



Obsolescence – tackling the throwaway society

In our high-tech society, the service life of many products and devices is shortening. The new smartphone is out of date after just two years, laptops with an integrated battery are thrown away when the battery starts to fail, or the printer purchased just a few years ago stops working.

The factors behind the rapid deterioration of devices are many and varied. The term “obsolescence” describes the (natural or artificial) aging of a product which results in its no longer meeting the need for which it was intended. And here we encounter a fundamental problem of our society: because our prosperity is based on growth and consumption, we constantly exceed our planet’s ecological limits.

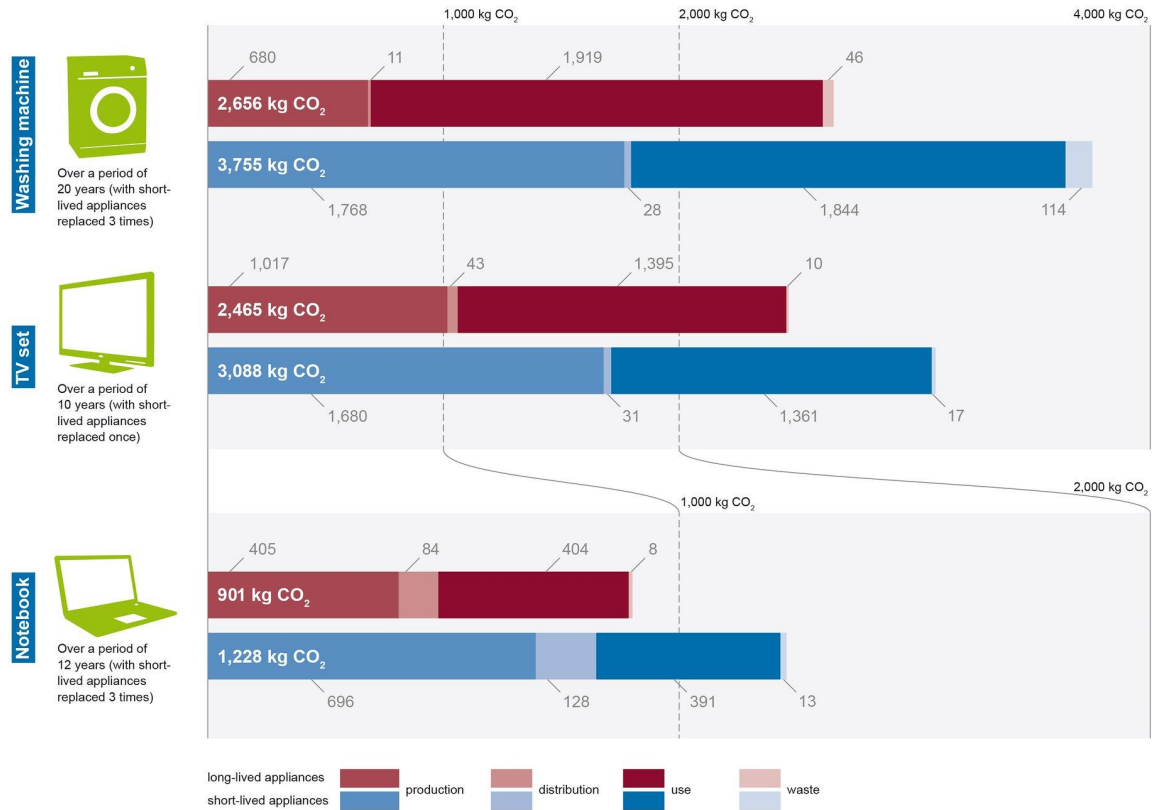
Getting all parties on board

Strategies for tackling obsolescence are complex; they are only effective if they are viewed as a task for the whole of society involving concerted action by policy-makers, manufacturers, researchers and consumers. Among other things, it is essential to pay more attention to ecological factors when planning the lifespan of products.

The manufacture, distribution, use and disposal of consumer goods devour vast quantities of energy and resources and hence emit climate-damaging greenhouse gases. In addition, environmental impacts and social problems in developing countries and emerging economies must be considered, such as the issues that arise in connection with the mining of raw materials and the manufacture of devices for the mass market. A comparison of the environmental impact of short-life and long-life products shows that short-life products have a far larger environmental footprint.

Figure: Long-lasting products score better

Obsolescence: Comparison of the environmental impacts of short- and long-lived products
Greenhouse gas potentials of washing machines, TV sets and notebooks



SOURCE: ÖKO-INSTITUT 2016

Source: Oeko-Institut

Obsolescence – the facts

The data needed for a robust characterisation and assessment of the phenomenon of obsolescence was gathered by Oeko-Institut researchers in collaboration with the University of Bonn in a study entitled Einfluss der Nutzungsdauer von Produkten auf ihre Umweltwirkung (The influence of the service life of products on their environmental impact) that was commissioned by the German Federal Environment Agency (UBA). The analysis describes the various types of obsolescence (material, functional, psychological and economic) and the complex interactions between them.

- Material obsolescence occurs when individual components or materials wear out and render the product unusable – for example, when an integrated battery loses its storage capacity.
- In the case of functional obsolescence, on the other hand, the device itself still works but because of technical developments it is no longer up to current standards – for example, because hardware or software interface requirements have changed. A major example of functional obsolescence occurred when millions of working computers became outdated at a stroke because Microsoft ended support for the XP operating system.
- Psychological obsolescence occurs when consumers replace fully functioning products or devices because they are no longer fashionable or the latest model has desirable new features. This happens particularly frequently with entertainment electronics (games consoles, TVs).

- Economic obsolescence occurs when the costs of maintenance or repair are so high that it is cheaper to buy a new product.

The study confirms the hypothesis that product lifespan and duration of use have decreased in recent years for most of the product groups that were investigated. Analysis of the comprehensive data that was gathered enabled the researchers to develop strategies for lengthening the duration of product use.

Planned obsolescence?

Obsolescence, and planned obsolescence in particular, is a hotly debated issue in society and among manufacturers, economists and policy-makers. Planned obsolescence is an integral part of modern consumption-oriented product policy. If – as the Oeko-Institut's analysis confirms – products are becoming obsolescent at an ever-faster rate, this poses an environmental problem.

Companies pursue a variety of goals in their product development and marketing and take a great many factors into account. These factors – which include heaviness of use, wear margin, maintenance, changing technology, trends, fashion, values and other external environmental influences – also affect the planned lifespan. Ideally, manufacturers should aim to ensure that the technical lifespan of their products is at least equal to their expected duration of use. All components should be planned with this in mind. The key principle is that products should be designed to last as long as necessary and not as long as possible.

It is hoped that the Oeko-Institut's study will encourage an objective approach to what is sometimes a one-sided and emotional debate and contribute to the development of scientifically based strategies for optimising product lifespan and duration of use from an environmental perspective.

[Study: Einfluss der Nutzungsdauer von Produkten auf ihre Umweltwirkung: Schaffung einer Informationsgrundlage und Entwicklung von Strategien gegen Obsoleszenz, for the German Environment Agency \(UBA\)](#) [= The influence of the service life of products on their environmental impact: Creating an information base and developing strategies against obsolescence]

[FAQs: Fragen und Antworten zur Obsoleszenz des Öko-Instituts](#) [= The Oeko-Institut's questions and answers on obsolescence]

Core recommendations for sustainable product policy

What strategies can be used to prolong product lifespan and duration of use? Oeko-Institut researchers have explored this issue in a number of studies commissioned by the German Federal Environment Agency (UBA) and conducted in collaboration with various scientific partner institutions. On the basis of the findings they have drawn up core recommendations for policy-makers – including concrete legal and technical suggestions for formulation and implementation.

Central to the recommended mix of strategies and instruments are minimum standards for the quality and durability of products and their critical parts and components. To enable these standards to be monitored and compared in practice, the development of measurement norms and standards for components and devices must also be progressed.

Legal recommendations for policy-makers

Improving conditions for the independent repair sector in the EU under the Ecodesign Directive is also recommended. The necessary improvements relate to the availability and deliverability of spare parts and discrimination-free access to repair and maintenance information. With regard to repair requirements, the experts are of the view that a horizontal regulation covering all electronic and electrical products should be created under the Ecodesign Directive.

In collaboration with the Centre for Consumer Research and Sustainable Consumption (vunk) at Pforzheim University of Applied Sciences, the Oeko-Institut has drawn up further legal recommendations for policy-makers:

- Make labelling of a product's minimum service life a compulsory civil law requirement.
- Warranty periods should be defined on the basis of a product's expected service life as part of national implementation of the EU's Sale of Goods Directive.
- Extend the reversal of the burden of proof to two years when implementing the Sale of Goods Directive in Germany.
- Require the manufacturer/importer to provide a guarantee of functionality, so that buyers have an additional liability partner.
- Extend the rights of environmental associations to initiate class actions as an implementation instrument so that they can pursue legal action in the event of infringement of consumer protection standards (relating to sustainability).

[Key recommendations: Weiterentwicklung von Strategien gegen Obsoleszenz einschließlich rechtlicher Instrumente, by the Oeko-Institut](#) [= Further development of strategies against obsolescence including legal instruments]

[Minimum standards for software](#) must also be considered, because the durability and reliability of products are by no means just a question of hardware – often the issue also involves the performance of software and its compatibility with the available hardware. Software-based security requirements and risks must also be considered. With the advance of digitalisation, more and more products are software-operated. The Oeko-Institut is therefore systematically analysing the types and causes of software-related decreases in product lifespans and using the findings to formulate options for policy-makers.

Recommendations for companies

In various studies, Oeko-Institut researchers have helped manufacturers design their products with a lifespan that is as environmentally friendly as possible.

[Study: Betrachtungen zu Produktlebensdauer und Ersatzstrategien von Miele-Haushaltsgeräten, for Miele & Cie. KG](#) [= Observations on the product lifespan and replacement strategies of Miele domestic appliances]

[Case study of refrigerators and freezers: Environmental and economic evaluation of the accelerated replacement of domestic appliances, commissioned by the European Committee of Manufacturers of Domestic Equipment \(CECED\)](#)

Guidance for consumers

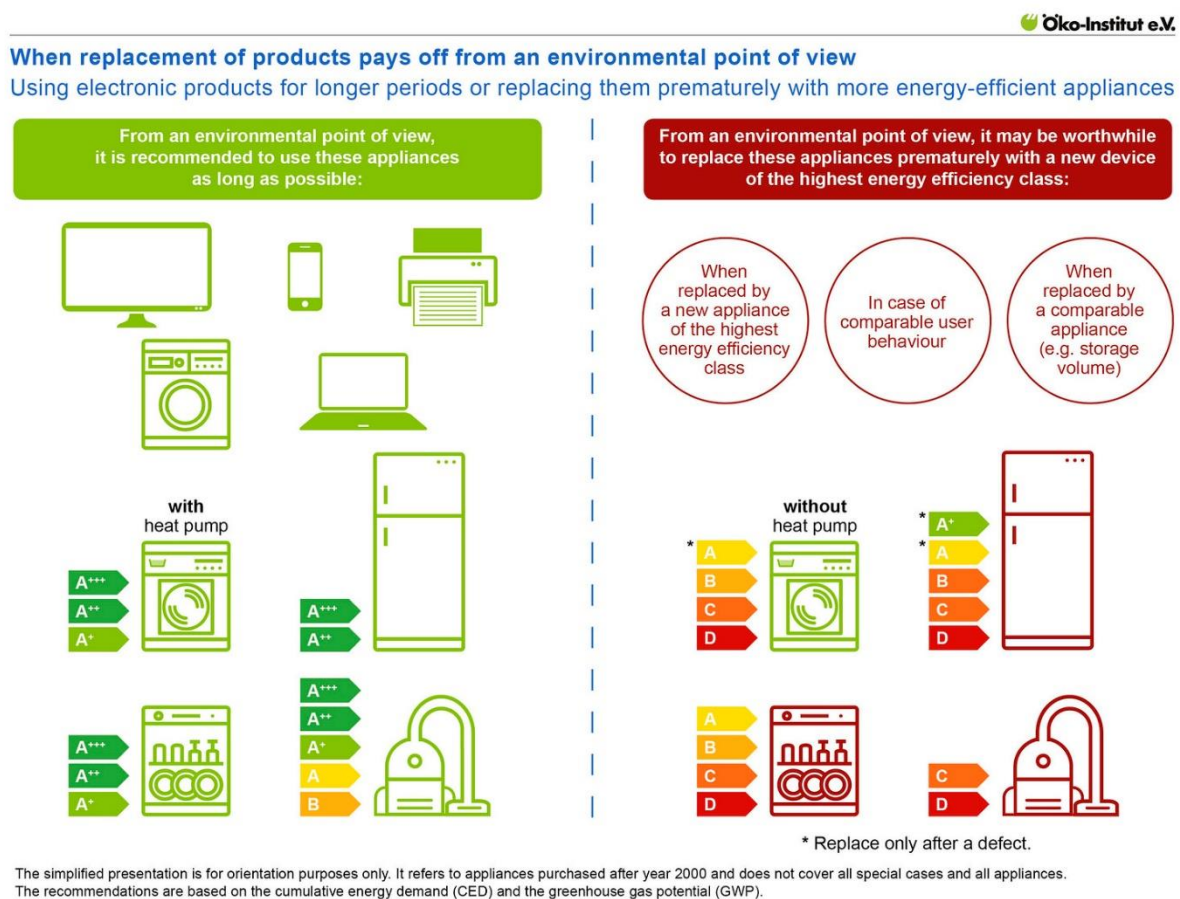
What are the challenges facing consumers when trying to decide what to buy? Both in physical shops and online there is little concrete information enabling long-lasting products to be quickly and easily identified. The Oeko-Institut has therefore drawn up recommendations on how consumers can identify long-lasting and easily repairable products and thus actively make buying patterns more sustainable.

A fundamental point to bear in mind is that from an environmental perspective it is almost invariably better to have household products repaired and to use them for as long as possible. Importantly, the Oeko-Institut provides information on which products should be used for as long as possible, when it makes sense to replace something and consumers' rights with regard to warranties and guarantees.

[FAQs: Reparieren oder neu kaufen? Fragen, Antworten und Tipps für ein langes Leben von Elektrogeräten im Haushalt, by the Oeko-Institut](#) [= Repair or buy new? Questions, answers and tips for a long life for domestic electrical appliances]

[Guidance note: Welche Rechte habe ich, wenn ich mein Produkt länger nutzen möchte?, by the Oeko-Institut](#) [= What are my rights if I want to use my product for longer?]

Figure: Which appliances should be used for longer?



SOURCE: OEKO-INSTITUT 2018

Source: Oeko-Institut

Further information

Studies and information materials focusing on the consumer:

[Anlage Verbraucherbefragung zur Studie „Einfluss der Nutzungsdauer von Produkten“](#) [= Appendix: Consumer survey for the study of the influence of the service life of products]

[Final report: Verlängerung der Produktnutzungs- und -lebensdauer mittels Durchsetzung von Verbraucherrechten, for the German Environment Agency \(UBA\)](#) [= Extending product lifespan and duration of use by enforcing consumer rights]

[Brochure: Produkte länger nutzen: Tipps zu Verbraucherrechten, Reparatur und Neukauf, by the Oeko-Institut for the German Environment Agency \(UBA\)](#) [= Using products for longer – Tips on consumer rights, repair and buying new]

[Explanatory film: Elektrogeräte: Produkte länger nutzen](#) [= Electrical devices – Using products longer]

Studies focusing on software & IT:

[Study: Entwicklung und Anwendung von Bewertungsgrundlagen für ressourceneffiziente Software unter Berücksichtigung bestehender Methodik, for the German Environment Agency \(UBA\)](#) [= Developing and applying evaluation principles for resource-efficient software in the light of existing methodology]

[Kriterienkatalog für nachhaltige Software](#) [= Catalogue of criteria for sustainable software]

[Study: Zeitlich optimierter Ersatz eines Notebooks unter ökologischen Gesichtspunkten, for the German Environment Agency \(UBA\)](#) [= Study: The right time to replace a notebook from an environmental point of view]

[Position paper: Paradigmenwechsel in der Green-IT notwendig! Nutzungsdauer von Arbeitsplatzcomputern in der Bundesverwaltung – Wirtschaftlichkeit und Umweltschutz, by the Oeko-Institut and the German Environment Agency \(UBA\)](#) [= Position paper: A paradigm shift is needed in green IT! The service life of workplace computers in the federal administration – Economic and environmental performance]

[Brochure: Computer am Arbeitsplatz: Wirtschaftlichkeit und Umweltschutz – Ratgeber für Verwaltungen, for the German Environment Agency \(UBA\)](#) [= Computers in the workplace: Economic and environmental performance – Guidance for public administrations]

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Oeko-Institut is a leading independent European research and consultancy institute working for a sustainable future. Founded in 1977, the institute develops principles and strategies for realising the vision of sustainable development globally, nationally and locally. Oeko-Institut is represented at three locations in Germany – Freiburg, Darmstadt and Berlin.