicly accessible.
- **Information:**
- Provision of repair and maintenance information to qualified repairers.
- Details on the availability of software and firmware updates for certain product groups.
- Assurance of software updates for a set number of years, either free of charge or at a minimal cost.

#### **Dismantling:**

- The product design should allow for the dismantling of key components and materials using commonly available tools, facilitating easier repairs and recycling.

These measures aim to improve product sustainability by extending their usable life and making repairs more accessible and feasible.

The Ecodesign Directive is progressively being utilized to require manufacturers to facilitate the Right-to-Repair (R2R) by ensuring the availability of spare parts and software for an extended period after a product's release into the market. This approach has also been proposed for smartphones and tablets in recent legislation.<sup>47</sup>

**The Ecodesign Directive is progressively being utilized to require manufacturers to facilitate the Right-to-Repair (R2R) by ensuring the availability of spare parts and software for an extended period after a product's release into the market.**

The European Commission maintains a strategic working plan under the auspices of the Ecodesign Directive and the Energy Labeling Regulation.<sup>48</sup> This plan sets forth priorities, such as implementing Ecodesign requirements for emerging product categories and updating existing regulations in response to technological advancements. Furthermore, the Ecodesign Directive incorporates unique governance mechanisms to support its objectives.

One notable feature is the establishment of a Consultation Forum:

#### *Article 18 Consultation Forum*

*The Commission shall ensure that, in the conduct of its activities, it observes, in respect of each implementing measure, a balanced participation of Member States' representatives and all interested parties concerned with the product or product group in question, such as industry, including SMEs and craft industry, trade unions, traders, retailers, importers, environmental protection groups and consumer organizations. These parties shall*

*contribute, in particular, to defining and reviewing implementing measures, to examining the effectiveness of the established market surveillance mechanisms and to assessing voluntary agreements and other self-regulation measures. These parties shall meet in a Consultation Forum. The rules of procedure of the Forum shall be established by the Commission.*

The Ecodesign for Sustainable Products Regulation (ESPR) is set to supersede the existing Ecodesign Regulation. The ESPR proposal is anticipated to be approved with only minor modifications to the initial proposal. Upon the adoption of the ESPR, the previous regulations established under the Ecodesign Directive will remain effective. However, as these older regulations are gradually phased out, new regulations will be introduced following the procedures and mechanisms outlined in the ESPR. The ESPR is set to expand upon the current Ecodesign Directive by concentrating on product lifespan and Right to Repair (R2R) issues, while also promoting recycling efforts through requirements on the use of recycled materials. Additionally, it will employ governance strategies similar to those used in the Ecodesign Directive, including a comparable comitology process for decision-making.

The Battery Regulation<sup>49</sup> introduces several innovative concepts that align with the ESPR's goals. These include obligations for recycling and the stipulation of mandatory minimum levels of recycled content in certain types of batteries, alongside necessary documentation. By 2027, it will be mandatory for portable batteries integrated into devices to be designed so they can be easily removed and replaced by consumers. This Regulation also mandates the implementation of digital passports for select battery categories, enhancing traceability and accountability.

The Energy Labeling Regulation complements the

## The European Commission's Proposal for a New Ecodesign Regulation (ESPR)

The European Commission's Proposal for the Ecodesign for Sustainable Products Regulation (ESPR) represents a significant expansion beyond the existing Ecodesign Directive. Unlike its predecessor, the ESPR encompasses not only energy-consuming products but also non-energy-related products, such as furniture and textiles, bringing them under the ambit of ecodesign requirements.

The ESPR aims to enhance the obligations placed on manufacturers by:

- Extending ecodesign rules to a broader range of products, including those like furniture and textiles;
- Emphasizing new ecodesign criteria, focusing on enhancing product longevity, reparability, and addressing issues like micro plastics;
- Introducing innovative requirements for manufacturers, such as the inclusion of recycled content in new products entering the market.

Additionally, the proposed regulation plans to introduce Digital Product Passports (DPPs), a tool for sharing comprehensive data on a product's supply chain and lifecycle. DPPs aim to improve transparency across value chains, enabling all stakeholders, including consumers, to better understand the environmental footprint of the materials and products they utilize. DPPs could serve various purposes, including facilitating digital consumer receipts.

Article 14 of the ESPR mandates the European Union to establish labeling schemes that detail product lifespan and reparability through specific regulations. These include the design of the label and its communication methods, such as affixing it directly to the product, electronic dissemination, and requiring

retailers to display the label. Article 14 outlines three possible strategies:

- For product groups already under Energy Labeling regulations, it suggests the possibility of merging information about energy efficiency with details on expected lifespan and reparability within the same label's design.
- For these same groups, there's also the option to introduce a separate label, resulting in products carrying two compulsory labels.
- For product categories not covered by Energy Labeling, the introduction of a new ESPR label is proposed, eliminating the need for coordination with existing energy labeling schemes.

Given that France has implemented a compulsory Repair Index and other EU Member States have announced similar initiatives, Article 14 aims to harmonize these practices across the EU by establishing uniform EU-wide requirements.

Article 20 addresses the issue of destroying unsold and returned items. It highlights the significant waste generated, particularly in textiles and inexpensive electronics, from the destruction of products that never reach consumers. The ESPR enables the European Commission to require businesses to report on the destruction of unsold goods. Current discussions indicate the ESPR will likely prohibit the destruction of textiles, whether unsold or returned. The inclusion of these rules in the ESPR, distinct from product design guidelines, suggests an intent by the European Commission to unify reporting standards and practices concerning the disposal of unsold items across EU Member States (see next section).

Ecodesign Directive by facilitating an informed choice among consumers, both private and professional, allowing them to compare products based on energy consumption. Through this labeling system, appliances are graded on a scale from A to G, providing a clear indication of their energy efficiency. This partnership between the Ecodesign Directive and the Energy Labeling Regulation effectively combines regulatory standards with consumer information to drive market choices towards more sustainable options.

### 5.1.2. Extended Producer Responsibility

Extended Producer Responsibility (EPR) schemes are increasingly being applied to a wide array of product groups, such as electronics, packaging, fishing gear, and vehicles. While EPR schemes primarily focus on market access requirements and assigning producers the responsibility for the collection and recycling of products at the end of their life, they are not directly aimed at driving

changes in product design. However, future collaborations between product regulations and EPR schemes are anticipated. For example, France is pioneering 'eco-modulation'—a system where products designed to have longer lifespans or enhanced recyclability benefit from lower EPR fees.<sup>50</sup> Additionally, France has introduced a repair fund. Similarly, Digital Product Passports (DPPs) might influence recycling processes by providing crucial product information.

The EU is also proposing regulations to address green claims made by manufacturers and eco-labeling schemes<sup>51</sup>, often referred to as the 'Green Claims Directive.' This initiative arises from concerns that many sustainability claims are either vague, misleading, or unsupported by evidence, and that many eco-labeling schemes lack transparency and robust verification. The Directive aims to prevent greenwashing by

## The Energy Labeling Regulation

The Energy Labeling Regulation, akin to the Ecodesign Directive, serves as a foundational law, establishing product group-specific labels through regulations tailored to each category.

This labeling system extends beyond merely conveying energy efficiency; it incorporates, where applicable, vital information on water efficiency and noise emissions. For example, the label for washing machines includes details on:

- Energy efficiency rating(s)
- Energy usage per 100 cycles
- Water usage per cycle
- Cycle duration
- Noise emissions

Since 2019, suppliers (including manufacturers, importers, or authorized representatives) must

enter product information into the European Product Registry for Energy Labeling (EPREL) prior to introducing these products to the European market. This registry not only facilitates consumer access to product information but also aids in market surveillance efforts (see next section).

Furthermore, the Regulation obliges the EU to define how retailers should present these labels to consumers, such as in physical stores, and it outlines guidelines for market surveillance.

Starting in June 2025, new labeling criteria for smartphones and tablets will be implemented, introducing labels that detail not only energy efficiency but also battery durability, protection against dust and water, resilience to accidental drops, and a reparability score. This expansion reflects a broader approach to informing consumers and promoting sustainable product choices.

setting stringent criteria for environmental claims and prohibiting eco-labels that fail to meet standards of transparency and credibility. Although this Directive focuses mainly on consumer protection, it is expected to intersect significantly with product laws, particularly in areas like surveillance of compliance with environmental claims.

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In the realm of consumer law, the European Commission has proposed a Directive to promote the repair of goods, thereby enhancing consumers' right to repair.<sup>52</sup> This proposal aims to strengthen consumers' right-to-repair (R2R) under consumer law, and thus it can be seen as a complement to the product laws that strengthen R2R, such as rules under the Ecodesign Directive that mandates the provision of spare parts and software updates. This indicates a slightly different approach between the EU and the US in legal frameworks supporting the right to repair, with the EU employing more regulatory measures.<sup>53</sup>

On the topic of standardization, the European Commission has tasked the European Standardization Organizations (ESOs) with developing standards to ensure compliance with product regulations, which includes the development of harmonized standards as discussed above. Moreover, the Commission has also issued further relevant mandates including the 2015 standardization request M/543 to the European Standardization Organizations CEN,

CENELEC and ETSI.<sup>54</sup> The mandate concerned the development of general framework product standards – including standards on durability, repair and remanufacturing, which could serve as the base for future legal requirements on resource efficiency under the Ecodesign Directive (See Table 3 for examples of these standards).

The European Commission's new standardization strategy<sup>55</sup> aims to enhance the EU's global leadership in setting standards, accelerate the development of new standards, and strengthen the relationship between innovation and standardization. In relation to Ecodesign Directive and legislative proposals such as the ESPR, it states:

*“The introduction of sustainability requirements under Ecodesign and the forthcoming Sustainable Products Initiative will require the development of standards for the European market. The EU should work to promote global adoption of these standards in order to ensure a wider international pursuit of the underlying policy goals and secure a competitive advantage for first-mover industries.” (p. 6).*

## 5.2. Developments in EU Member States

Significant developments in product regulation are underway within EU Member States. The overarching objective of these regulations is to extend product lifetimes by promoting durability and reparability of products and by enhancing the availability of product information to consumers and other stakeholders. A summary of key policies is presented in the table below.<sup>56</sup>

<b>Consumer Information on Product Reparability</b>	France has implemented a mandatory repair index for a range of products including smartphones, laptops, televisions, washing machines, lawnmowers, vacuum cleaners, dishwashers, and pressure washers. This index, which ranges from 1 to 10, is displayed alongside the product's price tag in physical stores and online platforms. Several other EU countries are in the process of introducing similar measures.
<b>Consumer Information on Product Durability</b>	France intends to evolve its repair index into a durability index in 2024. This new index will assess factors such as product reliability or robustness (reflecting intrinsic performance, proper maintenance, and relevant consumer information) and upgradability (ensuring products remain functional over time despite technological advancements, including compatibility with software and hardware updates).
<b>Criminalization of Planned Obsolescence</b>	France has made planned obsolescence a criminal offense and has provided a legal definition of the concept.
<b>Repair Fund</b>	France has established a repair fund requiring producers to contribute to the repair costs of products outside the legal warranty.
<b>Product Labeling and Information</b>	A recent French law requires producers of certain product groups—including electrical and electronic items, packaging, and textiles—to label their products with various criteria such as reparability, sustainability, use of recycled materials, and presence of micro plastics.
<b>Eco-modulation</b>	France has adopted a system of variable fees in Extended Producer Responsibility (EPR) schemes based on the product's lifespan, reparability, and recyclability attributes.
<b>Extended Mandatory Consumer Guarantees</b>	Some European countries have extended the legal consumer guarantee period. For example, Sweden has recently introduced a three-year guarantee period for most products.
<b>Tax Incentives for Repair Services</b>	Certain countries have introduced tax incentives for repair services, including reductions in value-added tax (VAT) for repairs.
<b>Regulations on the Destruction of Unsold/Returned Consumer Goods</b>	Initiatives include partial bans on destruction (France), reporting requirements (Germany), and reduced VAT for donated items (Belgium).
<b>Repair Vouchers</b>	Some cities in Austria provide repair vouchers to subsidize consumer repairs at local service providers. Austria has introduced a national voucher scheme for electronic devices.
<b>Supporting Infrastructure for Re-use</b>	Numerous cities across Europe are encouraging re-use by offering infrastructure at recycling centers that facilitate the diversion of items from recycling to re-use.
<b>Voluntary Eco-labeling Schemes</b>	In addition to the EU's voluntary eco-labeling scheme, there are various national and regional eco-labeling initiatives. These range from government-established schemes (such as Germany's Blue Angel) to those developed by industries or non-governmental organizations.

A clear distinction exists between regulations and policies with a direct impact on product design, and those that modify interactions with products to encourage repair and reuse. Regulations such as the Ecodesign Directive and the Energy Labeling Regulation are examples of the former, regulating product characteristics and labeling. In contrast, national regulations concerning mandatory consumer guarantees and financial incentives for repairs fall into the latter category. These regulations may not directly control product design and labeling, yet they can influence consumer behavior and, in certain situations, product design itself. For instance, a three-year consumer guarantee might incentivize producers to create more durable products to decrease consumer complaints.

**A clear distinction exists between regulations and policies with a direct impact on product design, and those that modify interactions with products to encourage repair and reuse.**

The implications of national policy measures are manifold:

- **Increased Compliance Complexity:** For manufacturers and importers, it becomes essential to navigate not only EU rules but also national regulations in individual markets. Occasionally, large online retailers may mandate compliance with specific national laws as a condition for product sales;
- **Increased Challenges to Goods Movement:** Certain national regulations, particularly mandatory labeling schemes and product information requirements, can significantly challenge the free movement of goods within the EU Internal Market. Consequently, the EU seeks to harmonize such national regulations, notably through initiatives like the ESPR.

The Green Claims Directive aims to standardize the regulation and market surveillance of manufacturers' environmental claims and labeling schemes across Europe;

- **Competitive Disparity Concerns:** National regulations, including taxes and subsidies for repairs, may not directly hinder the Internal Market but could affect fair competition, especially if subsidies are available only to certain operators within the EU. The European Commission has raised concerns that national reporting regulations, such as those requiring reports on product destruction, may disrupt the Internal Market's functioning.

The challenges posed by national measures to the Internal Market's functionality partially motivate the EU to pioneer product regulation, often leading to the proposal of EU-wide rules in response to national initiatives. Looking forward, the EU is likely to pursue the harmonization of national regulations. However, given the ongoing "policy experimentation" among EU Member States, some national regulations are expected to persist.

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### 5.3. The Policy Mix: The Need for Policy Coordination to Support Innovation

As the complexity of product policies weaves an increasingly intricate web across both EU-wide regulations and those of individual member states, the need for policy coordination becomes paramount<sup>57</sup>. This paper has extensively addressed the call for harmonization efforts.

Beyond mere harmonization, there's a critical requirement for coordinating policies to stimulate innovation and environmental advancements over time.

The illustration of a normal distribution curve for a product group, as seen in figure 2 below, showcases the spectrum of environmental performances: products with inferior environmental quality are positioned on the left (below the red line), a broad segment with average environmental performance occupies the middle, and a select few high achievers are on the right (below the green line). This 'policy mix' leverages EU directives such as the Ecodesign Directive, the RoHS Directive, and REACH to mandate all products in the market to adhere to specific standards, effectively "raising the bar" and excluding lower-performing products from the EU market. As a result, manufacturers are compelled to either enhance their products' environmental performance or withdraw them from the market.

**As the complexity of product policies weaves an increasingly intricate web across both EU-wide regulations and those of individual member states, the need for policy coordination becomes paramount.**

Although these mandatory regulations establish a baseline, they may not inherently motivate manufacturers of moderate and top-performing products to exceed these minimum standards. This is where additional policies play a crucial role. The mandatory energy label, for instance, allows consumers to identify the most energy-efficient products and sets a performance benchmark for manufacturers, who generally strive to avoid marketing products with low energy ratings. Voluntary eco-labels act similarly, directing consumers towards the best-performing

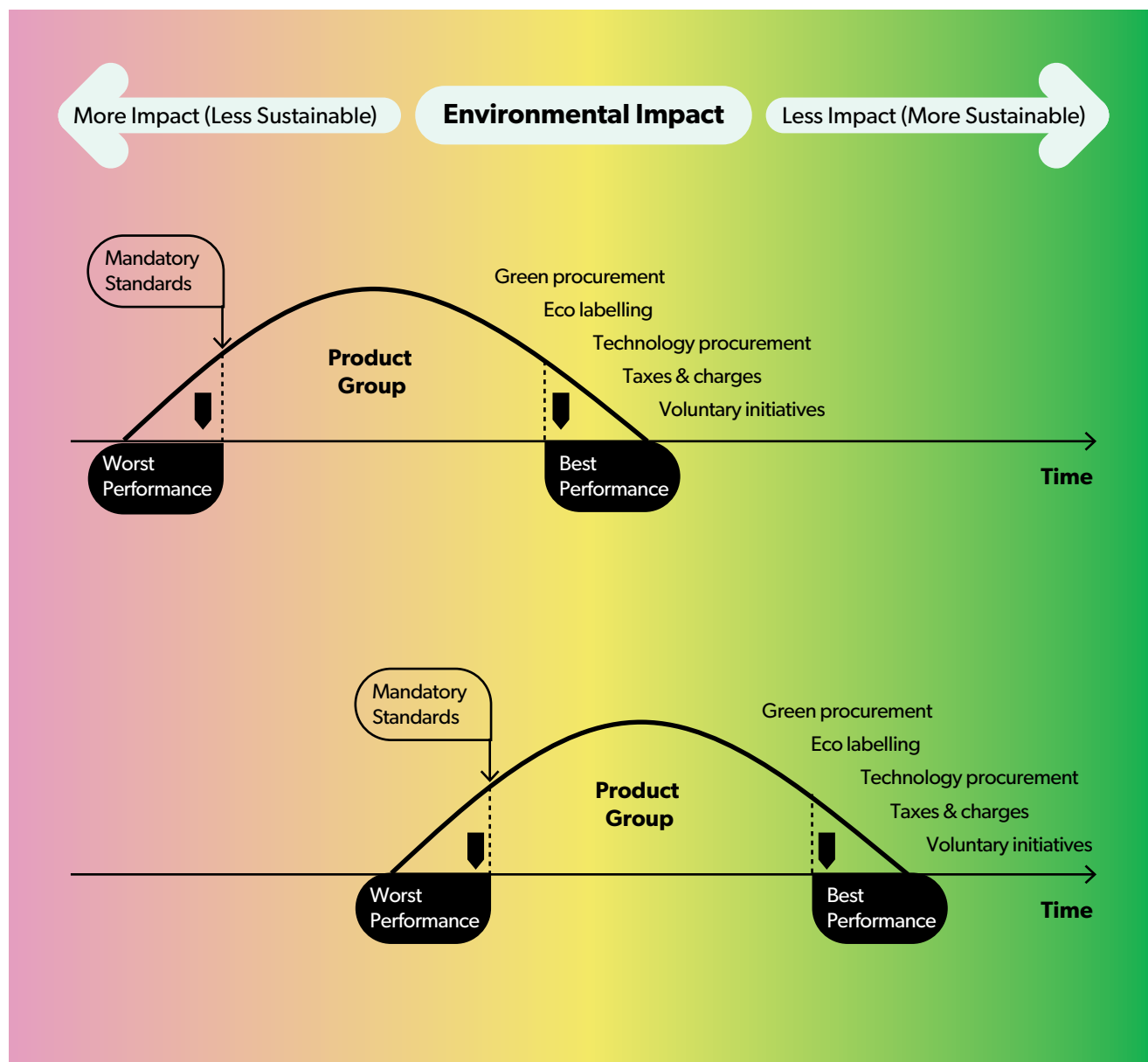
products and establishing industry benchmarks. Further incentives can be introduced through public procurement practices that apply environmental criteria to favor the most environmentally friendly products by giving them priority in public contracts.

**Effective coordination among these policies is vital; as legal standards evolve, so too should the criteria for energy efficiency labels and eco-labels. This ensures that products must demonstrate higher environmental performance to earn top ratings.**

Effective coordination among these policies is vital; as legal standards evolve, so too should the criteria for energy efficiency labels and eco-labels. This ensures that products must demonstrate higher environmental performance to earn top ratings. With well-designed policy coordination, the environmental performance of all products on the market will progressively improve, as depicted by a rightward shift in the normal distribution curve over time. This shift not only reflects the elimination of lower-performing products but also indicates an overall enhancement in the market's environmental standards, driven by well-coordinated policy measures.

**Figure 2.**

Policy instruments and environmental performance of product groups over time



Source: Dalhammar, C. (2005). Regulating indirect aspects in the product chain: The emergence of a life cycle approach in environmental law. In Proceedings from the 11th Annual International Sustainable Development Research Conference, Helsinki, June 2005. The figure has been developed by Thomas Lindqvist, Chris van Rossem, and Carl Dalhammar.

To further spur innovation, governments have at their disposal a range of supplementary tools, including diverse innovation policies like technology procurement. These measures can be employed to encourage the development of products that outperform those currently available on the market or to facilitate the advancement of new technologies.

## 6. Market Surveillance in the EU and its Member States

Market surveillance is crucial for ensuring that products adhere to legal standards, a step vital for protecting public interests such as consumer safety, fair competition, and environmental protection. European industry associations, recognizing the importance of rigorous market surveillance, advocate for substantial investments in dedicated resources to prevent non-compliant companies from gaining an unfair market edge over those that adhere to regulations and, consequently, may have higher pricing structures. Moreover, numerous manufacturers within the EU face significant challenges due to the proliferation of inferior products from competitors, including hazardous electronic components like batteries sold online, and firms evading Extended Producer Responsibility (EPR) fees (“free-riders”).

It is essential to underscore that product regulations must be backed by robust surveillance measures to achieve their intended impact. For instance, albeit based on tentative estimates, around 10 to 25% of products marketed in 2019 did not meet Ecodesign and Energy Labeling standards, resulting in an estimated 10% reduction in energy savings.<sup>58</sup>

In essence, Market Surveillance Authorities (MSAs) undertake three primary functions: monitoring,

verification, and enforcement (MV&E). This report focuses exclusively on the surveillance of consumer and industrial products, excluding foodstuffs and medical products.

The EU's market surveillance encompasses 33 sectors, including Ecodesign and Energy Labelling. It is the responsibility of Member States to conduct market surveillance within their jurisdictions. Each Member State is required to appoint a Market Surveillance Authority (MSA) for the relevant legislation, equipping it with the necessary authority and resources to conduct effective surveillance. Details regarding the penalties, such as fines, for non-compliance can be accessed on the European Commission's website.<sup>59</sup>

The European Commission facilitates collaboration among national Market Surveillance Authorities (MSAs) by hosting meetings, providing guidance and training, and managing databases. Notable initiatives include:<sup>60</sup>

- The EU Information and Communication System for Market Surveillance (ICSMS): The ICSMS is a unified platform that allows MSAs to exchange information on product investigations, share outcomes and measures, and collaborate on cases. ICSMS features a public section where individuals can search for specific products and identify the responsible authorities. The aim is to ensure reliability and coherence in the implementation and enforcement of the European internal market legislation on products. Consumers do not have access to all information, but can get access to information about dangerous products and voluntary warnings, as well as recalls by the industry;
- The EU Rapid Alert System for dangerous non-food products (Safety Gate): This initiative is intended to enhance the swift sharing of information about hazardous products between MSAs and the European Commission.

The EU allocates funds to support projects designed to enhance market surveillance activities within the EU, including those for the Ecodesign and Energy Labelling programs.

Traditionally, there has been considerable variability among EU Member States in terms of resource allocation to market surveillance, their diligence in inspecting products, and their responsiveness, for instance, through recalls or fines. As a result, the effectiveness of surveillance varies across the EU. The establishment of Administrative Cooperation Groups (AdCos)<sup>61</sup> for cross-border cooperation among national MSAs has somewhat mitigated these disparities, though differences remain.

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The contemporary EU framework for market surveillance, introduced by Regulation (EU) 2019/1020 on market surveillance and product compliance<sup>62</sup>, provides clear legal definitions for concepts such as the requirements for placing a product on the market, and outlines the duties of different economic operators, including manufacturers and importers. This regulation, relevant to around 70 EU laws, aims to enhance market surveillance by advocating best practices, addressing challenges related to online sales, and fostering better cooperation between EU Member States. Additionally, the EU has established mechanisms to bolster collaboration between MSAs (For more information, see the box on this page.).

### Examples of European and Global Collaboration in Market Surveillance

- **Administrative Cooperation Groups (ADCOs)** are specialized entities addressing sector-specific market surveillance challenges within their domains;<sup>63</sup>
- **The EU Product Compliance Network (EUPCN)** focuses on enhancing coordination and cooperation among market surveillance authorities across EU nations, standardizing practices to support the execution of joint enforcement actions by the authorities of member states;<sup>64</sup>
- **Safety Gate**, previously known as Rapex (Rapid Exchange of Information on Dangerous Products), operates as a network for all EU Member States, enabling authorities to notify each other about hazardous products and the actions taken for protection;
- **The Information and Communication System for Market Surveillance (ICSMS)** serves as a European platform for the exchange of product-related information among market surveillance authorities;<sup>66</sup>
- **Prosafes (Product Safety Forum of Europe)** is a nonprofit entity founded by market surveillance officials from various European countries to foster informal dialogue among MSA personnel, facilitating the exchange of experiences and the cultivation of best practices;
- **The UN Economic Commission for Europe – Market Surveillance Group (UN ECE - MARS)** is a United Nations working group dedicated to market surveillance, consisting of representatives from MSAs worldwide.

For an in-depth exploration of EU product laws, including comprehensive discussions on related topics such as conformity, assessment, accreditation, the implications of "placing a product on the market," and further elaboration on the principles and directives governing market surveillance, see the Blue Guide.<sup>67</sup>

EU legislation not only outlines the framework for market surveillance but also mandates that EU Member States allocate the requisite resources for its execution and establish overarching duties for organizing supervisory strategies – for instance, through the enforcement of punitive measures as a deterrent. Nonetheless, the approaches to market surveillance vary significantly among EU Member States, resulting in diverse organizational structures for surveillance activities.

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Moreover, Market Surveillance Authorities (MSAs) are required to collaborate with customs agencies, and to facilitate this, the European Commission has provided specific guidelines.<sup>68</sup> Differences exist among EU Member States in how market surveillance is structured:

- Some Member States have centralized market surveillance responsibilities for various product-related directives and regulations under one or a few national authorities, while others, as illustrated by the example of Sweden, distribute these responsibilities across multiple MSAs;

### Case Study: The Structure of Market Surveillance in Sweden

In Sweden<sup>69</sup>, the responsibility for market surveillance predominantly lies with national authorities that also legislate within the product's domain, leading to 15 authorities with surveillance mandates. For example, the Energy Agency is tasked with enforcing the Ecodesign Regulation and Energy Labelling, whereas the Chemicals Agency oversees the regulatory framework concerning chemicals in products. The National Electrical Safety Board is concerned with the safety of certain electrical products and their electromagnetic compatibility, and the Environmental Protection Agency ensures compliance with waste legislation. These agencies are also required to collaborate with other entities, including customs authorities.

The Consumer Agency holds overarching responsibility for the Product Safety Regulation, thereby undertaking market surveillance across a wide array of products and supplementing the inspections conducted by other authorities.

In instances where product groups fall under the purview of multiple agencies, responsibilities are shared. For toys, the Consumer Agency primarily ensures compliance with safety standards, while the Chemicals Agency regulates their flammability and chemical composition. The Electrical Safety Board oversees the electrical safety aspects of toys.

Given its decentralized nature, the Swedish market surveillance system necessitates coordinated efforts. This role of coordination is fulfilled by the Swedish Board for Accreditation and Conformity Assessment (SWEDAC), the national accreditation body tasked with evaluating the competence of laboratories, certification, and inspection bodies within Sweden. As a governmental entity, SWEDAC operates under the supervision of the Swedish Ministry for Foreign Affairs. Coordination among market surveillance activities is largely facilitated by the Market Surveillance Council, which includes representatives from the national MSAs.

- In certain countries, distinct agencies draft the rules for market surveillance, whereas in others, the MSAs themselves are also tasked with rulemaking;
- The organization of surveillance varies from regional to centralized systems across different countries;
- Regarding legislation such as the EU Ecodesign Directive, some Member States have a single MSA responsible for all products, whereas others distinguish between consumer and industrial products, assigning separate MSAs to each category;
- While some MSAs rely exclusively on their internal staff for all surveillance activities, others leverage the expertise of external public bodies, like energy agencies, or private sector subcontractors for tasks including communication, technical expertise, document reviews, and notably, engaging external test laboratories;
- The presence of in-house laboratories and testing facilities varies; some MSAs have them, others do not.

In terms of the Ecodesign Directive and the Energy Labeling Regulation, although market surveillance and legal verification processes under these laws are broadly similar, notable differences exist. One such difference concerns the need for monitoring online retailers to ensure proper application of energy labels. In some EU countries, a single MSA oversees adherence to both laws, while in others, dedicated MSAs are established for each law.

The ECOPLIANT project of 2015, focusing on the Ecodesign Directive, formulated best practice guidelines that are equally applicable to the oversight of Energy Labeling.<sup>70</sup> These guidelines cover various control types, such as document reviews and laboratory tests, and offer methods for guiding inspections.

### **Key Components of Successful Market Surveillance in Europe**

- Developing organizational frameworks and strategic approaches for national market surveillance;
- Implementing a structured inspection program;
- Determining which products will undergo inspection;
- Cataloging product model numbers applicable across the European Economic Area (EEA);
- Executing inspections of documentation;
- Performing laboratory tests to verify compliance;
- Facilitating the exchange of inspection outcomes among Market Surveillance Authorities (MSAs);
- Enforcing the provisions of the Ecodesign Regulations.

Source: Ecopliant Project Report, 2015

It's important to recognize that a significant portion of the challenges facing market surveillance arises from the proliferation of online sales. Frequently, transactions occur through aggregator platforms where the platform serves merely as an intermediary; this often leads to consumer misconceptions about who bears responsibility. The European Union has enacted regulations to mitigate some of this confusion by clarifying the roles and responsibilities of different market participants in online sales. Despite these efforts, considerable ambiguity persists in the sector, exacerbated by certain economic operators' failure to adhere to regulations. Moreover, imposing sanctions (such as fines) on economic operators located in other EU countries, or especially those outside the EU, presents a formidable challenge for Market Surveillance Authorities (MSAs). Hence, collaboration among EU MSAs is essential, given the complexities involved when a product from a manufacturer in one country is found non-compliant in another.<sup>71</sup>

To navigate these challenges, some MSAs have adopted innovative approaches, including the use of webcrawler techniques to monitor online sales platforms, thereby enhancing market surveillance. Webcrawling offers a cost-effective method for rapidly gathering data, paving the way for improved cross-border collaboration, data sharing, and harmonization.

The European Product Registry for Energy Labelling (EPREL) database is poised to play a crucial role in future surveillance activities. For example, with new Ecodesign regulations requiring manufacturers and importers to provide spare parts for a set number of years, the EPREL database can indicate the dates when the last units of a product were marketed.

## 7. Interplay of Environmental and Non-Environmental Product Institutions

Effective coordination across different sectors of product regulation is crucial to ensure that all product rules (pertaining to energy efficiency, waste management, chemical safety, and general product safety) – and the standards associated with these laws – are harmoniously aligned, avoiding significant discrepancies in objectives, design criteria, etc. While challenges in coordination are inevitable, the European Union is actively engaged in efforts to address these issues, including enhancing collaboration among various Directorates-General (DG) within the Commission.

Moreover, the development of standards must proceed hand in hand with legislative processes, as standards play a critical role in defining legal requirements for product design and corporate compliance. The rapid introduction of new product legislation presents a challenge, necessitating that standardization processes keep up.

In the context of market surveillance, collaboration among different Market Surveillance Authorities (MSAs), as well as between MSAs and customs authorities, is essential for achieving effective outcomes. Customs authorities, suspecting non-compliance, often rely on MSAs for verification.

Collaboration among MSAs is becoming more common and can manifest in various forms, including joint inspections and shared costs for testing. In some EU Member States, a single MSA may oversee multiple product regulations, while in others, responsibilities are more segmented.

Consequently, the basis for coordination varies, and both intra-MSA and inter-MSA cooperation differ from one country to another.

**Collaboration among MSAs is becoming more common and can manifest in various forms, including joint inspections and shared costs for testing.**

Initiatives like the ESPR, along with other forthcoming legislation, will necessitate increased collaboration among MSAs as responsibilities intersect more frequently, and the complexity of oversight grows. Furthermore, verifying compliance is becoming more challenging—not merely by examining the product itself but increasingly through the evaluation of supply chain documentation (e.g., verifying recycled content) and monitoring post-market responsibilities of manufacturers, importers, and other economic operators (e.g., providing spare parts for a set period).

## 8. Implications for Actors Outside the European Union

As European legislation and policy related to products continue to grow, along with the number of relevant product standards, several implications arise for actors outside the EU:

→ **Export Compliance:** Companies aiming to export to the EU Internal Market must stay informed about all pertinent legislation, policies, and standards. This necessity primarily concerns EU-wide directives and regulations, but it may also be beneficial

to be aware of specific laws and policies implemented by individual EU member states. For certain categories of products, like toys, a comprehensive array of legislation covering issues such as flammability, toxic substances, and electromagnetic properties is applicable; numerous harmonized standards are available to facilitate demonstration and monitoring of legal compliance;

→ **Standardization Challenges:** Entities engaged in the development of standardization efforts aimed at facilitating compliance with EU laws and standards encounter significant challenges, not only in tracking progress but also in ensuring that standardization processes comprehensively address all relevant considerations. Standardization demands considerable resources and time. Therefore, to effectively navigate these challenges, a strong emphasis on cooperation among industries, policymakers, and standardization organizations is imperative.

Non-EU countries are increasingly forming agreements with the EU that either relate to the adoption of EU-aligned product laws and standards, or relate to mutual recognition. Given the dynamic nature of the EU legal and standards framework, ongoing vigilance regarding European advancements is crucial. EU regulations and standards often address familiar issues like toxic substances in products and energy efficiency. However, they also extend to novel aspects of product design, including reparability and durability. To remain compliant, it is essential to keep abreast of both legal and standardization developments. Additionally, the EU is poised to introduce regulations and standards targeting environmental attributes for new categories of products such as furniture and textiles.

As the EU continues to lead in the formulation and enforcement of product-related legislation and standards with global implications, it becomes increasingly vital for actors outside the EU to adapt and align their practices accordingly. This alignment not only ensures compliance and continued access to the EU market but also positions these actors to influence and participate in the shaping of global sustainability practices. The expanding scope of EU regulations, including forthcoming measures on environmental attributes for new product categories, underscores a trend towards more comprehensive and stringent sustainability criteria. As such, non-EU entities must navigate these developments proactively, leveraging international agreements and standardization efforts as key strategies for maintaining competitiveness and contributing to global environmental objectives. This evolving regulatory landscape presents both challenges and opportunities for external stakeholders, necessitating a strategic approach to compliance, collaboration, and innovation in sustainability practices.

## 9. Conclusion and the Path Forward

The European Union stands as a global leader in integrating sustainability into product regulation, setting a high bar with its comprehensive legislative frameworks like the Ecodesign Directive, Energy Labeling Regulation, and the proposed Ecodesign for Sustainable Products Regulation (ESPR). These initiatives aim to enhance product durability, energy efficiency, and reparability, while reducing environmental impacts across the product lifecycle. Key elements include mandatory energy performance standards, extended producer responsibilities, and the introduction of innovative tools like Digital Product

Passports (DPPs) to enhance transparency and product lifecycle management.

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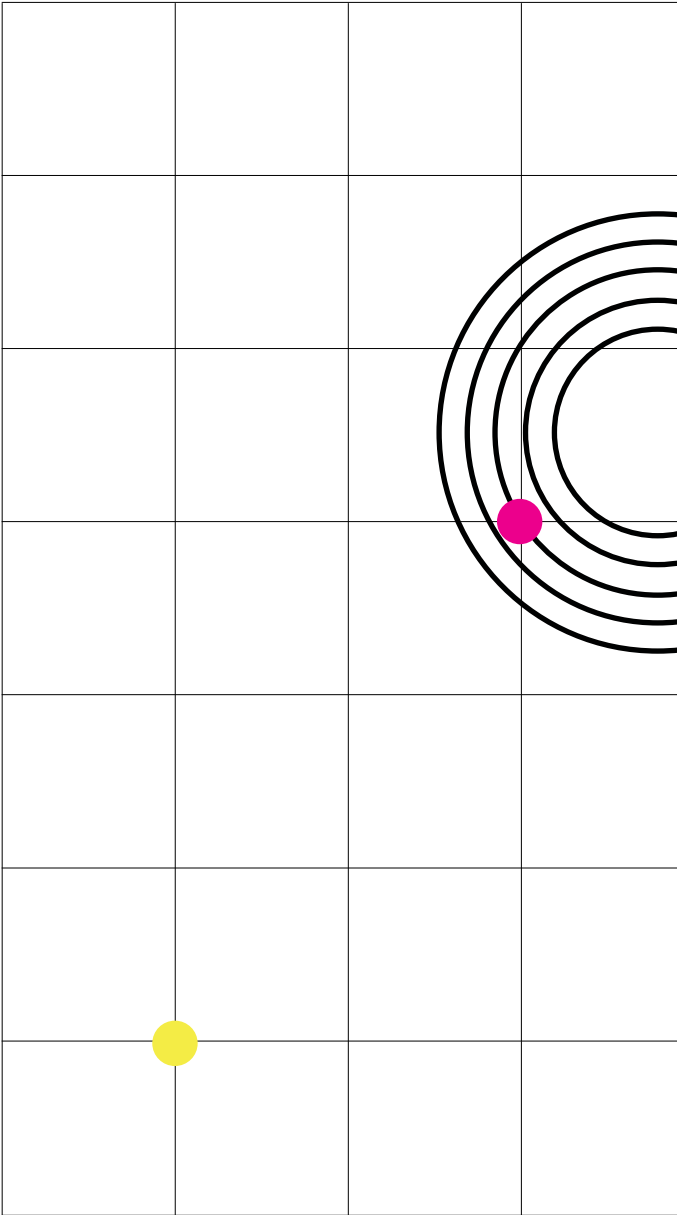
The EU's approach, characterized by a mix of mandatory regulations and voluntary schemes, seeks to improve product sustainability and influence global market practices through harmonization of standards and international collaboration. Its policy mix, blending regulation with innovation policies, demonstrates a comprehensive strategy to drive environmental performance improvements across the product spectrum. By setting both minimum standards and incentivizing high performers, this approach aims to progressively shift market norms towards greater sustainability. While challenges such as aligning member state regulations with EU-wide initiatives and ensuring market surveillance and compliance persist - underscoring the complexity of implementing these ambitious policies - the EU's strategic vision is successfully driving forward the refinement of internal market practices as well as serving to position the EU as a global sustainability leader.

The EU's pioneering efforts in integrating sustainability into its product regulations offer an opportunity for policymakers outside the EU to glean insights and draw lessons from the EU's comprehensive approach. For policymakers aiming to harmonize their sustainability policies with those of the EU, several key aspects of the EU's approach warrant close attention:

- **Holistic Product Lifecycle Management:** The EU's regulations emphasize the importance of considering environmental impacts across the entire product lifecycle, from design and manufacture to end-of-life disposal. This approach encourages the development of products that are not only energy-efficient but also durable, repairable, and recyclable;
- **Mandatory Energy Performance and Environmental Standards:** The implementation of mandatory standards, such as those established by the Ecodesign Directive and Energy Labeling Regulation, sets a minimum threshold for energy efficiency and environmental performance. This not only ensures a baseline level of sustainability across products marketed within the EU but also drives innovation among manufacturers to exceed these standards;
- **Extended Producer Responsibility (EPR):** EPR schemes require producers to take responsibility for the entire lifecycle of their products, including take-back, recycling, and disposal. This principle incentivizes the design of products that are easier to repair, reuse, and recycle, further embedding sustainability into product design and management;
- **Digital Product Passports (DPPs):** The introduction of DPPs under the ESPR aims to enhance transparency and provide detailed information about a product's environmental impacts, components, and recyclability. DPPs can facilitate better decision-making among consumers, manufacturers, and recyclers, promoting a more sustainable economy;
- **Promotion of Repair and Durability:** Regulations mandating the availability of spare parts and repair information aim to extend the usable life of products, reducing waste and encouraging a shift towards a circular economy. This focus on reparability and durability aligns with broader sustainability goals by minimizing resource extraction and waste;
- **Harmonization of Standards:** The EU's effort to harmonize standards across member states and potentially influence global standards highlights the importance of consistent and unified criteria for sustainability. This facilitates easier compliance for international manufacturers and fosters a global move towards more sustainable product standards;
- **Market Surveillance and Compliance:** Robust mechanisms for market surveillance ensure that products meet established standards, protecting consumers and the environment from non-compliant products. This underscores the necessity of investing in surveillance infrastructure and international cooperation to enforce compliance effectively;
- **Public-Private Collaboration:** The development and implementation of product regulations in the EU exemplify the value of collaboration between governmental bodies, standardization organizations, industry stakeholders, and civil society. Such collaboration ensures that regulations are both ambitious and achievable, balancing environmental goals with economic realities;
- **Adaptation and Flexibility:** The EU's regulatory framework is designed to adapt to technological advancements and emerging sustainability challenges. Policymakers outside the EU should consider creating flexible, adaptive regulatory environments that can respond to new information and innovation;

→ **Incentives for Innovation:** Beyond setting minimum standards, the EU framework offers incentives for products that exceed baseline requirements, such as through eco-labels or preferential treatment in public procurement. This approach encourages continuous improvement and innovation towards even higher standards of sustainability.

In conclusion, the EU's regulatory landscape for product sustainability presents a model for holistic, forward-looking policy development that non-EU countries can learn from and adapt to their contexts. By understanding and harmonizing with the EU's approaches, non-EU policymakers can not only enhance their domestic sustainability efforts but also contribute to a global movement towards more sustainable products and consumption patterns. Through collaboration, standardization, and innovation, there is a profound opportunity for global stakeholders to collectively advance towards a more sustainable future.



## Endnotes

- <sup>1</sup> Bradford, A. 2020. *The Brussels Effect*. Oxford Univ. Press; Svensson, S. et al. 2021. "Barriers, Enablers and Market overnance: A Review of the Policy Landscape for Repair of Consumer Electronics in the EU and the U.S." *J. of Cleaner Prod.*, 288; Dalhammar, C. et al. 2021. "Increasing the Lifespan of Products: Policies and Consumer Perspectives." Report: Swedish Energy Agency Official Report Series; Dalhammar, C. et al. 2020. "Ecodesign and the Circular Economy: Conflicting Policies in Europe," in: Kishita U. et al. (eds.). *EcoDesign and Sustainability I: Products, Services, and Business Models*. Springer.
- <sup>2</sup> Bradford, A. 2020. *The Brussels Effect*. Oxford Univ Press.
- <sup>3</sup> The EEA includes EU countries and also Iceland, Liechtenstein and Norway. It allows these countries to be part of the EU's single market. For more on this topic generally, see [https://single-market-economy.ec.europa.eu/single-market/ce-marking\\_en#:~:text=The%20letters%20%27CE%27%20appear%20on,health%2C%20and%20environmental%20protection%20requirements](https://single-market-economy.ec.europa.eu/single-market/ce-marking_en#:~:text=The%20letters%20%27CE%27%20appear%20on,health%2C%20and%20environmental%20protection%20requirements).
- <sup>4</sup> [https://single-market-economy.ec.europa.eu/single-market/european-standards/harmonised-standards\\_en](https://single-market-economy.ec.europa.eu/single-market/european-standards/harmonised-standards_en) ; <https://instrktiv.com/en/harmonised-standards/>
- <sup>5</sup> [https://www.cencenelec.eu/media/CEN-CENELEC/European%20Standardization/Documents/IC/global\\_outreach\\_june2023.pdf](https://www.cencenelec.eu/media/CEN-CENELEC/European%20Standardization/Documents/IC/global_outreach_june2023.pdf)
- <sup>6</sup> [https://single-market-economy.ec.europa.eu/single-market/european-standards/standardisation-policy/standardisation-strategy\\_en](https://single-market-economy.ec.europa.eu/single-market/european-standards/standardisation-policy/standardisation-strategy_en)
- <sup>7</sup> Dalhammar, C. 2023. Making sustainable products the norm on the Internal Market: an assessment of the proposal for a new Ecodesign Regulation. *Europarättslig Tidskrift* No. 1, 2023; Dalhammar, C. and E. Maitre-Ekern. 2023, forthcoming). How can we persuade consumers to purchase more sustainable products? A review of European legal developments. In Silva et al. (eds.). *Routledge Handbook of Private Law and Sustainability*.
- <sup>8</sup> For an overview of the initiative and various policy proposals, see [https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/about-sustainable-products\\_en](https://commission.europa.eu/energy-climate-change-environment/standards-tools-and-labels/products-labelling-rules-and-requirements/sustainable-products/about-sustainable-products_en)
- <sup>9</sup> The Council of the European Union has recently proposed changes to the Commission's original proposal for the ESPR. The latest version of the legal text can be found via: <https://www.consilium.europa.eu/en/press/press-releases/2023/12/05/products-fit-for-the-green-transition-council-and-parliament-conclude-a-provisional-agreement-on-the-ecodesign-regulation/>
- <sup>10</sup> Dalhammar, C. 2023. Making sustainable products the norm on the Internal Market: an assessment of the proposal for a new Ecodesign Regulation. *Europarättslig Tidskrift* No. 1, 2023; Dalhammar, C. and E. Maitre-Ekern. 2024, forthcoming. How can we persuade consumers to purchase more sustainable products? A review of European legal developments.
- <sup>11</sup> The legislative proposal can be found at: [https://environment.ec.europa.eu/topics/circular-economy/green-claims\\_en](https://environment.ec.europa.eu/topics/circular-economy/green-claims_en)
- <sup>12</sup> See Monciardini D, Maitre-Ekern E, Dalhammar C, Malcolm R (2023). 13 Circular Economy regulation: an emerging research agenda. In (Ed) *Handbook of the Circular Economy*, 219-240. De Gruyter.
- <sup>13</sup> [https://commission.europa.eu/system/files/2019-11/2019.3911\\_en\\_07.pdf](https://commission.europa.eu/system/files/2019-11/2019.3911_en_07.pdf)
- <sup>14</sup> Nadvi & Wältring. (2002). Making sense of global standards. INEF Report
- <sup>15</sup> [https://www.iso.org/sites/ConsumersStandards/1\\_standards.html](https://www.iso.org/sites/ConsumersStandards/1_standards.html)
- <sup>16</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2023%3A0166%3AFIN>

- <sup>17</sup> See <https://www.consilium.europa.eu/en/press/press-releases/2024/02/20/consumer-rights-final-approval-for-the-directive-to-empower-consumers-for-the-green-transition/#:~:text=The%20Council%20has%20today%20adopted,transition%20and%20the%20circular%20economy.>
- <sup>18</sup> When companies and other actors outside the EU comply with EU laws and product standards, “spillover effects” may result. For instance, products in non-EU markets may become more energy-efficient, and child labor may become less common in these countries. Whether EU rules applied to these countries are welfare-enhancing or not depends on the circumstances, not least whether EU laws and standards are well designed (cf. The discussion in Anu Bradford, *The Brussels Effect*, Oxford University Press).
- <sup>19</sup> K. Blind (2004). *The economics of standards: theory, evidence, policy*. Edward Elgar Publishing.
- <sup>20</sup> [https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee\\_en](https://environment.ec.europa.eu/topics/waste-and-recycling/waste-electrical-and-electronic-equipment-weee_en)
- <sup>21</sup> See discussion in Dalhammar, C. 2023. Making sustainable products the norm on the Internal Market: an assessment of the proposal for a new Ecodesign Regulation. *Europarättslig Tidskrift* No1, 2023.
- <sup>22</sup> [https://single-market-economy.ec.europa.eu/single-market/goods/free-movement-sectors/mutual-recognition-goods\\_en](https://single-market-economy.ec.europa.eu/single-market/goods/free-movement-sectors/mutual-recognition-goods_en)
- <sup>23</sup> Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (recast) (Text with EEA relevance)
- <sup>24</sup> <https://ec.europa.eu/transparency/comitology-register/screen/home> ; [https://commission.europa.eu/law/law-making-process/adopting-eu-law/implementing-and-delegated-acts/comitology\\_en](https://commission.europa.eu/law/law-making-process/adopting-eu-law/implementing-and-delegated-acts/comitology_en)
- <sup>25</sup> For more details see [https://commission.europa.eu/law/law-making-process/adopting-eu-law/implementing-and-delegated-acts/comitology\\_en](https://commission.europa.eu/law/law-making-process/adopting-eu-law/implementing-and-delegated-acts/comitology_en)
- <sup>26</sup> Rules of procedure for the Committee on the “Ecodesign and Energy Labelling of Energy-Related Products”; the “Ecodesign and Energy Labelling” Committee. These rules of procedure can be downloaded online.
- <sup>27</sup> Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission’s exercise of implementing powers.
- <sup>28</sup> Commission Regulation (EU) 2023/826 of 17 April 2023 laying down ecodesign requirements for off mode, standby mode, and networked standby energy consumption of electrical and electronic household and office equipment pursuant to Directive 2009/125/EC of the European Parliament and of the Council and repealing Commission Regulations (EC) No 1275/2008 and (EC) No 107/2009 (Text with EEA relevance)
- <sup>29</sup> For a recent discussion on these issues see Dalhammar, C. 2023. Making sustainable products the norm on the Internal Market: an assessment of the proposal for a new Ecodesign Regulation. *Europarättslig Tidskrift* No. 1, 2023.
- <sup>30</sup> See Dalhammar, C. 2023. Making sustainable products the norm on the Internal Market: an assessment of the proposal for a new Ecodesign Regulation. *Europarättslig Tidskrift* No. 1, 2023.
- <sup>31</sup> Dalhammar, C., L. Milios and J.L. Richter. 2021. Increasing the lifespan of products – policies and consumer perspectives. Report: Swedish Energy Agency.
- <sup>32</sup> [https://www.cenelec.eu/media/Policy%20Opinions/cen\\_cenelec\\_sustainableproductsinitiative\\_2022.pdf](https://www.cenelec.eu/media/Policy%20Opinions/cen_cenelec_sustainableproductsinitiative_2022.pdf)
- <sup>33</sup> Commission notice The ‘Blue Guide’ on the implementation of EU product rules 2022 (Text with EEA relevance) 2022/C 247/01
- <sup>34</sup> <https://boss.cen.eu/reference-material/guidancedoc/pages/newapproach/>

<sup>35</sup> [https://europa.eu/youreurope/business/product-requirements/compliance/conformity-assessment/index\\_en.htm](https://europa.eu/youreurope/business/product-requirements/compliance/conformity-assessment/index_en.htm)

<sup>36</sup> The following website provides access to the most recent lists of these references: [https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards\\_en](https://ec.europa.eu/growth/single-market/european-standards/harmonised-standards_en)

The harmonized standards related to Commission Regulations under the Ecodesign Directive and the Energy Labeling Regulation can be found here: [https://single-market-economy.ec.europa.eu/single-market/european-standards/harmonised-standards/ecodesign\\_en](https://single-market-economy.ec.europa.eu/single-market/european-standards/harmonised-standards/ecodesign_en)

<sup>37</sup> For an overview, see Commission notice The ‘Blue Guide’ on the implementation of EU product rules 2022 (Text with EEA relevance) 2022/C 247/01

<sup>38</sup> Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC (Text with EEA relevance); Commission notice The ‘Blue Guide’ on the implementation of EU product rules 2022 (Text with EEA relevance) 2022/C 247/01.

<sup>39</sup> EU Member States are mandated to pursue mutual recognition, a directive stemming from Articles 34-36 of the Treaty on the Functioning of the European Union. This mandate is further elaborated upon by the Mutual Recognition Regulation: Regulation (EU) 2019/515 of the European Parliament and of the Council of 19 March 2019, which focuses on the mutual recognition of goods lawfully marketed in another Member State. Additional information and links to guidance documents can be found on the homepage of the European Commission: [https://single-market-economy.ec.europa.eu/single-market/goods/free-movement-sectors/mutual-recognition-goods\\_en#:~:text=The%20mutual%20recognition%20principle%20ensures,can%20be%20sold%20in%20another.](https://single-market-economy.ec.europa.eu/single-market/goods/free-movement-sectors/mutual-recognition-goods_en#:~:text=The%20mutual%20recognition%20principle%20ensures,can%20be%20sold%20in%20another.)

<sup>40</sup> For an overview see Commission notice The ‘Blue Guide’ on the implementation of EU product rules 2022 (Text

with EEA relevance) 2022/C 247/01

<sup>41</sup> Commission notice The ‘Blue Guide’ on the implementation of EU product rules 2022 (Text with EEA relevance) 2022/C 247/01

<sup>42</sup> For a deeper discussion see <https://www.kemi.se/download/18.6c26dc74178e406dc61ebc/1619702793595/PM-6-21-Regulatory-mapping-for-remanufacturing-of-products-under-EU-law.pdf>

<sup>43</sup> <https://longtimelabel.com/en/news/what-is-the-reparation-fund/>

<sup>44</sup> For an overview of all rules that may relate to toys, see p. 2 in <https://www.kemi.se/download/18.6c26dc74178e406dc611690/1620227960269/Facts-Rules-for-chemicals-in-toys.pdf>

<sup>45</sup> [https://single-market-economy.ec.europa.eu/sectors/toys/toy-safety\\_en](https://single-market-economy.ec.europa.eu/sectors/toys/toy-safety_en); <https://www.ul.com/news/toys-new-harmonized-standards-under-eu-toy-directive>;

<sup>46</sup> <https://joinup.ec.europa.eu/collection/rapex/about>

<sup>47</sup> [https://single-market-economy.ec.europa.eu/system/files/2023-06/C\\_2023\\_3538\\_1\\_EN\\_ACT\\_part1\\_v6.pdf](https://single-market-economy.ec.europa.eu/system/files/2023-06/C_2023_3538_1_EN_ACT_part1_v6.pdf)

<sup>48</sup> [https://energy.ec.europa.eu/publications/ecodesign-and-energy-labelling-working-plan-2022-2024\\_en](https://energy.ec.europa.eu/publications/ecodesign-and-energy-labelling-working-plan-2022-2024_en)

<sup>49</sup> Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries. Available at: <https://eur-lex.europa.eu/eli/reg/2023/1542/oj>

<sup>50</sup> <https://www.sciencedirect.com/science/article/pii/S0956053X2300380X>

<sup>51</sup> [https://environment.ec.europa.eu/topics/circular-economy/green-claims\\_en#:~:text=The%20proposal%20aims%20to%20ensure,untrustworthy%20or%20false%20environmental%20claims.](https://environment.ec.europa.eu/topics/circular-economy/green-claims_en#:~:text=The%20proposal%20aims%20to%20ensure,untrustworthy%20or%20false%20environmental%20claims.)

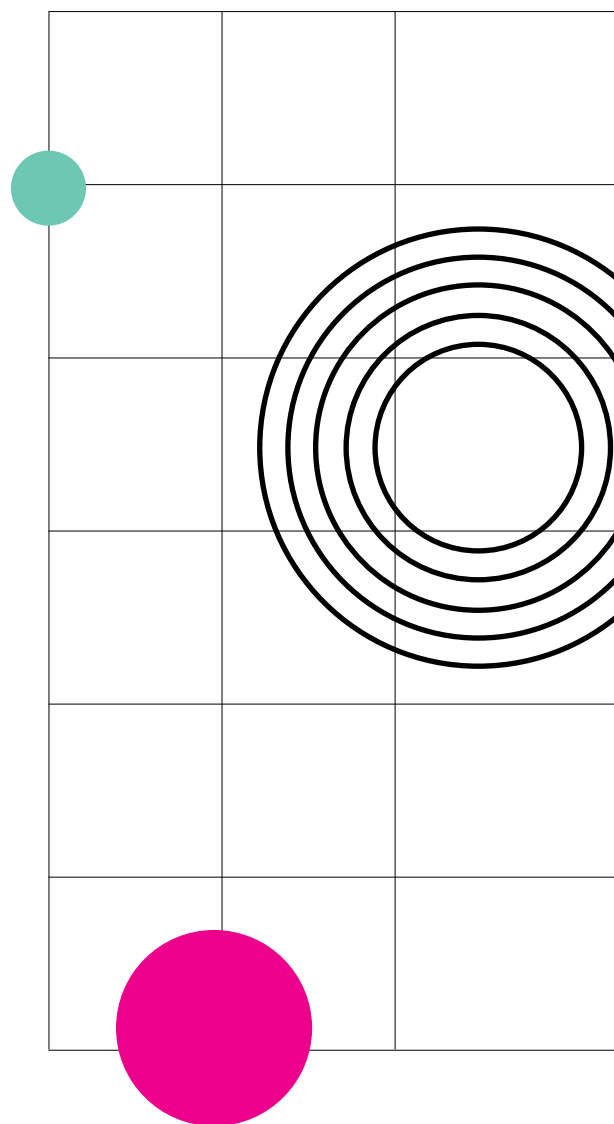
<sup>52</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52023PC0155>

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- <sup>54</sup> M/543 Commission Implementing Decision of 17.12.2015 on a standardization request to the European standardisation organisations as regards ecodesign requirements on material efficiency aspects for energy-related products in support of the implementation of Directive 2009/125/EC of the European Parliament and of the Council; <https://www.sciencedirect.com/science/article/pii/S0959652617311502>
- <sup>55</sup> European Commission, An EU Strategy on Standardisation. Setting global standards in support of a resilient, green and digital EU single market COM(2022) 31 final
- <sup>56</sup> For more details about these policies see Dalhammar, C. and E. Maitre -Ekern. 2024, forthcoming. How can we persuade consumers to purchase more sustainable products? A review of European legal developments. Routledge; [https://research.chalmers.se/publication/528688/file/528688\\_Fulltext.pdf](https://research.chalmers.se/publication/528688/file/528688_Fulltext.pdf); <https://www.sciencedirect.com/science/article/pii/S2352550922003050>
- <sup>57</sup> For more details see chapter 4 in <https://norden.diva-portal.org/smash/get/diva2:710881/FULLTEXT01.pdf>
- <sup>58</sup> <https://op.europa.eu/webpub/eca/special-reports/eu-energy-labels-1-2020/en/>
- <sup>59</sup> See <https://ec.europa.eu/docsroom/documents/55714>
- <sup>60</sup> For more information, visit [https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation\\_en](https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation_en)
- <sup>61</sup> [https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation/adcos\\_en](https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation/adcos_en)
- <sup>62</sup> Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products and amending Directive 2004/42/EC and Regulations (EC) No 765/2008 and (EU) No 305/2011 (Text with EEA relevance.)
- <sup>63</sup> [https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation/adcos\\_en](https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation/adcos_en)
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- <sup>65</sup> <https://ec.europa.eu/safety-gate-alerts/screen/webReport>
- <sup>66</sup> <https://webgate.ec.europa.eu/icsms/>
- <sup>67</sup> Commission notice The 'Blue Guide' on the implementation of EU product rules 2022 (Text with EEA relevance) 2022/C 247/01
- <sup>68</sup> <https://marknadskontroll.se/wp-content/uploads/2016/09/PS-EWG-Final-Guidelines-Generic-part-July-2011.pdf>
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## About the Author

**Carl Dalhammar** is an Associate Professor at the International Institute for Industrial Environmental Economics (IIIEE) at Lund University. He obtained his PhD in 2007, specializing in environmental governance, law and innovation, technology transfer, and product-oriented environmental policy.

Dr. Dalhammar's research explores the intersection between environmental policies and technological innovations, particularly focusing on how legal frameworks can drive eco-design and resource efficiency. His work includes evaluating technology transfer strategies for climate change mitigation and analyzing the role of public procurement in stimulating system innovation in Sweden. He is actively involved in extending the scope of the European Union's Ecodesign Directive to bolster its impact on eco-design and enhance environmental improvements.



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→ [office.israel@ippi.org.il](mailto:office.israel@ippi.org.il)

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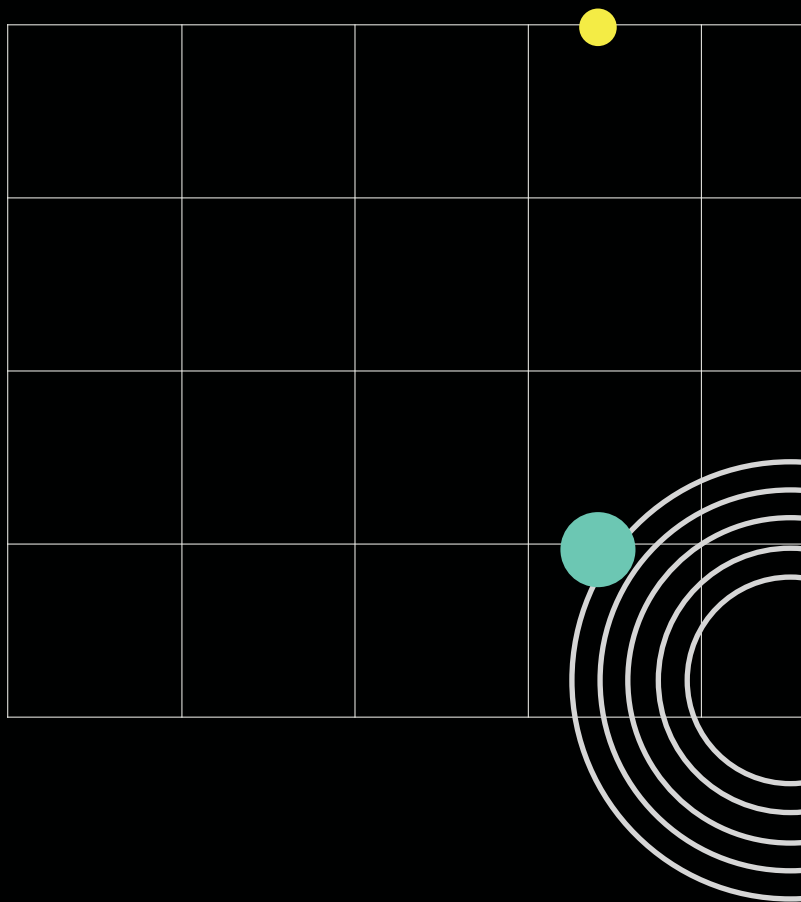
→ [info@il.boell.org](mailto:info@il.boell.org)

→ [www.il.boell.org](http://www.il.boell.org)

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