

WHY DESIGN MATTERS

Europe has to import many of the materials found in its consumer products. The extraction or production of these materials also has a damaging impact on the environment. As worldwide demand for these resources grows, through improved living standards and an increasing global population, it makes sense to find ways to recover these materials. Above all, it is important to find ways to reuse the components and products in which these materials are embedded for as long as possible.

Cutting resource consumption in the EU requires a comprehensive policy on all of our products. As one of the fastest growing sectors, and one which consumes many of the critical raw materials that the EU imports, electric and electronic products should be looked at as a priority. However, the principles of better product design to keep products in circulation for longer could be applied to materials such as textiles and furniture.

WHAT IS THE SITUATION?

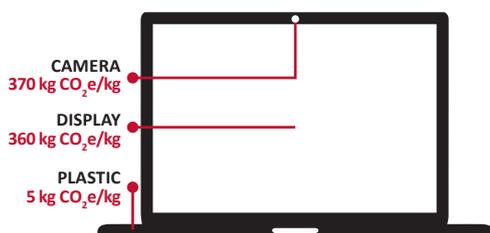
Beyond voluntary Ecolabelling schemes as well as legislation on chemicals and safety, product design decisions have mostly been regulated at EU level under the Ecodesign Directive, which addresses energy-related products. However, efforts to date within this policy have focused on reducing energy consumption during the use phase of these products, with resource use aspects covered in only isolated cases like lamps and vacuum cleaners. In recent years different studies by the European Commission, Denmark and the European Environmental Bureau [1] showed that the Ecodesign Directive, coupled with strong waste management policies, can foster better product design and encourage the creation of new business models for a more circular economy.

A pragmatic approach could unlock significant material savings in current production and consumption patterns. The EEB report identified three ways in which the Ecodesign Directive can deliver more resource-efficient products: first it can be used to support better reparability and durability of products. This would be strongly supported by consumers, as a Eurobarometer survey on among EU citizens on greener products confirms [2]. Secondly, Ecodesign can ensure that selected components or materials embedded in the product are more easily re-used, re-manufactured or recycled. Last but not least, problematic or hazardous substances which hamper repair or recycling could be marked or removed, depending on an assessment of that specific product group.

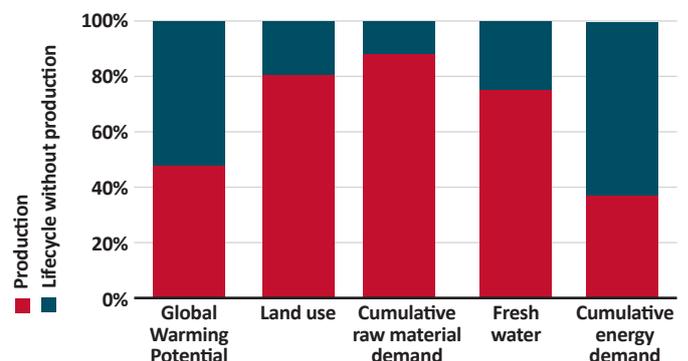
FACTS AND FIGURES

A The manufacturing stage of a laptop's life, including extraction of the raw materials, causes more CO₂ emissions than the product's use stage. When taking into account impacts on other natural resources, such as land and freshwater use, the environmental footprint of the production stage is even greater.

EMBODIED CARBON IN LAPTOP COMPONENTS [3]



B Depending on the indicator used, the environmental impact of producing a laptop as a share of the product's entire lifecycle varies, but it is almost always the highest part of the product's lifecycle [4].

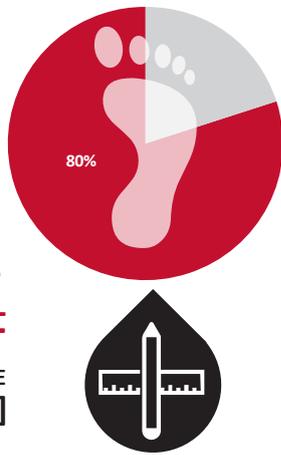


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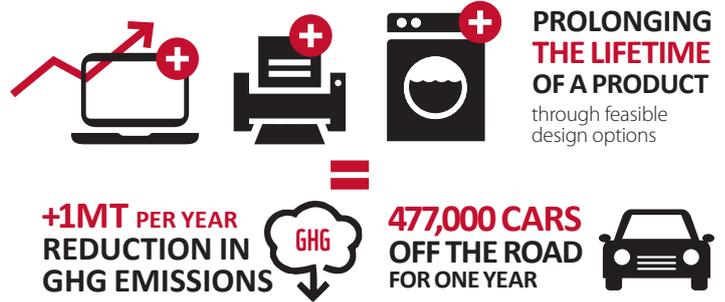
ON AVERAGE,

80%

OF A PRODUCT'S ENVIRONMENTAL FOOTPRINT IS DETERMINED AT THE DESIGN STAGE [5]

**D**

Carrying out a range of simple, already **feasible design options** to extend the lifetime of laptops, printers and washing machines in the EU could lead to savings in greenhouse gas emissions of over 1 million tonnes per year, which is the equivalent of taking 477,000 cars off the road for a year [6].



PROLONGING THE LIFETIME OF A PRODUCT through feasible design options

CASE STUDIES



The study to establish the **EU ECODESIGN WORKING PLAN** 2015-2017 concluded that every 3-month extension to the lifetime of smartphones would reduce overall resource consumption by more than 10 % per year [7]. Today the value of many of the materials used in a phone can be recovered [8], as long as the phone's design allows it. The Ellen MacArthur Foundation found that the cost of re-manufacturing smartphones would decrease by 50% per device if they were easier to take apart and were returned by customers. In a scenario where only 50% of phones are collected from their owners, Europe's cost savings on manufacturing material costs could add up to more than USD 1 billion. [9]



The design features of the **FAIRPHONE 2** make it easy to be taken apart, upgraded, repaired and finally recycled. Typical smartphone components cost less than what recyclers pay workers to disassemble all the parts that are glued together. But with the Fairphone 2, reuse and recycling organisations can take them apart quickly and sell every little bit.



A WASHING MACHINE FOR LIFE

The James Dyson Foundation and the French Agency for the Promotion of Industrial Creation rewarded the concept of 'L'increvable', developed by Julien Phedyaeff, for its durability [10]. A water tank replaces the traditional 30 kg of cement ballast. This tank is automatically filled during the first use of the machine. This means that the machine can be made lighter again when it needs to be moved. The most common maintenance operation is carried out directly under the countertop of the machine. The washing machine communicates its maintenance needs via a clear and reliable interface.

The machine can be adapted technically to meet evolving standards, either by means of software updates that integrate new programs or by replacing certain components. End of life: the washing machine is designed for a fifty-year lifespan. Once that cycle ends the machine is sent back to the factory: the panels are re-painted and even re-shaped, the glazed panel of the door is cleaned... and then the machine is sold for another fifty-year cycle.



POLICY RECOMMENDATIONS

- The European Commission should systematically investigate the possibility of minimum product design standards which would improve the resource efficiency of energy-related products under the EU Ecodesign Directive. It is imperative to look into design decisions that enable better reparability, durability, upgradability and recyclability. There must also be better information about the product's properties and materials
- Vary Extended Producer Responsibility (EPR) scheme fees according to the environmental impact of a product. The fees should be lower for manufacturers that make it easier to re-use, re-manufacture and recycle products
- Set up EU-wide schemes to develop and test product design approaches for non-energy related products like furniture or textiles



FOR MORE INFORMATION

Danish Environment Agency – <http://mst.dk/service/publikationer/publikationsarkiv/2015/feb/ecodesigndirective-version-20/>

Products That Last – <http://productsthatlast.nl>

European Environmental Bureau – www.eeb.org/index.cfm/news-events/news/cutting-resource-use-it-s-in-the-design

European Commission – <https://ec.europa.eu/jrc/en/news/new-method-assess-resource-efficiency-products>



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