

IPC is the global association that helps the electronics manufacturing supply chain build electronics better. The association is dedicated to furthering the competitive excellence of its approximately 3,000 member companies, including more than 500 companies in Europe, many of which are small- and mid-sized companies. IPC recognizes that electronics are identified as priority products under the Sustainable Product Policy legislative initiative and we are providing this supplemental response to the public stakeholder consultation on behalf of member companies that manufacture intermediate products (e.g., components for use in a final product) and final products (e.g., a product used as it is).

This supplement supports the industry's responses to the questionnaire portion of the public stakeholder consultation and provides context for those responses given the complex intermediate and final electronics products produced by IPC member companies. IPC appreciates the opportunity to provide this information and intends for the European Commission to consider these additional comments in determining how best to address electronics as a potential priority product category. To have the greatest contribution to the aims for sustainable products, IPC suggests that legislation should focus on final electronics products with the greatest environmental impacts and the greatest potential for circularity improvements.

Legislative aims for sustainable electronics products must be narrowly defined

The electronics industry includes companies that manufacture intermediate electronics products (e.g., active and passive components, cables and wires, component packaging, or connectors, printed circuit boards, and the assembled components with boards) and final electronics products and systems (e.g., aerospace, automotive, consumer electronics, defense, heavy equipment, information and communications technology (ICT), or monitoring and control instruments) that are then used in an end-user industry sector (e.g., the automotive industry, test and measurement industry, aerospace and defense industry, or the industrial equipment industry).

Intermediate electronics products are ubiquitous with utility across many final electronics products and systems. The questionnaire refers to intermediate products and it can be assumed that these are synonymous with components and sub-assemblies as defined in Article 2 of the Directive 2009/125/EC of October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products (i.e., the Ecodesign Directive). The Directive defines components and sub-assemblies as "parts intended to be incorporated into products...the environmental performance of which cannot be assessed independently."

Different final electronics products may comprise some of the same intermediate electronics (i.e., components and sub-assemblies); an auto product, consumer product, defense product, and medical product may contain the same capacitor for example. However, unlike intermediate electronics products, final electronics products and systems are categorized by expected performance: consumer, commercial, and high reliability. Commercial electronics products are often utilized in dedicated service applications and high-reliability electronics are utilized in high-performance settings. The expectations for and the life cycles of these different categories of final electronics products vary substantially.

IPC evaluated the market-related and policy-related explanations offered by the European Commission for why products sold in the EU are not more sustainable (Section 1 of the Questionnaire). IPC member company responses to Section 1 varied depending on the utility of the product manufactured by that company. For example, many intermediate electronics products, many commercial electronics products, and most (if not all) high-reliability electronics products are not subject to fashion trends, planned obsolescence, or limitations on durability and reparability.

Electronics are mentioned several times in the questionnaire, as are electronic products, electronic equipment, and electronic gadgets. It can be assumed that the European Commission implies that the sustainable product initiatives will apply to only consumer electronics; however, this is not explicit. IPC requests that the Commission define electronics and refine the scope of the electronics priority product category. A narrowly defined scope is an acknowledgment that sustainable electronics products requirements must be tailored and that one-size-fits-all requirements will not achieve sustainable product aims because of the breadth and depth of electronics where there is broad horizontal applicability of intermediate electronics products and substantial variations in utility and performance of final electronics products.

In Appendix A, IPC offers examples of nuanced responses to some of the statements in Section 1 of the questionnaire. The responses highlight the differences between the intermediate product manufacturer and the final product manufacturer as well as the differences between different types of final electronics products.

Requirements for a digital product passport must be proportionate

IPC recognizes the challenges associated with achieving the ability to “know everything about everything.” The electronics manufacturing supply chain has experience with the implementation of the EU RoHS directive, EU REACH regulation, and the recently implemented Waste Framework Directive’s Substances of Concern in Products (SCIP) database – these policies share requirements for knowing and reporting chemical content. Also, the electronics manufacturing supply chain has experience with electronics and other industry standards that shape the design and production of electronics as well as the collection and declaration of material content.

To achieve a digital product passport, the passport’s “value” must be proportionate to the resources required to support its implementation and the product category to which it applies. For example, new requirements for data collection and management create administrative burdens for industry and policymakers, therefore consideration of novel solutions must be achievable and realistic. Trustworthy solutions must be made to account for the management of intellectual property, confidential data, and government requirements on export control. Resource management and costs associated with upgraded data management systems are untenable under current regulatory obligations for even the largest OEMs and electronics manufacturers operate with very slim margins. Finally, to receive quality data and for acceptance of these requirements, the utility of the data and information must be documented and communicated.

IPC suggests overcoming these known hurdles through a well-developed, strategic process to ensure internal due diligence, a well-communicated roadmap, and a well-documented plan with realistic timelines for the digital product passport. With the recent implementation of the SCIP database and the burgeoning policy initiatives of the Circular Economy Action Plan, it is important to recognize the risk of jeopardizing shared aims for a better future by creating too many disparate, burdensome proposals that might accidentally omit important aspects.

In Appendix B, IPC offers examples of nuanced responses to some of the statements in Section 2 of the questionnaire. The responses are from the perspective of manufacturers of final electronics products designed for long lives, durability and repairability.

Standards for specific products are effective incentives for circularity

To encourage more sustainable production and consumption, we would encourage the European Commission to look to existing voluntary policies, such as electronics industry standards, to leverage examples of standards that have enabled circularity and sustainable product aims. In some cases, voluntary policies such as industry standards can be mandatory and part of contractual obligations (e.g., for durability and reliability of the product and for continued long-term availability of replacement parts).

Also, we would encourage the European Commission to recognize inherently sustainable products and promote best practices that enable that inherent sustainability, e.g., attributes common to commercial and high-reliability electronics products. Extending life for most products will have the greatest positive impact on sustainability and narrowly defined product categories will enable targeted, measurable improvements for product categories with the both the greatest impacts and the greatest opportunities for circularity. Consensus-based industry standards have enabled many of these achievements through right-sized, sector-specific, scaled obligations.

Closing

In closing, IPC will continue to engage with the European Commission to help advance right-sized sustainable product initiatives. We appreciate the opportunity to contribute. At the same time, the volume of circular economy-related policy initiatives necessitates that all stakeholders, including IPC, continuously evaluate resources needed for concurrent engagements. For example, there are two consultations for sustainable products occurring within the same period (both are due 9 June) -- a public consultation and a targeted survey. This supplemental information is therefore intended to also address many of the questions posed in the targeted survey, that is, the suggestions for a refined electronics product category scope, proportionate digital product passport, and utility of standards are still applicable.

In addition, we would note that this supplemental information is intended as an initial response that will be refined as the sustainable products initiatives, and other circular economy-related initiatives, evolve and as our collective understanding of the various initiatives' aims are placed in context.

Appendix A
Supplemental information to Questionnaire Section 1
Regarding challenges to making products sustainable

IPC evaluated the market-related and policy-related explanations offered by the European Commission for why products sold in the EU are not more sustainable. The responses highlight the differences between the intermediate product manufacturer and the final product manufacturer as well as the differences between different types of final electronics products for some of the statements.

Questionnaire Statement Section 1	Intermediate Electronics Products	Final Electronics Products
1.A.b. Products such as electronics become obsolete quickly because of technological innovations	Components do not become obsolete quickly; many components and printed circuit boards have utility in many different electronics systems regardless of innovation.	Electronics equipment used for testing and measurement (T&M), aerospace and defense, automotive, and medical systems evolve to meet the demands of the application and the performance specifications for the system.
1.A.c. Some products are designed for shorter term use due to changing fashion trends	The “throwaway society” generally does not apply to electronics components.	The “throwaway society” generally does not apply commercial and high-reliability electronics systems, which are purchased as capital assets.
1.A.d. Many products are not designed to be easily repaired or upgraded	Disagree.	Repairability and upgradability are critical to high-performance electronic products (e.g., in aerospace, defense, T&M) and important to dedicated service electronics (e.g., in heavy equipment, automotive).
1.A.e. Some products are designed to break down after a certain amount of time (planned obsolescence)	Components manufacturing is often agnostic to end use.	These systems are designed and constructed for reliable use.
1A.i. The cost of repairing a product is too high, in comparison with buying a brand-new product	Disagree. Costs and availability vary depending on end system.	Costs to repair commercial and high-reliability electronics systems are generally less than manufacturing new systems; these systems are designed for reliable, long-term use and often include maintenance and repair contracts to minimize depreciation of these capital assets.

Questionnaire Statement Section 1	Intermediate Electronics Products	Final Electronics Products
1.A.j. For electronics, as well as for fashion products, there are not enough places where products can be repaired	Costs and availability vary depending on end system; consumer applications may see product-level replacement, but commercial and high-reliability applications may see modular or component repair	Systems used in high-performance applications will include specialized operations and maintenance (e.g., depots for specialized landing gear or engine repair; calibration and repair for T&M equipment).
1.A.k. The quality of secondhand goods cannot be guaranteed or is difficult to assess	There are no warranties or guarantees for components assembled into electronics systems; specifications and performance testing against specifications may be required for use in new systems.	Systems used in aerospace and defense industries may be repurposed. High performance equipment can be traded-in to recoup residual asset value and subsequently offered for sale by the OEM producer following validation of operational performance.
1.B.e. There are insufficient incentives to reward products based on their different sustainability performances	Components meet specifications from the supply chain and are not the intended audience for sustainability performance incentives.	High reliability equipment may not need to be incentivized for sustainable performance because they are already designed for durability, reusability, upgradability, and reparability.

Appendix B
Supplemental information to Questionnaire Section 2
Regarding measures to make sustainable products the norm

IPC evaluated the statements in Section 2A (design for sustainability) and presents responses from the perspective of manufacturers of final electronics products designed for durability and repairability.

Questionnaire Statement Section 2A	Response
a. Set binding rules detailing, at product group level, what actions producers are obliged to take to improve their products' durability, reusability, upgradability and reparability (for example, for electronic/ICT products, setting a minimum number of cycles during which the battery must function properly)	Commercial and High-Reliability electronics systems – as a product group – do not require additional binding rules to ensure sustainability attributes (e.g., durability, reusability, upgradability, and reparability) are achieved. Consensus-based industry standards are common and effective for these types of systems. Standards are flexible instruments for change, and they can more appropriately mirror the context of the time and the product. A blanket, binding rule for all electronics will not be as effective nor efficient as standards for product groups. In time, standards can be developed incrementally by different product groups to form a portfolio of standards for relevant sectors with the greatest impacts and highest likelihood of reducing those impacts.
b. Require producers/importers to prove that the design of their products respects the following prioritization: (first preference) that the product is capable of being reused/repaired/shared; (second preference) that the product is capable of being remanufactured/refurbished/ upgraded; (third preference) that the product is capable of being recycled	The horizontal applicability of electronics does not lend itself to comparable design priorities. The same passive electronic component may be used in multiple end products including consumer, commercial, and high-reliability products, and systems – each with its own performance requirements. Reusability, refurbishment, upgradability, and recyclability will fluctuate in the preference ranking depending on the product, its application and targeted market segment. For example, connectors supplied to a high-reliability system would meet these preferences because they are already required for these types of products. Any obligation to prove conformance with objective evidence should be limited to specific product groups where the efficiency of such requirements can be justified.
c. Require producers/importers to prove that they have assessed possible causes of failures and addressed them, with a view to optimising product durability	The horizontal applicability of electronics does not lend itself to standardized failure analysis. High-reliability systems may have “time-to-failure” models and assessment techniques based on military standards, for example. “Optimizing durability” needs to be considered in the context of customer needs, cost and targeted application given the broad range of other requirements: best served through product group standards.
d. Require producers/importers to prioritise modular design of their products, so as to facilitate repair, remanufacture, upgrade and disassembly (for example, for ICT products, batteries, screens and	The horizontal applicability of electronics does not lend itself to standardized “one-size-fits all” modular design requirements. Commercial and high-reliability systems are often modular to ensure that repairs can be made without having to decommission the system or jeopardize readiness, for example in T&M equipment necessary for laboratory analyses, heavy

Questionnaire Statement Section 2A	Response
back covers should be removable in less than a defined number of steps).	equipment used in infrastructure repairs, or defense systems used in training and readiness exercises. In addition, for some applications, modular design does not equate to ease of disassembly or repairability and a having a defined number of steps may not be possible (or may be very large) depending on the complexity of the product or system complexity.
e. Require producers/importers to ensure information on repairability is provided on or with a product	The horizontal applicability of electronics does not lend itself to standardized repairability information nor the standardized provision of this information with the product. Commercial and high-reliability systems have long-term operations and maintenance requirements and contractual agreements. Standards for a product category are better suited to define or set expectations for repairability instead of providing this information with a specific electronic product.
f. Require producers/importers to ensure information on access to repair services is provided on or with a product	The horizontal applicability of electronics does not allow for readily available repair services for all products or systems. In addition, the provision of information on access to repair services would not enable or otherwise promote sustainable commercial or high-reliability products.
h. Require producers/importers to display a repairability score on their products, in line with harmonized requirements at EU level, to facilitate comparison of product repairability	The horizontal applicability of electronics does not lend itself to a standard scoring system for repairability. Consumer electronics systems are not always comparable to commercial systems and these are not always comparable to high-reliability systems. A one-size-fits-all approach is not effective and will not better achieve sustainable product aims.
i. Require producers/importers to establish a repair network for their products	Repair networks for commercial and high-reliability systems already exist, primarily focused on assuring equipment continues to meet published specification throughout active life. For example, to assure T&M equipment produces result traceable to National metrology standards.
j. Require producers/importers to ensure information on a product's average expected lifespan is provided on or with a product	Expected life for commercial and high-reliability systems are intrinsic to the expected performance, determined by the operations and maintenance of the product, and may be specified in standards or specifications.
n. Require additional information to be made available on material sources, e.g. content in the product of critical raw materials and minerals from conflict-affected and high-risk areas	Existing policies and standards regarding responsible material sourcing ensure supply chain actors are meeting current reporting obligations or data exchange requirements when applicable for that product. Requiring additional information may add administrative burden but may not necessarily achieve sustainable product aims.