

## Case studies: Sustainable solutions for transforming the smartphones and ICT sector

# Designing for sustainability – designing for better systems

It is estimated that [over 80% of all product-related environmental impacts](#) are determined during the design phase of a product. For smartphones and ICT products this means decisions on the selection of raw materials, computing power, types of components, reparability, and recyclability. Product design also largely determines how consumers use the products and how attached they are to them.

Look and feel may be as equally important as functionality when consumers decide on the products they want to buy. A certain hype often surrounds new designs of high-end consumer products such as smartphones. New devices with new functionality are often revealed in big launch events. Early adopters eagerly await the next big product announcement and the opportunity to experiment with new features.

These constant design updates are the biggest pitfall of smartphones and ICT products from a sustainability perspective. Whilst a best-case scenario could make products more sustainable, more energy and resource efficient, and less

dependent on critical raw materials, the number of new designs keeps the product replacement rate high. Shiny new products quickly become obsolete as consumers are drawn to new, 'better' products in the fear of missing out.

In other words, smartphones and ICT products are not designed to ensure the valuable materials they contain are kept in circulation for as long as possible. How do we change that?

### Enabling sustainable design

Appropriate policies and legislation can encourage sustainable design, such as the EU Ecodesign policy, which sets minimum efficiency requirements for different product categories. This kind of regulation can help phase out the worst-performing products from the market and promote the best-performing ones. But product specific criteria in the EU Ecodesign Directive only addresses energy efficiency and does not include smartphones as a product category. The European Commission (EC) ICT Task Force is now looking to add more criteria such as resource efficiency to ICT products like gateways, mobile phones and base stations. But while regulations can be effective in phasing out the worst-performing products, the policy processes leading up to the adoption and implementation of the regulations are often slow. They therefore fail to induce the rapid action required to transform the industry. That is why innovative solutions going well beyond the regulatory requirements are vital for progress.

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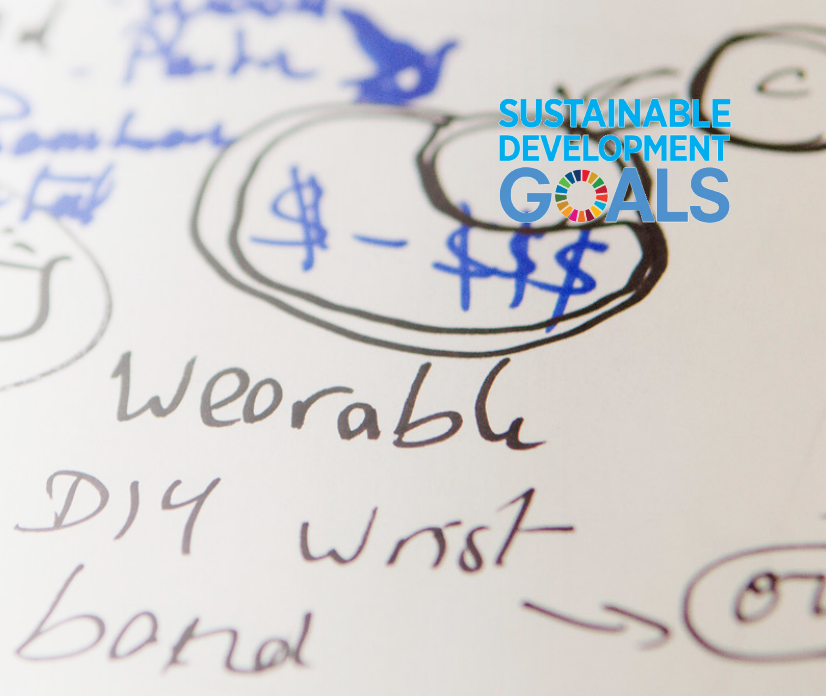




Image credit: Fairphone

discarded prematurely. Designing for sustainability therefore needs to consider the whole industry ecosystem: business models, procurement systems and consumer behaviour. Encouraging consumers to buy used or remanufactured products, to repair not replace, to treasure, and to eventually return for recycling requires action from not only designers and manufacturers, but the whole industry supply chain. Software developers, professional purchasers and buyers, resellers, finance, civil society, consumer organisations and policymakers alike need to collaborate to ensure that it is easy for the consumer to get the most value out of the product while protecting the planet.

Header image credit: Fairphone

## The forerunners of sustainable electronics design

Many big ICT and smartphone manufacturers now do include environmental and sustainability principles and criteria into their design processes beyond regulations. These may include specifications on the use of recycled materials, circular design, better energy performance, resource efficiency and replacing hazardous substances with safe alternatives. While this is encouraging, it is still not enough if in practice these better performing devices get discarded long before their expected lifetime ends.

Some companies have taken an inspiring step further and put sustainability into the heart of their business model. For example, Dutch smartphone manufacturer Fairphone wants to make sure that sustainability is designed into their products from the start. It is leading by example by showing that [it is possible to design a smartphone that is made to last](#), both in terms of design and repairability. Fairphone's hardware design is modular, which means that if one part of the phone breaks, only that part needs to be replaced instead of the whole phone. Fairphone's key design principle, designing for longevity, also extends to software, and the source code is available for anyone to use, review and modify. Regular security updates are a priority, but software updates are only made when necessary.

## From product design to system design

Achieving a longer product lifecycle in practice however depends heavily on the business model. Consumer behaviour also largely determines the real lifetime of the product. Designing longer lasting products does not help if in reality the product gets

### Keys to success

- Set designing for circularity and longevity as the core design principles
- Implement regulatory and legislative changes that genuinely support circular and long-lasting product design
- Ensure that business models support consumer behaviour that extends product lifetime.

### About Transform Together

[Transform Together](#) works with civil society, governments and businesses to advance sustainable consumption and production in high and middle income countries. Bioregional is the convenor and secretariat of the partnership.

### About Bioregional

[Bioregional](#) works with partners to create better, more sustainable places for people to live, work and do business. We call this One Planet Living®.