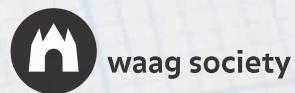


# Fairphone Open Design Bootcamp

Amsterdam, June 2013





### *About*

The Open Design Bootcamp was organized at the Fablab Amsterdam and the historic Waag building in Amsterdam from Thursday May 30th till Saturday June 1st, 2013. The bootcamp focused on the complexities around mobile phone design, production and the supply chain. In three days the design teams worked towards proposals and prototypes for the fair phone of the future.

There were three design challenges formulated for the participants to choose from:

1. DIY/Open source: What is the role of end-users if they can locally produce their own phone? And what does this mean for the design?
2. Fair experience: a phone that feels fair. How can you let the user experience that a phone is open and fair? What does this mobile phone look like? How do people interact with it and what do they experience?
3. A phone that lasts: How can you make mobiles phones more sustainable in use, re-use and recycling?

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# What is the phone of the future going to look like?

Fairphone and Waag Society have examined this question with international top designers during an Open Design Bootcamp. Future design principles and open design applications were researched with reference to the design, production and supply chain of mobile phones. Bootcamp participants included designers from Germany, United Kingdom and The Netherlands. The results were used to draw up guidelines for the future fair phone.

## *About Waag Society*

Waag Society, institute for art, science and technology, develops creative technology for social innovation. The foundation researches, develops concepts, pilots and prototypes and acts as an intermediate between the arts, science and the media. Waag Society cooperates with cultural, public and private parties.

Waag Society follows the method of Creative Research. Creative Research is experimental, interdisciplinary research. Artists, creatives and end users have a central position and a large influence on the final result: Users as Designers.

## *About Fairphone*

Fairphone is a social enterprise. Fairphone started as a research project of Waag Society, Action Aid and Schrijf-Schrijf in 2010, aimed at raising awareness about conflict minerals in electronics and the wars that the sourcing of these minerals is fueling in the DR Congo. The campaign and research into the complex supply chain ran for three years.

In 2013, a social enterprise was established with the aim of designing, creating and producing a first fair smartphone and taking the next crucial step in uncovering the story behind the sourcing, production, distribution and recycling of electronics.

*Bas van Abel:*

## “You can’t change what you don’t understand”

Bas van Abel left his job as a creative director at Waag Society to concentrate on developing the Fairphone, the first mobile phone designed to be environmentally-friendly and human-friendly. “As a designer I try to change the system for good,” he explains.

The Fairphone project was launched three years ago – inspired, in part, by the Toaster Project. In the early 1990s the British artist and developer Thomas Thwaites bought a brand new toaster for just under £ 4. Intrigued by the toaster’s extraordinarily low price, given the complexity of its design and manufacture, he decided to build another toaster for himself – from scratch, and starting with all the raw materials, including copper, nickel, and iron ore. He documented this quest and his experiences online, and later also in a book. “The result is an intriguing art project. A statement”, says Bas van Abel. “For designers it’s important to think about what you want your design to achieve. My goal is to bring about a permanent systematic change.”

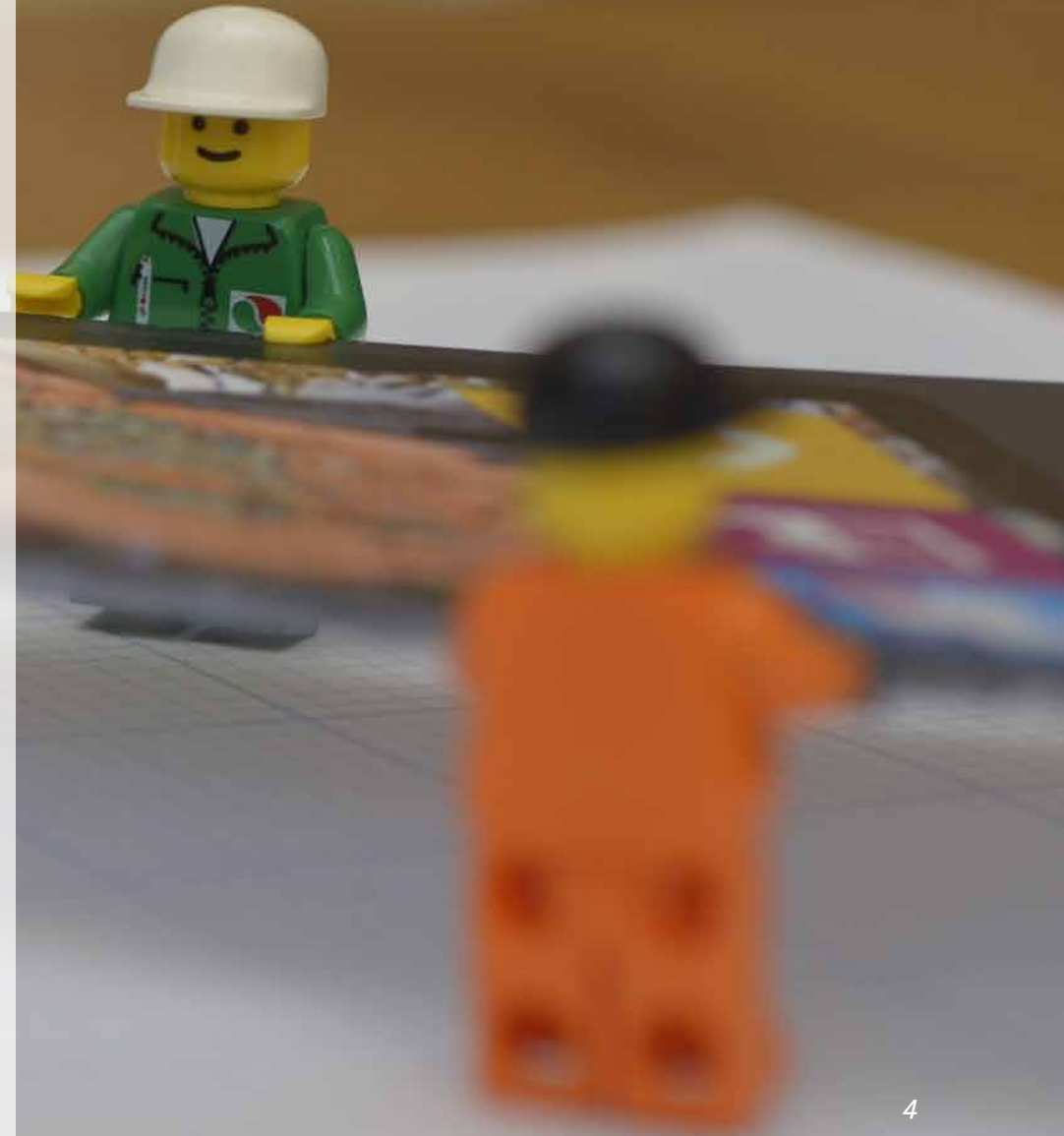
### *Complex system*

Fairphone was created because most people have no idea where the component parts of their mobile phone come from, how they are manufactured, and by whom. Bas: “Mobile phones are part and parcel of a complex economic and political system. We want to make this system visible to everyone. We do that by manufacturing the Fairphone, which unravels that system step by step.”

### *Holistic*

In Bas’ view, working like this means that as a designer you have to look at your product in an entirely different way; the system surrounding the phone then becomes as important as the phone itself. The challenge is to understand how this system works. “At Fairphone we do this by examining the mobile phone’s entire production system in a holistic way. From raw materials to end product. We want to understand the relationships between all the various players, and their consequences. Because you can’t change what you don’t understand.”

# initiator



# initiator

## *Radical ideas*

Bas hopes that the Design Bootcamp will deliver ideas and designs that Fairphone can quickly implement. "We're drawing up a road map for the future. Wouldn't it be great if a couple of Design Bootcamp designs could be included in that map? And I'm also interested in the possibility that the Design Bootcamp might come up with radical new ideas, ideas that none of us had before. 'Disruptive innovations' that help us to permanently change the system surrounding the production of mobile phones."

The first Fairphone will be available Fall 2013, and pre-ordering has already begun. For more information, see [www.fairphone.com](http://www.fairphone.com).

*Bas van Abel is a Fairphone founder; since late 2012 he has led the company in its goal of marketing the world's first 'fair' smartphone. Bas trained as an interaction designer, and until 2012 he headed up the Open Design lab for Waag Society. While there, he founded Fablab and co-founded the Instructables Restaurant – the world's first 'open source restaurant'. He is also co-author of Open Design Now (2011).*



## Fairphone buyers sleep less well, according to Michael Schaap

"I first heard about the Fairphone three years ago, and I offered to help straight away. I think it's an amazingly interesting project, and a plucky attempt to give people a look at the whole production chain. The Fairphone is also a clear signal to the industry. At the same time, I've always been critical about it. I've been in some pretty heated arguments about its feasibility, and whether it would make any real difference to people in the Congo. When we travelled in the Congo together, I could see that the miners there thought they'd never hear from us again. But now the Fairphone is on the way for real, and I'm very enthusiastic about it!"

### *Increasingly stupid*

"My own girlfriend ordered a Fairphone straight away. She is a sweet, liberal girl who works for the progressive VPRO television broadcasting company. I haven't finished my in-depth academic research on the subject, but I think she's a typical early adopter: a well-informed consumer making conscious lifestyle choices. By the way, did you know that, on average, conservative, right-wing and cautious people live a little longer, say they're happier, and sleep better? Progressive people are more worried about the way the world's going, and they're more likely to lie awake about it at night. Research has also shown that as a species we are getting increasingly stupid. Once, intelligent people had an evolutionary advantage, but these days intelligent people are the ones having fewer children, not more. So the world is full of stupid people who couldn't care less how phones are produced. Still, the market for the Fairphone is bigger than you might think; there are a lot of sympathetic designers and Groene Amsterdammer readers out there."

*Michael Schaap is a director, documentary film-maker and television programme maker. For the VPRO he recently made the TV series De Hokjesman, in which he anthropologically dissected tight-knit Dutch communities. Michael has been involved with the Fairphone project from the start.*

# speaker



Bas van Abel, Dennis de Bel, Mickael Boulay, Felix Binder, Matt Dexter,  
Ber van Dijk, Christoffer Frauenberger, Dave Hakkens, Maarten Hertog,  
Casper Jorna, Hugh Knowles, Stephen Lee, Giselle Legionnet,  
Giovanni Maggini, Irene Maldini, Jan Geert Munneke, Takuma Oami,  
Eric Pfromm, Astrid van Roij-Lubsen, Alex Schaub, Christian Schüten,  
Mark Shayler, Nathalie Schwarz, Anne Marie Verheijden, Till Wietlichsbach

# participants



# interviews with participants

## *Durable design*

"Every year we throw a hundred million mobile phones away, and the mobile phone industry keeps on launching new models at ridiculously short intervals. This is unsustainable, for the companies as well as for the planet. Instead of pushing consumers to buy the newest thing every few months, we need to come up – as fast as possible – with designs that encourage people to have a long-term relationship with their phone. I hope that Fairphone will show people the human aspects of the mobile phone production chain – and elicit an emotional response, so that we all start thinking about what it really costs to upgrade our mobile phones so frequently."

- Hugh Knowles, Principal Sustainability Advisor

## *Buying behaviour*

"Product designers are choosing and developing more and more new materials that leave the world a slightly better place, and graphic designers can contribute towards the experience of these products. A 'fair' product doesn't have to have the usual 'worthy' appearance; this can make it attractive to a larger group of consumers, who in turn can be made more aware of their buying behaviour. Sometimes sustainable products are a bit more expensive, so you have to make a sacrifice. I hope to contribute towards the outside of the future Fairphone: what kind of feeling should the Fairphone evoke? How will it relate to other smartphones, and to other brands? How should the Fairphone be packaged?"

- Ward Graumans, Art Director at Dawn (had to cancel participation)

## *Link between customers and manufacturers*

"As a telecom operator, Vodafone is in a unique position as the link between customers and mobile phone manufacturers. We make agreements with manufacturers to work more sustainably, and we also see it as our responsibility to show customers more sustainable products and enable them to make conscious choices. Customers are still mostly unaware of the ecological and societal impact of a mobile phone and of the role they themselves can play, so we want to better inform our customers and offer them appropriate services. One example of this is 'buy-back' in which customers can trade in their old phone in exchange for discounts. Another is the 'eco-score' we use to indicate how sustainable a mobile phone is, something we also use to encourage phone manufacturers to perform better in this area."

- Casper Jorna, Terminals Sustainability Manager at Vodafone

## *Towards a closed circle*

"Fairphone is a perfect project with which to test a fair, closed-circle economy. Everyone understands smartphones and knows how important they are; they are complex and relevant devices. The success of a product like this depends on its design, not on spoken or written explanations. A better phone cannot afford to look like all the others."

- Eric Pfromm, senior designer and partner at BFGF DESIGN STUDIOS, Cradle to Cradle Design Consultant



The results of the 3-day bootcamp can be divided into the three teams, that have been working on the formulated design challenges:

1. A Fairphone system that is based on Open Source principles.  
Challenge: Involve the community in developing the fair phone.  
Members: Astrid, Casper, Matt, Giselle, Anne Marie, Dennis, Jan-Geert
2. A phone that is obviously fair, open, and transparent.  
Challenge: The fair phone should stand out.  
Members: Alex, Eric, Stephen, Ber, Nathalie, Giovanni
3. A phone that lasts.  
Challenge: Phone owners should use their devices as long as possible.  
Members: Mickael, Maarten, Hugh, Till, Christian, Felix, Mark, Irene

All designs and prototypes have been shared through the community website of Fablab Amsterdam at this project page:  
[fablab.waag.org/project/fairphone-bootcamp](http://fablab.waag.org/project/fairphone-bootcamp)

Included on the website are the digital design files used to create the prototypes with the machines the Fablab. A more descriptive project page, where all links have been collected, can be found here:  
[waag.org/nl/project/fairphone-design-bootcamp](http://waag.org/nl/project/fairphone-design-bootcamp)

Organizing team at Waag Society: Astrid van Roij-Lubsen, Alex Schaub, Marc Boonstra, Mickael Boulay, Nienke Hoekstra, Susanne Afman  
Fairphone team: Bas van Abel, Miquel Ballester, Tessa Wernink, Joe Mier, Sacha van Tongeren (Fairphone Foundation)  
Initial texts & editing (p. 4,5,6 & 8): Schrijf-Schrijf, Peter van der Mark  
Keynote speaker: Michael Schaap  
Photography: Arne Kuilman  
Videos: Floresca Olmberg  
Visuals, layout & editing: Ron Boonstra

*The Fairphone Open Design Bootcamp was made possible by Stichting DOEN*



# results

## Team 1

A roadmap to fairware  
Arduinophone  
Fair wearable  
Modular phone

## Team 2

Aligning the fair experience  
Branding/ecosystem  
A phone that evolves  
Fair user experience

## Team 3

Scenario towards your Fairphone  
Step 1: Fair +  
Step 2: Future Fairphone: flexible/sandwich



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# A FAIRWARE PERSPECTIVE



## Fairware

FairPhone pioneers the use of fair hard and software, such as minerals from the DRC. This foundation is fundamental.

## Open Source Hardware

Modular construction driven by open design. Driving standards, and creating an ecosystem.

## Entrepreneurial growth

The community grows, and so do opportunities for new commercial innovation.

## Consumer -> User

New business models emerge. Consumers pay for being connected, rather than owning a physical product.

## Circular Economy

Cradle to Cradle™ design enables the reuse of modules in other products past the initial life-cycle.

### 1<sup>st</sup> Generation

Nascent community of early adopters. *Lead Users* adapting software; OS, Skins, etc  
15% 'Fair' device.  
Open, but not modular.

### 2<sup>nd</sup> Generation

Introduction of modular phone - 'Fair' minerals drive development of modules. Developing *Lead Users*; moving on from software - hardware hacks (in line with new modular architecture)  
Introduction of *customisers*; people who upgrade / repair their phones with modules, rather than build their own.  
>15% 'Fair'  
Open, and modular

### 3<sup>rd</sup> Generation

Advocacy grows - as does the number of customisers. This attracts 3rd party manufacturers to the 'open phone' system.  
Telco operators begin to offer repair / customisation services.  
>>15% 'Fair'

### 4<sup>th</sup> Generation

Customisers increase as benefits of repair / upgrade spread.

### n<sup>th</sup> Generation



LEAD USERS

CONSUMERS

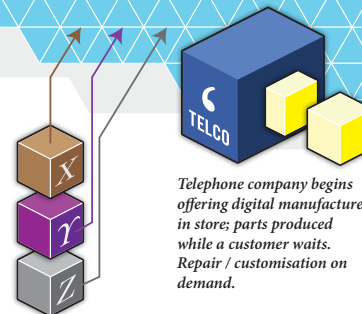
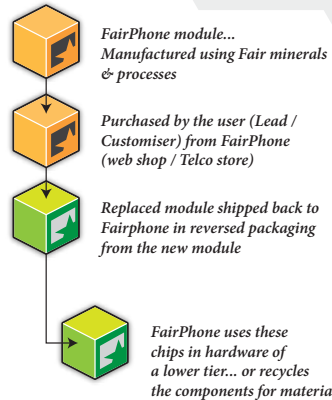
CUSTOMISERS

**FAIRPHONE**  
Community

## PLATFORM

In order to support the individual maker's learning, development of ideas and distributed manufacture, the Fab Lab network provides an ideal first step. Physical meetups, workshops and shared files (organised centrally from FairPhone, or locally at each Fab Lab) would be the engine that drives this. Instructables, Thingiverse, or perhaps even the FairPhone website could be used as channels for disseminating this work.

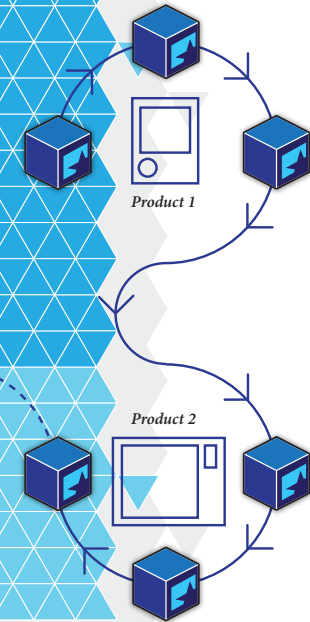
Hackerspaces might also facilitate the software development, using channels like GitHub or Pastebin for dissemination / version control.



3rd party modules begin to be developed. The open source nature of the system allows for independent entrepreneurs to build their own business for modules - in addition to existing phone OEMs.

The carrier moves beyond the regular phone marketing model, by fully leasing the modular nature of the phone - phone owners become users of the hardware... paying a portion of their contract for maintenance / upkeep of the hardware.  
Red Hat Linux, but reimaged as phone hardware.

The system moves to a fully cyclic idea. The internal components cascade down through multiple products lifecycles. The technology allows the modules to share the connection of the open source system, incorporating aspects that make for frictionless recycling at the end of the module's (long) life.





Arduinophone



Fair wearable



# KARMA APP

powered by **FAIRPHONE**

IMPROVE YOUR FAIR AND SUSTAINABLE BEHAVIOUR BY USING THE KARMA APP.

<p>1</p> <p>COLLECTING KARMA POINTS TO IMPROVE YOUR OWN KARMA.</p> 	<p>2</p> <p>DRINKING A FAIRTRADED COFFEE AT ONE OF OUR PARTNERS':</p> <p>3 KARMA POINTS</p> <p>★ ★ ★</p> 
<p>3</p> <p>GOING 5 KM BY BIKE:</p> <p>10 KARMA POINTS</p> <p>★ ★ ★ ★ ★</p> <p>★ ★ ★ ★ ★</p> 	<p>4</p> <p>A SCORE OF 5000 POINTS OFFSETS THE BAD KARMA OF YOUR FAIRPHONE.</p> 
<p>5</p> <p>DOWNLOAD THE KARMA APP ALSO FOR OTHER OPERATION SYSTEMS.</p> 	<p>6</p> <p>GET THE APP, START A MOVEMENT.</p>



Phone with a fair button

Fair experience



# Fair models





A flexible phone

Sandwich phone



## Fair SIM card



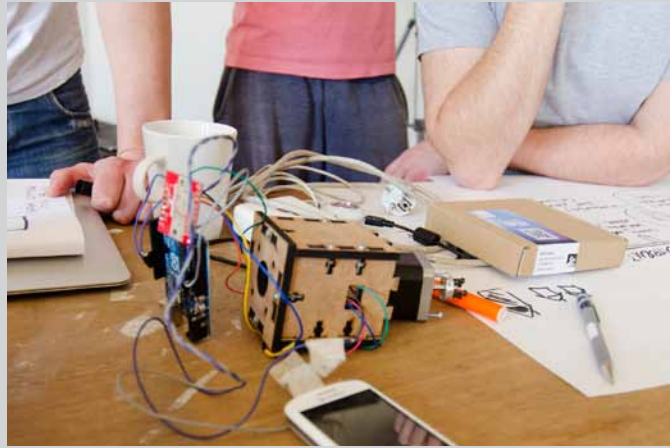


# A photographic impression day-by-day

Photography by Arne Kuilman









Posted at [fairphone.com/blog](http://fairphone.com/blog)

### *What do you want your future (fair) phone to be like?*

From May 30 to June 1, Fairphone organized a design bootcamp with 20 professionals from the fields of (phone) design, engineering, sustainability, and telecommunications. This design bootcamp was organized by Waag Society, and had an open call to our community and the general public in April to see who would like to participate. Please note that the design and development for this year's Fairphone is already well underway, so these ideas won't be implemented exactly in the Fall version. However, the way of thinking and design philosophy behind many of these ideas have already inspired members of our team to incorporate them in future plans.

In the three days of the bootcamp, the participants developed short and long-term solutions in three directions. The aim was to come up with actual prototypes of what the phone of the future could look like and begin developing a design manifesto establishing some design principles for Fairphone.

All the design projects that evolved from the Bootcamp, including pictures and design files have been published under a Creative Commons (Attribution + ShareAlike) license [here](#). We encourage you to take a look and explore the many creative aspects of these designs. Below, we've provided a summary of these three tracks and all the designs for your feedback and comments. Here's our report:

#### ***Team 1. A Fairphone system that is based on Open Source principles.***

For this track, the team developed a roadmap towards 'Fairware', which was expressed in both long and short term ideas. Thinking short term, the Fairphone should be open source to allow lead users to optimize it, as well as modular so others can repair/replace parts to use the phone longer. As the community grows, opportunities for new commercial innovation would emerge. Making it possible at a later stage for people to pay to be connected, rather than to own a physical product. In the long term, Cradle2Cradle design would enable reuse. Old modules could be used to upgrade other devices, which would allow circulating across product cycles. Waste would no longer exist.

# blog

#fairphoneIDBC

FUNCTION

'CRADLE DESIGN' by ERIC PFROTH

OPEN SOURCE DESIGN

# blog

To give a preview of potential outcomes of this scenario on the long term, two prototypes were made:

- a DIY friendly phone that can be connected to an arduino, allowing tinkerers to interface with the hardware in the phone and extend its basic features, making it more useful and positively extending its lifetime. Fairphone could then support a platform that attracts inventors and makers.
- a set of modules that together make up a phone. People would be able to use these modules to “disguise” objects in a shape, form, or design of their own making in a Fablab. Example: a fish-shaped watch.

### *Team 2. A phone that is obviously fair, open, and transparent.*

Branding: The software and hardware of the Fairphone should all be aligned to communicate the same message. They will make you aware of the story of your phone and help you get the most out of using your phone.

The object itself would contain details that show that it’s fair. The back cover could be made of material that becomes more beautiful as it ages, like leather or wood. The longer you keep your phone, the better it looks. A special Fairphone button could draw the attention of your friends. When pressing it, it would play an interactive movie that displays the journey of the phone – from the making of the phone to pictures from your own camera roll.

Your Fairphone would track your app and service usage, and make you aware of where you can save energy without giving feedback that’s annoying or intrusive. A Karma app could be provided to help you improve your fair and sustainable behaviour. Also, you should be able to switch between different user profiles, so that the phone can communicate to you in a “professional” or “relaxing at home” tone-of-voice.

### *Team 3. A phone that lasts.*

Team 3 thought, How could we encourage customers to keep their phone and make them feel part of a fairer supply chain? The Fair+ contract! You agree to keep your phone longer, and the money you save will be invested in a fairer supply chain. Only when your phone is too old to hold onto, you switch to the latest Fairphone.

## A phone that feels fair

Sketch your solutions for the FairPhone of the future here.

How can you make people experience that a phone is fair, open and transparent?

What does an open, transparent and fair mobile look like?

How do people interact with their device?

What do people experience?

Combined with this idea, we want the future Fairphone to consist of modules that can be replaced when too old. New modules might change in shape or size over time, but that wouldn't be a problem with the "Flexible phone" that would have a stretchable back cover, or the sandwich phone that can grow bigger and smaller thanks to a flexible area.

### *What's next?*

The teams got together for three days and came up with some really great, thought-provoking ideas. We'd love to know your thoughts and ideas now that you've looked at their designs and prototypes. We challenge you to take their ideas and run with them, add to them, take them in different directions, build, destruct, be creative ... and tell us so that we can relay it back to the teams and the community. As one participant, Maarten Hartog, said in his blog post: "(...) I shared the ideas I had, so they won't just stay in my head. And that's also what Fairphone is about. It's a phone that is developed by the community who all want to work toward improving the status quo by combining their abilities."

At Fairphone we've been picking up and inspecting the prototypes, talking about the ideas and considering how to absorb them into our next steps. Some of us are occupied with the development and production of Fairphone generation 1 but others are already identifying projects and partners for next steps and interventions. All the above results will serve as input for the sessions that the core team have planned at the end of this month, so get your feedback in before the 18th of June to join in the preliminary discussions on Fairphone's next design.

Until then, I look forward to hearing your ideas, comments, and thought-provocations for a more open, more fair, and longer-lasting future Fairphone!

Joe Mier/Astrid van Roij-Lubsen

For the comments and added ideas:

[www.fairphone.com/2013/06/12/design-bootcamp-results/](http://www.fairphone.com/2013/06/12/design-bootcamp-results/)

# Guidelines/principles for fair design

At the end of the bootcamp, all participants were asked to add their statements on the principles for 'fair design'. All 29 given statements could be voted for and the following list reflects the top-ten most voted for:

**Go against what's taken for granted**

**Think big, act local & now. This is the only path to change**

**If you're better, you gotta look different**

**A fair phone never breaks. It disassembles.**

**A fair phone should be a living object, evolve together with its owner**

**Transparency is the foundation of fairness**

**Fair never goes out of style**

**Waste is a mobile in the wrong place**

**Open for tinkering**

**Tell a story with design**



waag society

