

Six design strategies for longer lasting products in circular economy

The Products That Last project finds business models and design strategies to extend product life

Six design strategies for longer lasting products - in pictures

Sponsor's feature

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Design for standardization: creating products with parts that stay constant over time or fit other products; for example the Vitsoe wall shelving. Photograph: Vitsoe

The useful life of consumer products, being the amount of time between buying and discarding them, is getting ever shorter. What's more, most of these products are still functioning when they are discarded. Combine these facts with the rather steep and extremely volatile rise in the price of raw materials over the past decade and the predicted growth in global demand for raw materials and energy, and it becomes instantly clear that continuity and cost of supply are potentially major business risks. However, business risks often come along together with business opportunities, and it is exactly these that a project called Products That Last aims to explore.

Funded by the Dutch Ministry of Economic Affairs and led by the Industrial Design Engineering faculty at Delft University of Technology, Products That Last brings together companies and organisations that aim to be leaders in sustainability and the circular economy, one of which is Philips. Products that Last is about finding successful business models and design strategies to create value for companies and consumers in a circular economy through longer-lasting products, while minimising the consumption of resources.

New opportunities

Although recycling has recently received a lot of attention in the business world, extending the useful life of products is about more than just recycling materials. It intervenes at product level and effectively slows down the pace at which products are put through recycling loops. Perhaps even more importantly, extending the useful life of products creates opportunities for designing and marketing value adding services, which have already proven even more profitable than sales of additional units of product.

Business models based on the 'sell more, sell faster' principle, which have dominated our linear Western economies since the Industrial Revolution are not suited to accommodating longer-lasting products and their services. The success of a circular economy depends on new business models that are able to truly capitalise on longer product lifespans over time. Research into companies that have successfully promoted longer-lasting products has narrowed down the myriad of business model options into five distinct business model archetypes, which have proven capable of capturing value from longer-lasting products.

Starting point for design

The five business model archetypes for Products That Last are intended to serve as a starting point for businesses and designers in thinking about longer-lasting products in a circular economy. They range from being primarily about product to being primarily about service.

- 1.** The classic long-life model: primary revenue stream from sales of high-grade products (eg the German company Miele's washing machines) with a long useful life.
- 2.** The hybrid model: combination of a durable product and short-lived consumables (eg Océ-Canon, printers and copiers). Main revenue stream from repeat sales of the fast-cycling consumables.
- 3.** The gap-exploiter model: exploits 'lifetime value gaps' or leftover value in product systems. Main revenue stream from selling products, parts and services based on the mixed product life of components (eg printer cartridges outlasting the ink they contain, shoes lasting longer than their soles).
- 4.** The access model: provides product access rather than ownership (eg the Dutch company GreenWheels' shared car use). Main revenue stream from payments for product access.
- 5.** The performance model: delivers product performance rather than the product itself (eg hours of thrust in a Rolls-Royce, Power-by-the-Hour jet engines). Primary revenue stream from payments for performance delivered.

Countering obsolescence

The Products That Last approach to designing products with extended life is aimed at maintaining product integrity. This means keeping a product as close as possible to its original state over time and eliminating the perceived reasons for it becoming obsolete.

Clustering the results of existing research and conducting new analyses of companies and their longer-lasting products has led to the identification of six design strategies that can be applied to prevent, or at least postpone, perceived product obsolescence.

These strategies are:

- 1.** Design for product attachment and trust is aimed at countering emotional obsolescence by creating products that will be loved, liked or trusted longer; for example the Patek Philippe watch.
- 2.** Design for product durability is aimed at countering functional obsolescence by developing products that can take wear and tear; for example the Miele washing machine.
- 3.** Design for standardisation and compatibility is aimed at countering systemic obsolescence by creating products with parts that fit other products as well; for example the Vitsoe wall shelving.
- 4.** Design for ease of maintenance and repair is aimed at countering functional obsolescence by enabling products to be maintained in tip-top condition; for example the Rolls Royce jet engine and the Philips pay-per-lux solution.
- 5.** Design for upgradability and adaptability is aimed at countering systemic obsolescence by allowing for future expansion and modification; for example the Kitchen Aid mixer.
- 6.** Design for disassembly and reassembly is aimed at countering systemic obsolescence by ensuring product parts can be separated and reassembled easily. For example the Océ-Canon document (re)production equipment and the Philips Healthcare refurbished systems.

Together with Philips Research we are currently investigating how to apply design for product attachment and trust in consumer products. These six design strategies are not unique to any of the aforementioned business model archetypes, and their relative importance and usefulness will vary according to the context in which they are applied. As each model has its own mechanism for capturing value from longer-lasting products, it will also have a different set of critical success factors. All our research to date supports early adoption of one or more of the six design strategies for product life extension, at the same time as fostering long-term relationships with end-users and suppliers, and providing high-quality, tailor-made services.

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