

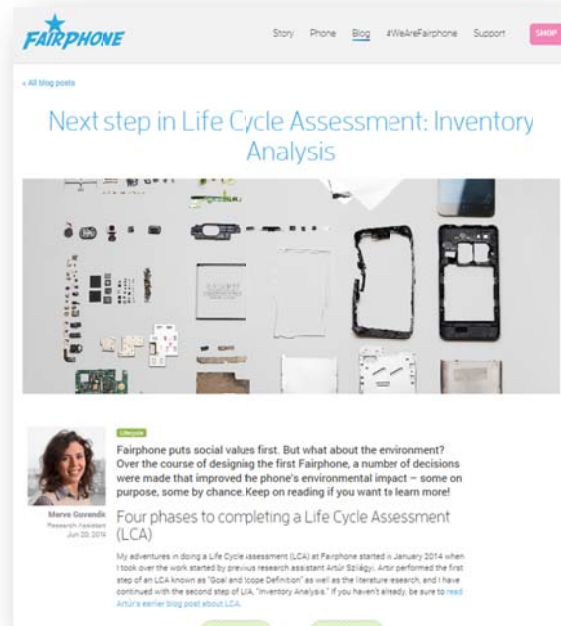


## Electronics: Smartphones Fairphone B.V.



Fairphone B.V., based in Amsterdam, wants to make a change to the IT business and its supply chain. This small group of enthusiastic people developed and produced a smartphone with the ambition to put social values and fair labour conditions first. The first generation Fairphones made it to consumers all over Europe right after Christmas 2013.

It goes without saying for Fairphone, that a truly fair product also needs to value the environment: "Let's make products that are fair to the people and the environment!" Mid 2013 Miquel Ballester and Artúr Szilágyi of Fairphone met with Karsten Schischke of the "LCA to go" team to develop a strategy for Life Cycle Assessments at Fairphone. It became evident that Fairphone is interested to do much more than just a first screening LCA, but to invest long-term in Life Cycle Assessments to guide the design process and to create transparency. "LCA to go" provided guidance where hot-spots in the life cycle of smartphones are typically found and where to focus data acquisition efforts. Discussing generic eco-profiles of smartphones helped to set LCA priorities right. What matters in terms of a fair supply chain, i.e. labour intensive assembly and the sourcing of some critical elements, such as Tantalum and Tin, is much less relevant for the environmental footprint.



Artúr wrote a blog about Fairphone's first approach to LCA: [What's in a Life-Cycle Assessment?](#)

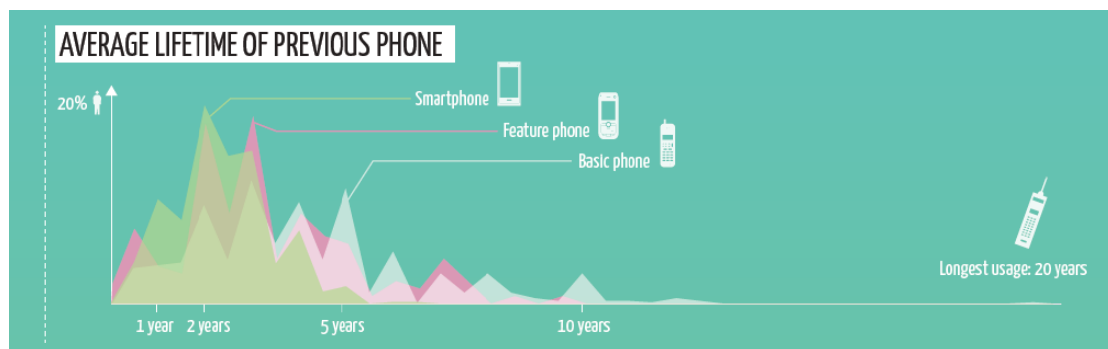
The mentoring unveiled right away the environmental benefits of some of the design decisions already made by Fairphone at that time, including the dual SIM feature and memory extension through microSD. Reflecting on the typical end-of-life of smartphones also unveiled, that the current design is a great example for Design-for-Recycling: The back cover, which is the major metallic part of the Fairphone can easily be removed for battery removal, which needs to be done as first treatment step at end-of-life anyway. Within seconds, battery, steel back cover and the precious metal and copper containing rest of the phone are separated. Ideal fractions for current metallurgical recycling reality!



Modelling a real supply chain requires more sophisticated tools than the “LCA to go” webtools. Similarly, to have own in-house staff to care full-time for LCA allows to go for more sophisticated tools, i.e. experts’ tools. “LCA to go” provided some support to decide for an appropriate tool and decision was made to use OpenLCA for the Fairphone. Actually, the open source philosophy of OpenLCA matches pretty well with Fairphone’s own product philosophy. A logical software choice was made.

Fraunhofer IZM’s Karsten Schischke helped to model electronics components correctly as the assessment had to rely on some generic databases. The “LCA to go” webtool for Printed Circuit Boards helped to get a first estimate right for the impacts of substrate production. For other components “LCA to go” developed some guidance on how to structure data requests from sub-suppliers. It turned out, that even for a pro-active company like Fairphone it is pretty difficult to get hold of environmental data from 2<sup>nd</sup> and 3<sup>rd</sup> tier suppliers as the main environmental impacts are not with the labour intensive assembly processes at A’Hong, but with the chip and battery manufacturing, the display production and processes to produce printed circuit board substrates. Here the data acquisition efforts got stuck, leaving room for future improvements in accurate life cycle modelling.

For any Life Cycle Assessment modelling the use phase is challenging and requires some guess work. Hardly any product manufacturer knows about the later product lifetime and use patterns. Fairphone is in a unique position to find out, how their customer base is using smartphones: Fairphone is extremely well connected with its user community through social media. Initiating a survey just requires some announcements through Facebook. Merve Gvendik, the LCA research assistant at Fairphone in early 2014, developed a set of questions to ask Fairphone buyers about their habits. This approach yielded a massive amount of replies from the highly motivated community. In this way Fairphone got hold of sound use pattern data for LCA modelling.



*Infographic by Youge Xiao, Fairphone*

Merve summarised her adventures in LCA at Fairphone in another blog: [Next step in Life Cycle Assessment: Inventory Analysis](#)

Artr described Fairphone’s approach and the first lessons learnt in his blog: “First, we would get those important numbers about our performance, so we can tell you the environmental impact of your phone. Second, we get an image of environmental hot-spots in the life cycle, so than we can decide where to focus



on. But that is not all. After putting heads together with other people from the team, now its clear to me that Fairphone aims more, by integrating the life cycle thinking into our decision making itself.”

Is the Fairphone now also a green phone? “Well, if LCA findings are taken seriously, and I have no doubt that this is the case with Fairphone, results really can help to improve the design with each redesign cycle”, Karsten states. “And the community of Fairphone users seems to be really open to reduce the environmental footprint through own behavioural changes when it comes to energy efficient use, repair and lifetime extension.”

Actually Fairphone makes a substantial change to Life Cycle Assessment practice in the IT business: Where other companies undertake related studies and go public only at the end with some summarised results Fairphone communicates almost in real-time about the journey and interacts with its customers to get the figures right.