



Digital and ethics : the impossible equation?

Agnes Crepet

Head of Software Longevity & IT at **Fairphone**

Co-founder of **Ninja Squad**

Tech-Activism

Co-founder **MiXiT** conference

& Board of **Duchess France**

Co-founder **Le Numero Zero**

FAIRPHONE



MIXIT



Numero Zero



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Audrey Neveu

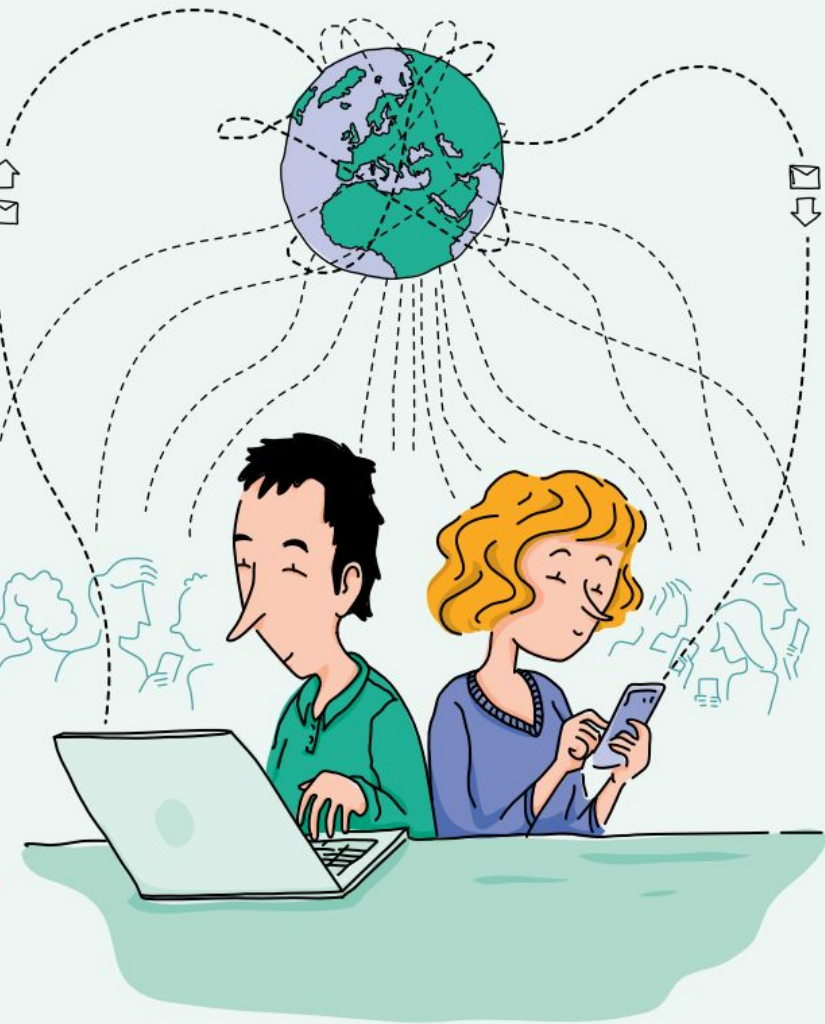
Software Engineer on the **Spring** team

Board of **Devoxx4Kids France**

Helping on **Devoxx UK** & **MiXiT** conferences

Member of **Les Cast Codeurs**





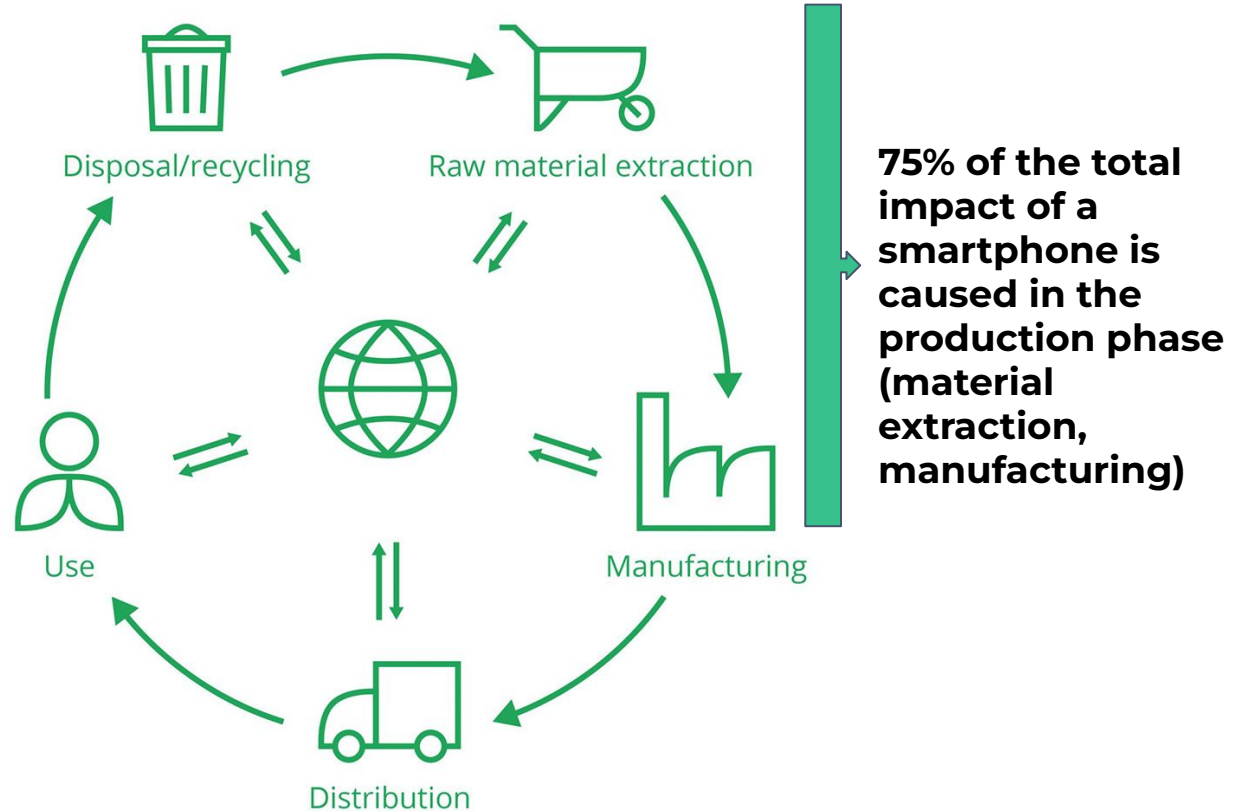
Digital Industry

Environmental impacts





3,8% of the Greenhouse Gas Emissions

Life Cycle Analysis (LCA) method

Evaluate the **environmental impact** of a **product** through its **life cycle**



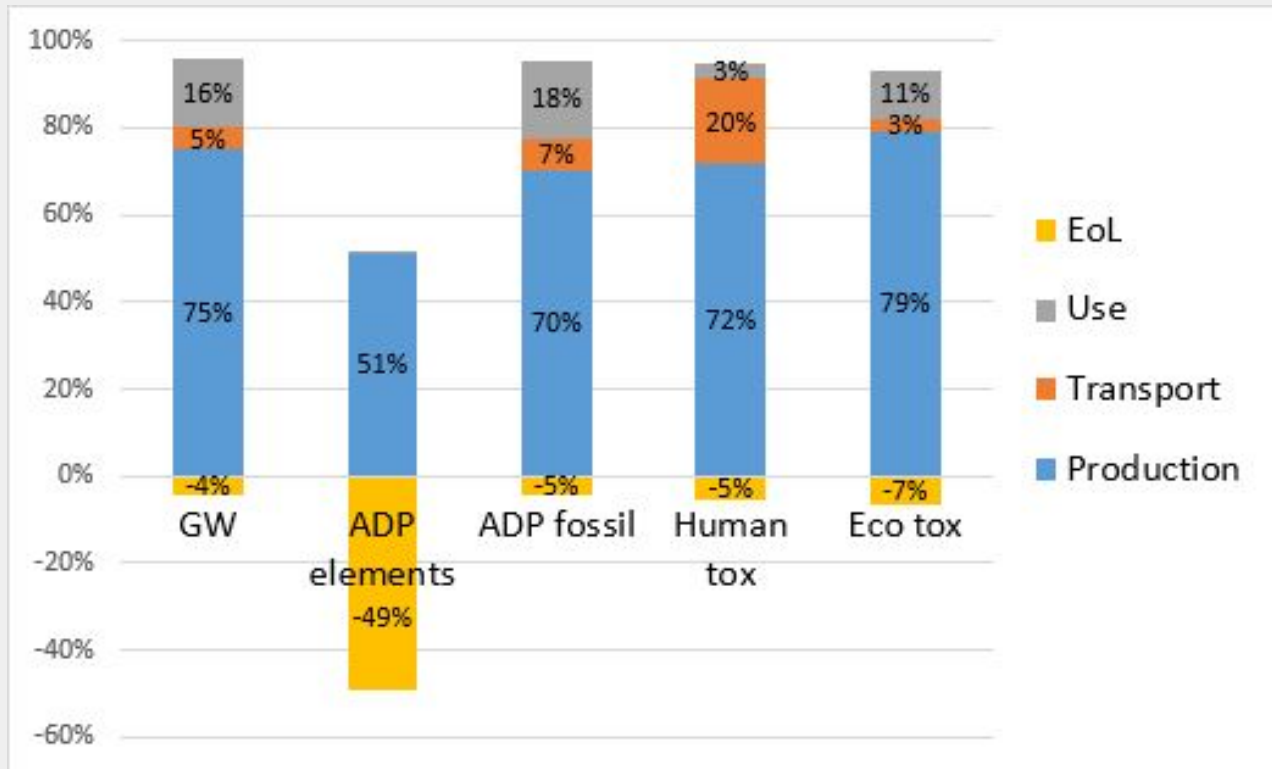
Breakdown of environmental impact of the digital world

%	 Energie	 GES	 Eau	 Ressources ⁽¹⁾
Fabrication	41 %	83 %	88 %	100 %
Utilisation	59 %	17 %	12 %	0 %

Répartition en fonction de l'étape du cycle de vie des impacts du numérique en France en 2020

75% of the total impact of a smartphone is caused in the production phase

GW = Global warming
ADPe = Abiotic depletion elements
ADPf = Abiotic depletion fossil
Human tox = Human toxicity
Eco tox = Ecological toxicity

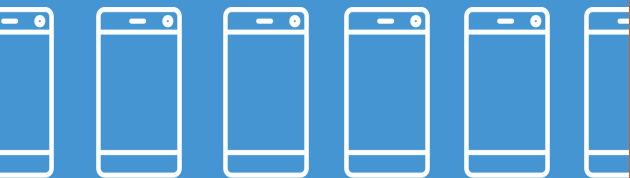


Relative impacts of Fairphone 4 per life cycle phase and impact category (3-year-scenario)

Let's look at our smartphone...



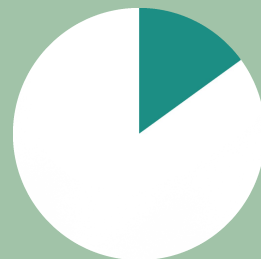
Electronic waste is the world's fastest growing waste stream



1.5 billion phones are
sold each year



The average lifespan
is **2-3 years**



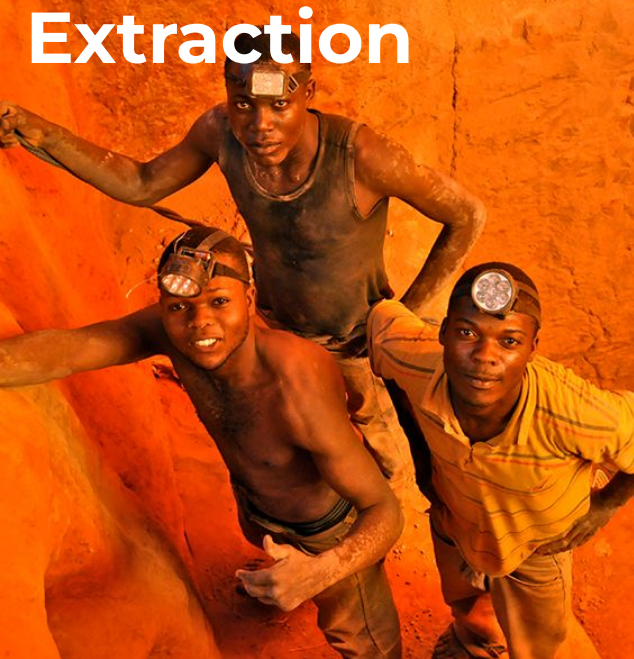
Only **20%** are reused or
recycled after use



E-waste, the fastest growing stream of waste on the planet

>50 millions of tons per year (53,6 M in 2019)

Extraction



Disposal



Usage



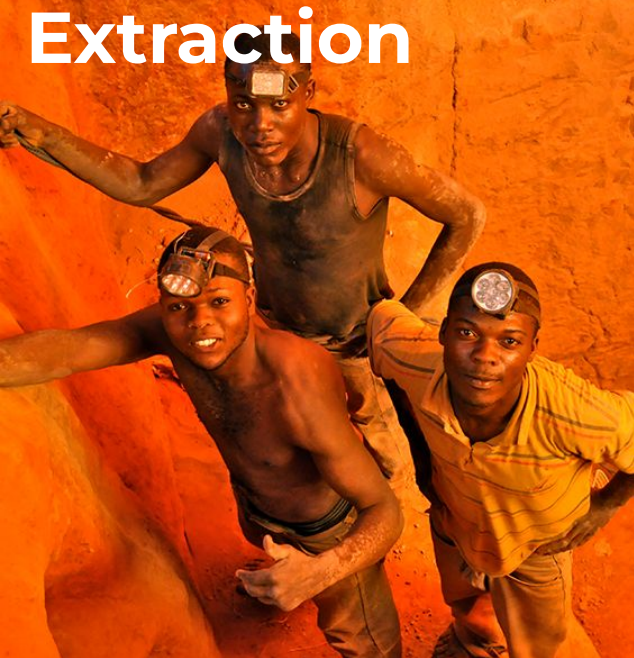
Life Cycle



Assembly



Extraction



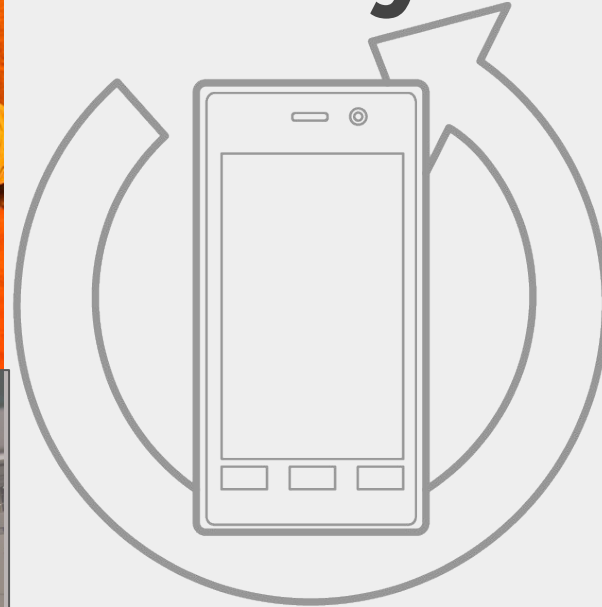
Disposal



Usage

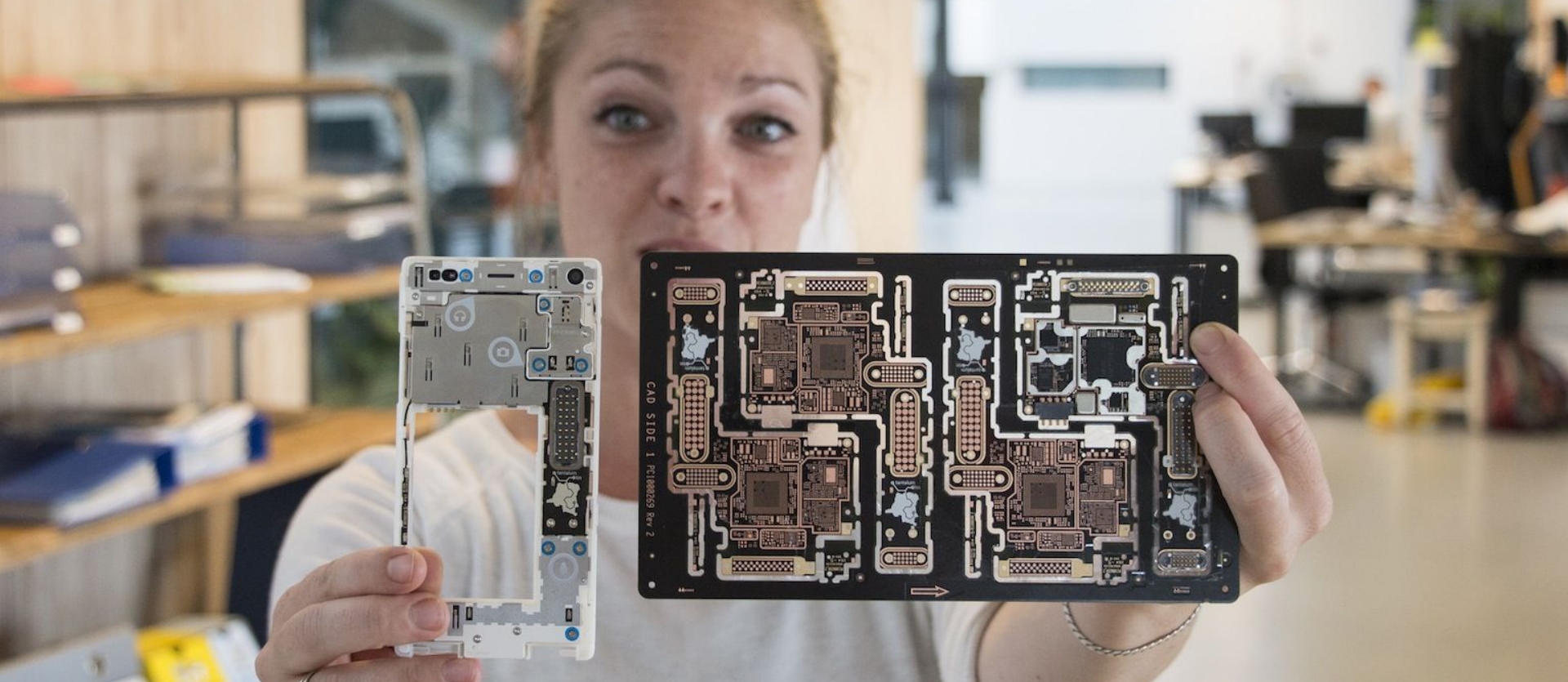


Life Cycle



Assembly



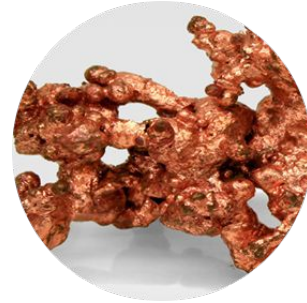


200 components in a phone



50 minerals

Even the “Green Tech solutions” need those minerals



70 kg of raw materials for a single smartphone





Image: Fairphone - Large Scale Mining - MMG - Copper Mines - RDC



A very polluting industry

“For what it’s worth”



Minerals - Perspectives

ADAM REBECCA SEMIRAMIS PENELOPE SAPPHO CLEOPATRA CORNELIA PHRYNE ASPASIA HELEN ATALANTA IMOGEN

Cumulative quantity of metals 2015 -> 2050
=
Cumulative quantity since the antiquity

Mining industry



Aurore Stephant, mining geologist engineer

Mining sector is "more and more predatory and dangerous"

Read her interview for Reporterre and her report:

<https://reporterre.net/Les-ravages-ignores-de-l-activite-miniére>

Les ravages ignorés de l'activité minière





Large Scale Mining vs Artisanal Scale Mining

Difficult and dangerous working conditions

Image: Fairphone



Child Labor

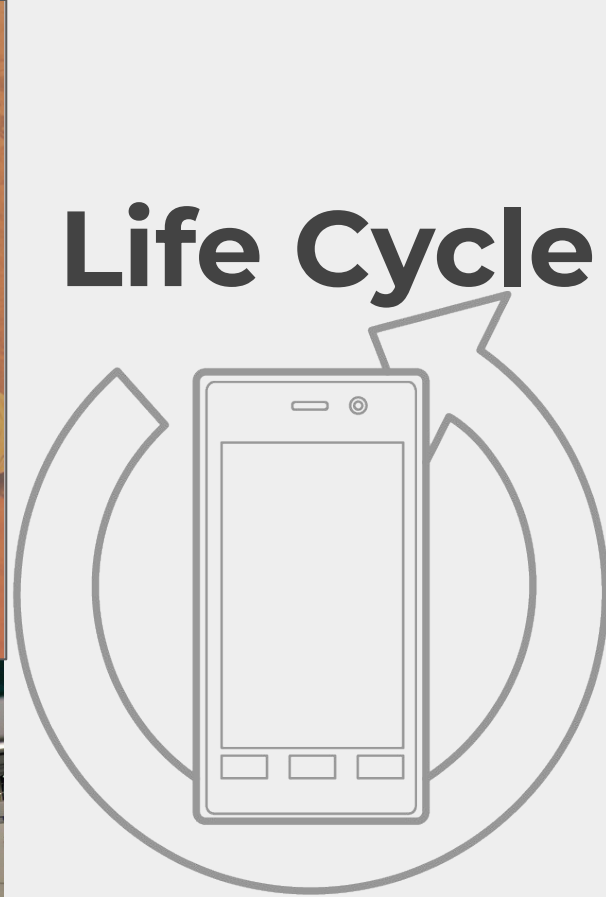
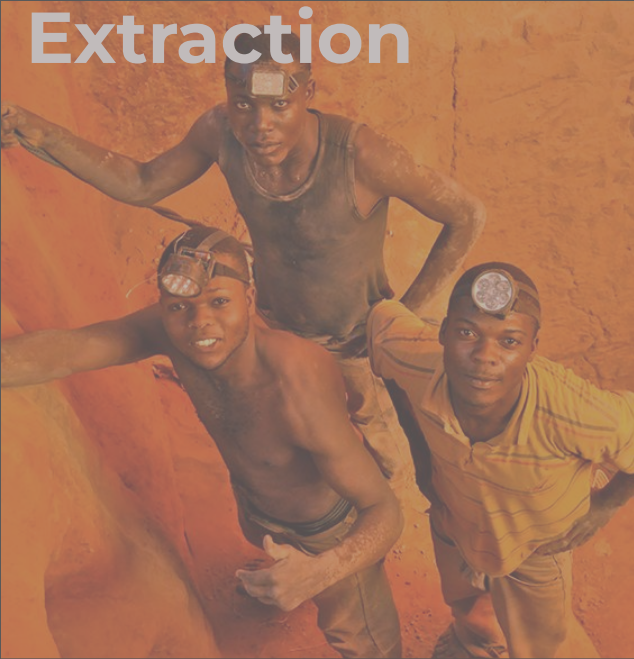


Image: Fairphone

Conflict resources

Image: Fairphone - Large Scale Mining - Comedecom - Mines Police - DRC





Assembly

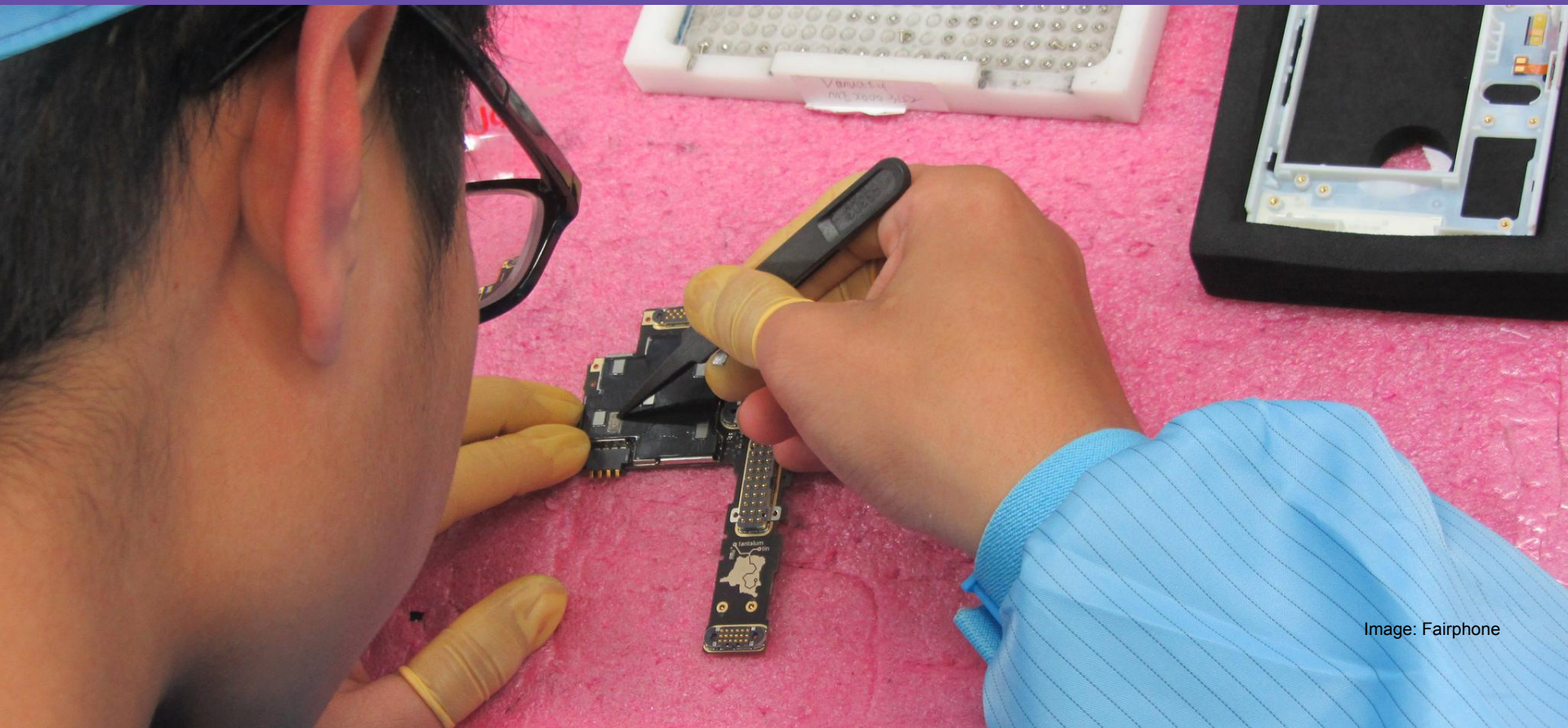


Image: Fairphone



Image: picture-alliance/dpa

REPORTAGE

Suicides à la chaîne chez le géant Foxconn

Par Philippe Grangereau, Envoyé spécial à Shenzhen (Chine) — 3 juin 2010 à 00:00



Challenge^s
L'économie de demain est l'affaire de tous

Le premier sous-traitant d'Apple, Foxconn, employait des ados de 14 ans



Images: Reuters

La machine est ton seigneur et ton maître

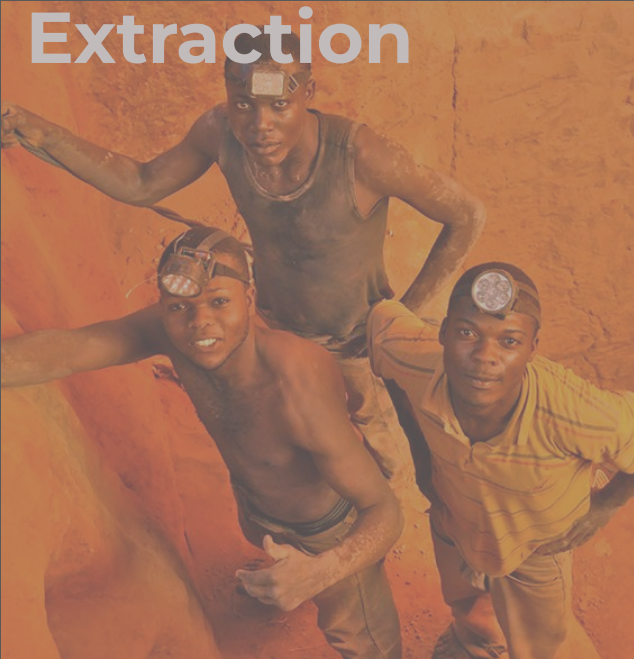
*Analyses, enquêtes et témoignages
sur la vie des ouvriers des usines
chinoises de Foxconn, qui la perdent
à fabriquer iPhone, Kindle et autres
PlayStation pour Amazon, Apple,
Google, Microsoft, Nokia, Sony, etc.*

PAR YANG, JENNY CHAN, XU LIZHI

Texte établi et traduit de l'anglais par Celia Izoard

LES ÉDITIONS AGONE

Extraction



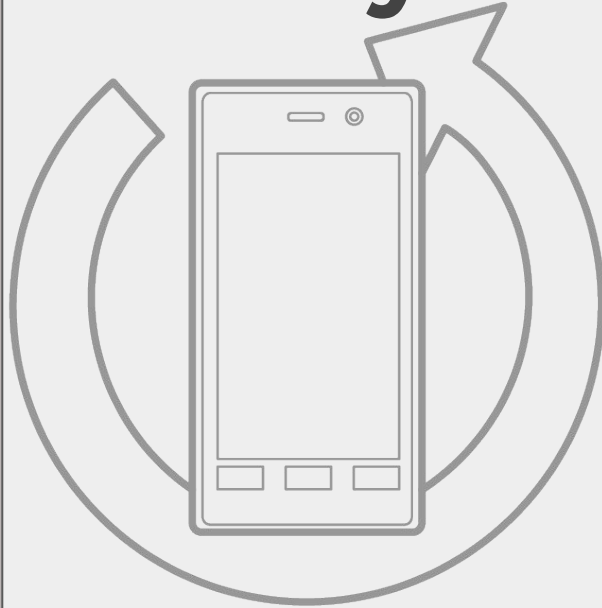
Disposal



Usage



Life Cycle



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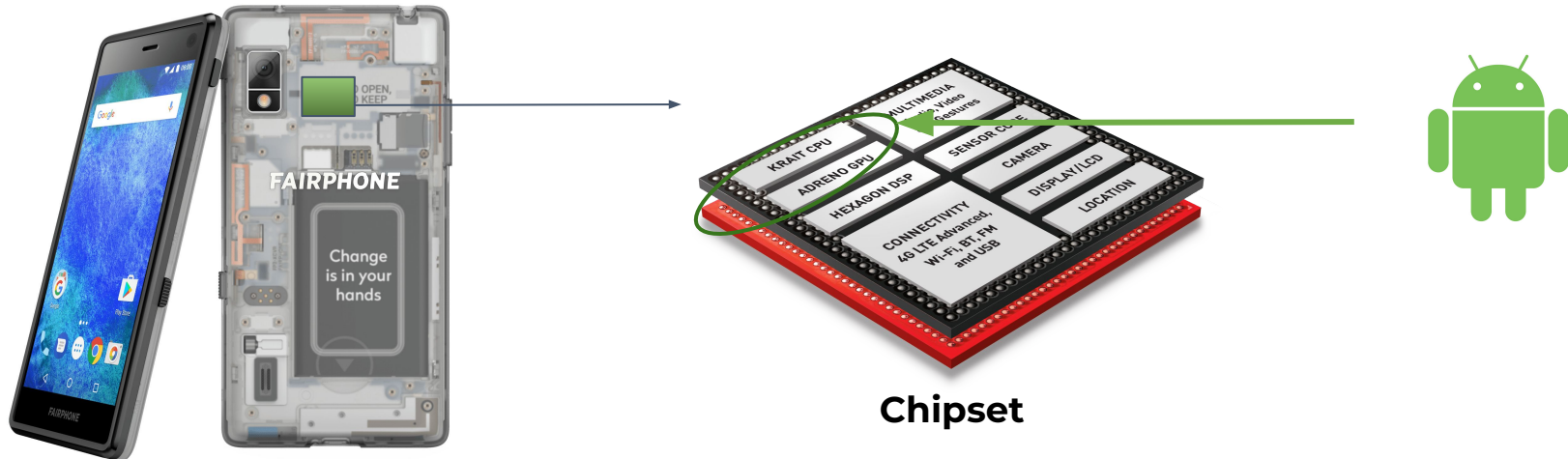


Digital and Software Industry

Planned Obsolescence?

20% of users change their smartphone because of lack of software support*.

Why it is so difficult to do software updates in the mobile industry?



Source: <https://www.qualcomm.com/media/documents/files/snapdragon-801-processor-product-brief.pdf>

*Ecodesign preparatory study on mobile phones, smartphones and tablets (European Commission) : <https://op.europa.eu/en/publication-detail/-/publication/a7784be4-853d-11eb-af5d-01aa75ed71a1>

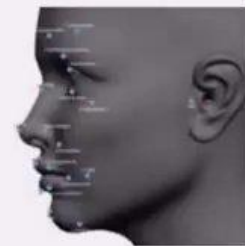
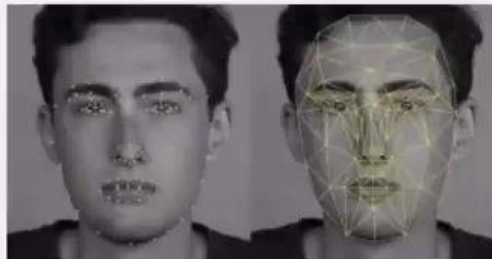
The Rebound Effect



Dark patterns & persuasive design



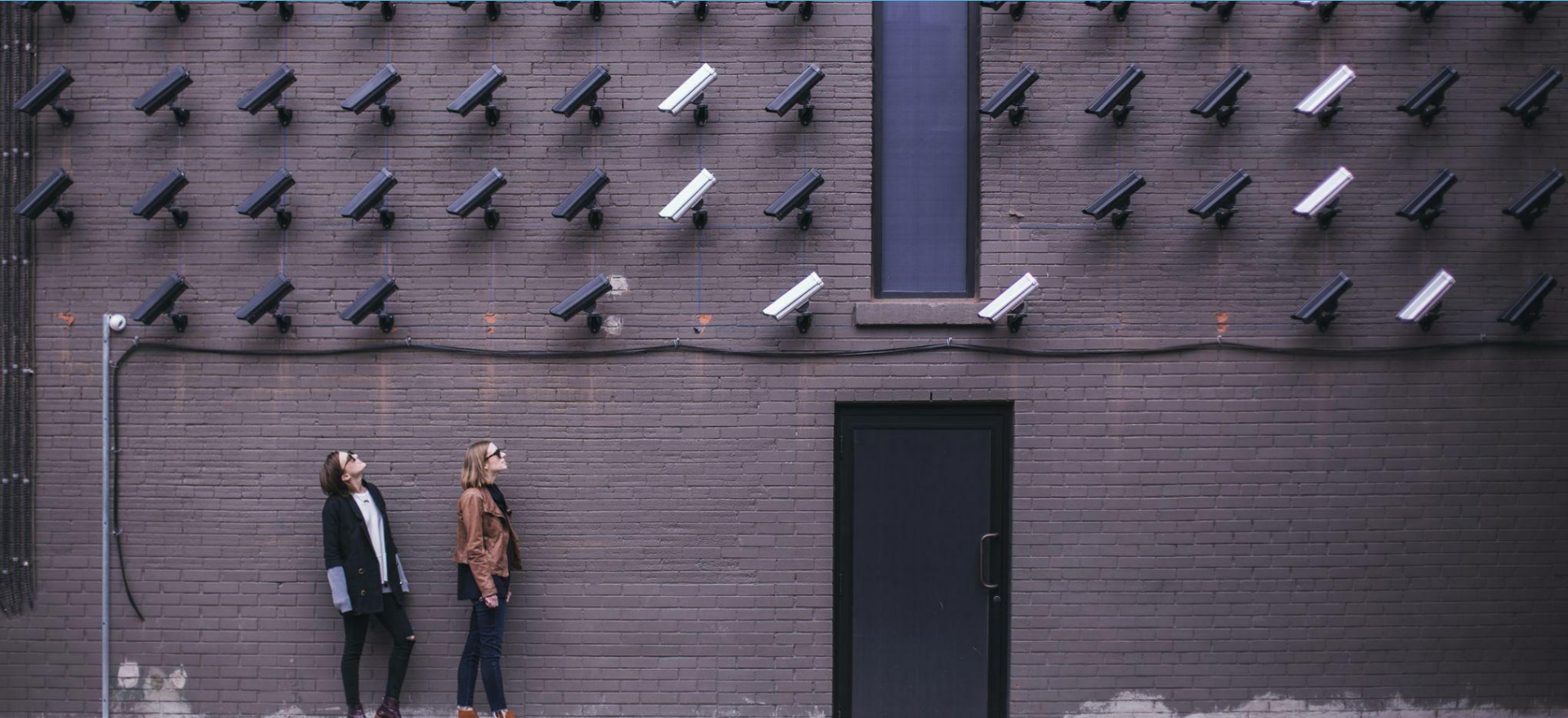
Photo by Anne Nygard on Unsplash



the big datarobbery



Facility vs Privacy



When it's not funny anymore



Uyghur Repression



The Social Dilemma

**/the
social
dilemma**

**THE PLATFORMS THAT
CONNECT US**

ALSO CONTROL US

Digital Colonialism



'It's digital colonialism': how Facebook's free internet service has failed its users

Free Basics, built for developing markets, focuses on 'western corporate content' and violates net neutrality principles, researchers say

▲ Demonstrators protest against Facebook's Free Basics initiative, in Bangalore, India, last year. Photograph: Manjunath Kiran/AFP/Getty Images

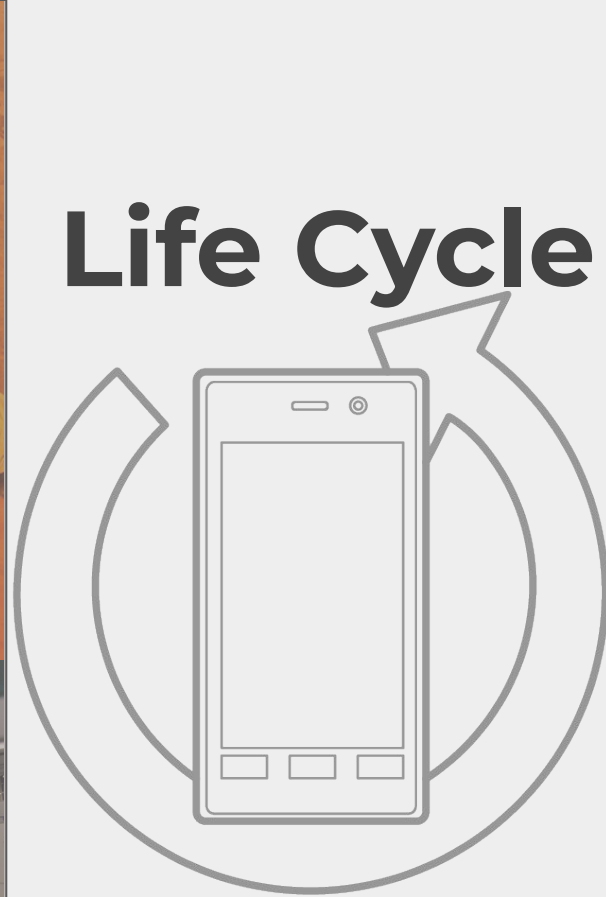
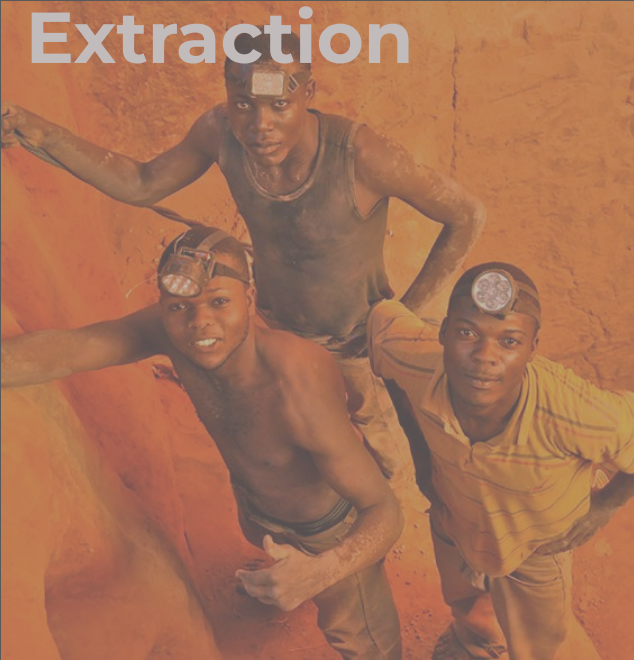
Source: the Guardian 17/07/2017

The Rohingya Genocide



The workers behind





Recycling



In Europe:

700 million phones
in drawers

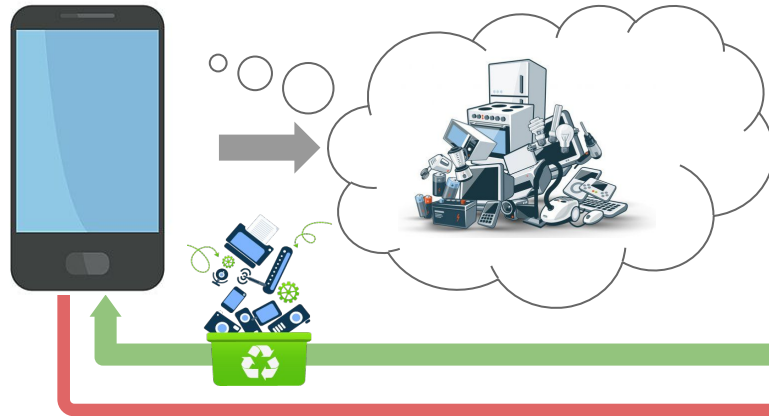
= 3 times annual
smartphone sales

Source : European Economic and Social Committee
"Identifying the impact of the circular economy on the
Fast-Moving Consumer Goods Industry"

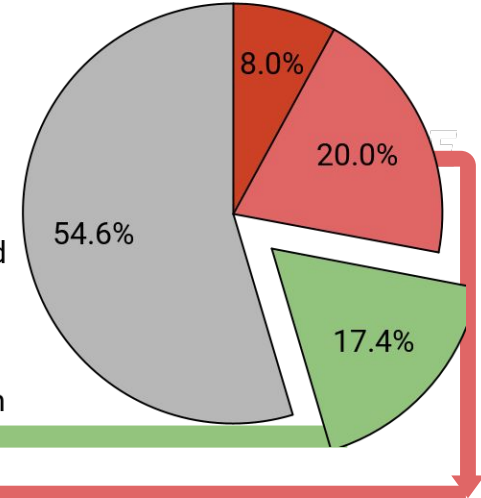
The Dark Side of Recycling

When we sell a phone... ... we create future electronic waste (e-waste)...

... which finally ends up here:



- Household bin (estimate)
- Illegally exported (estimate, max.)
- Recycled
- Unknown remain



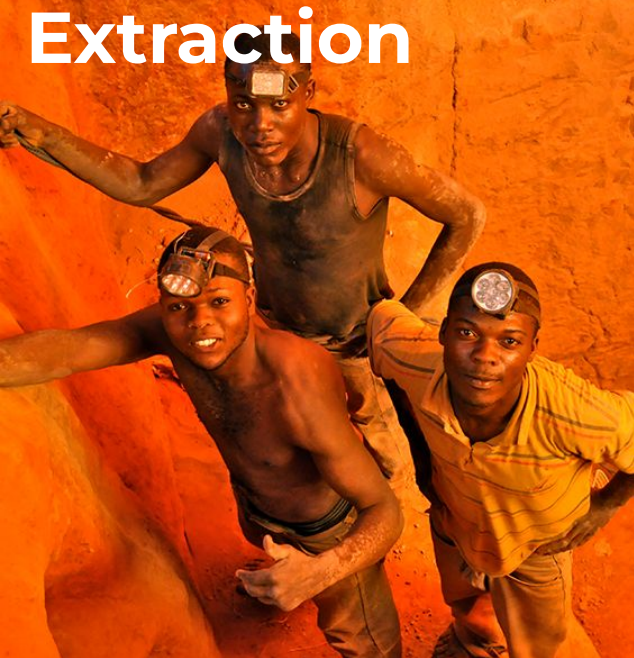
Informal recycling

Environmental AND social impacts



So... what do we do now?

Extraction



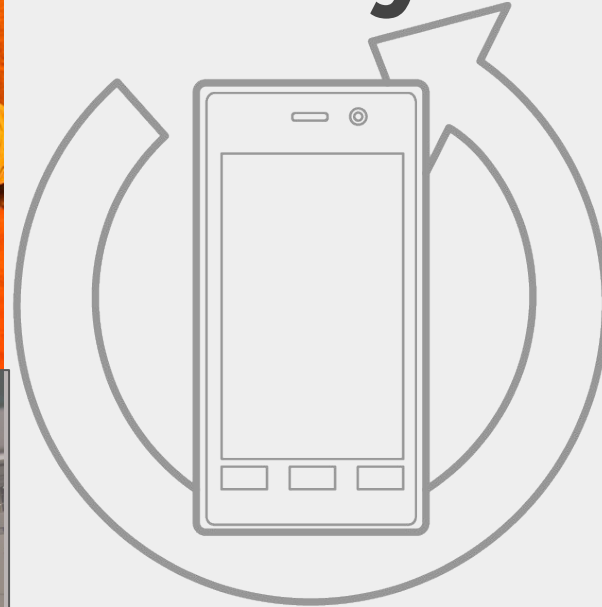
Disposal



Usage

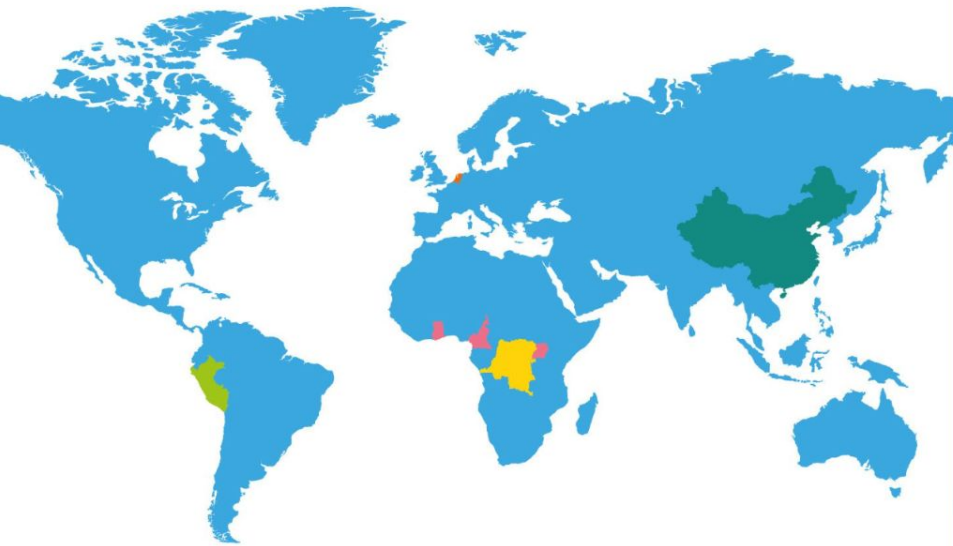


Life Cycle



Assembly





Mapping the journey of your Fairphone

Before you can improve the electronics supply chain, you have to understand how it works. Step by step, we're uncovering the materials, suppliers and locations that play a role in making the Fairphone 4. Because the more we know, the better we can identify and implement positive changes.



Pilot supply chain of Fairtrade gold







Fair Cobalt Alliance
L'Alliance du Cobalt Equitable



SONO  MOTORS

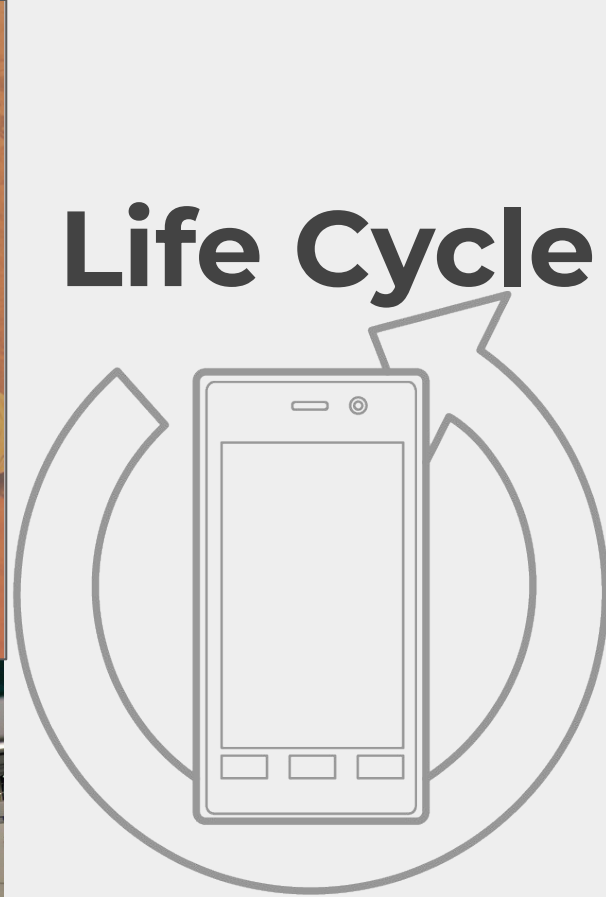
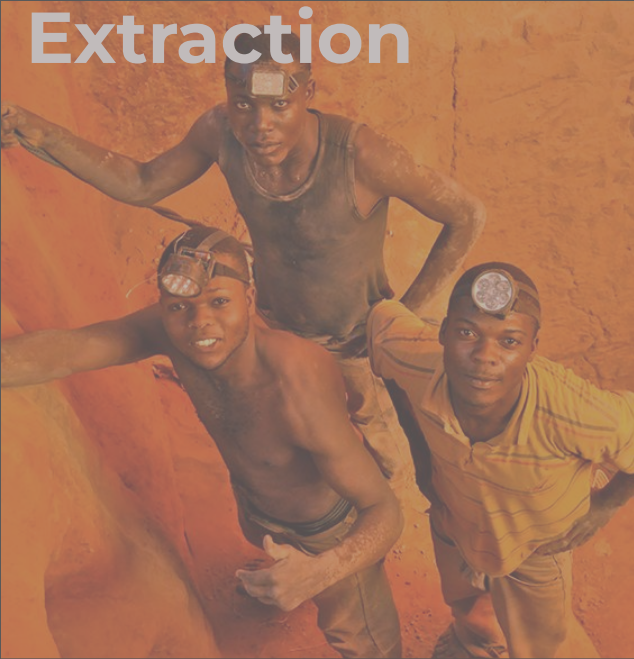
 signify



Pixel 


TESLA

FAIRPHONE



Workers Voice



Image: Fairphone



Living Wage vs Minimum Wage



Fairphone 3+

\$1.85



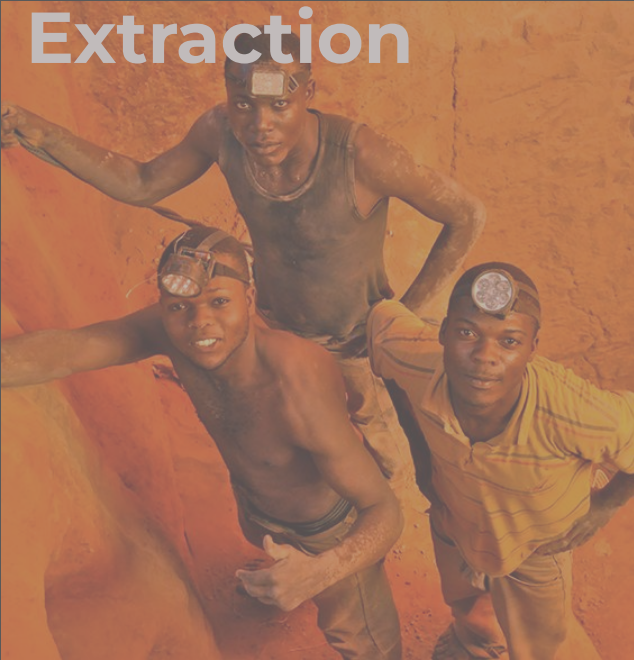
Fairphone 4

\$1.99

FAIRPHONE

Year	Number of workers paid	Total paid out (USD)	Model	Context description
2019	 231	\$89,128	FP3	2019: Start of living wage bonus Fairphone 3 per July 2019
2020	 501	\$184,736	FP3 & FP3+	2020: Full year of Fairphone 3 & 3+ production
2021	 1823	\$166,622	FP3+ & FP4	2021: Less production of Fairphone 3+ due to supply chain shortages. Start of living wage bonus Fairphone 4 per October 2021

Extraction



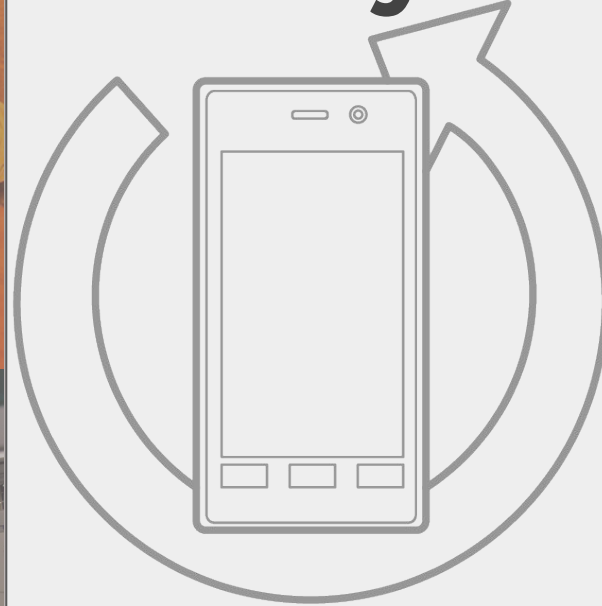
Disposal



Usage



Life Cycle



Assembly



Our alternatives as consumers

Fair♦TEC

Et si vous preniez part
au numérique du
monde d'après ?

Découvrir nos offres

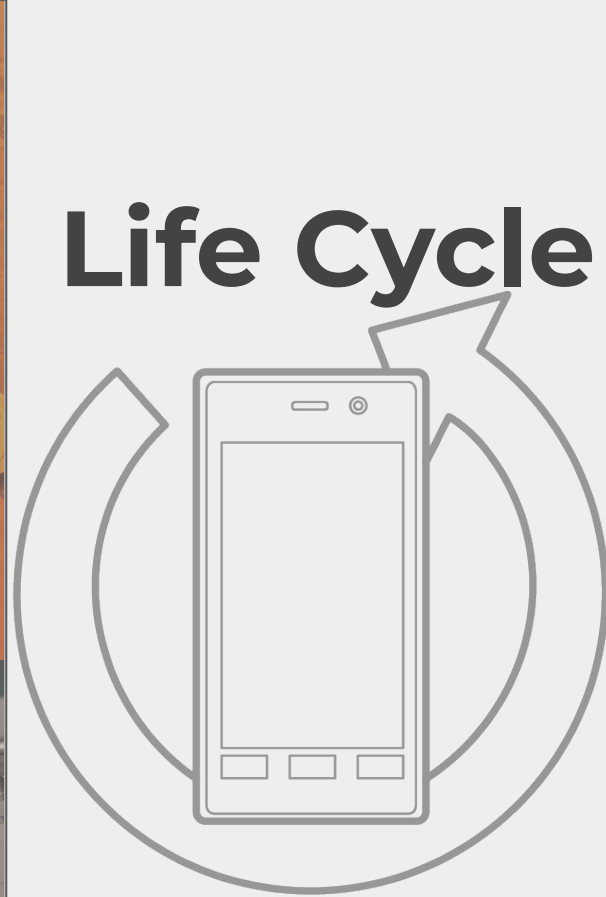
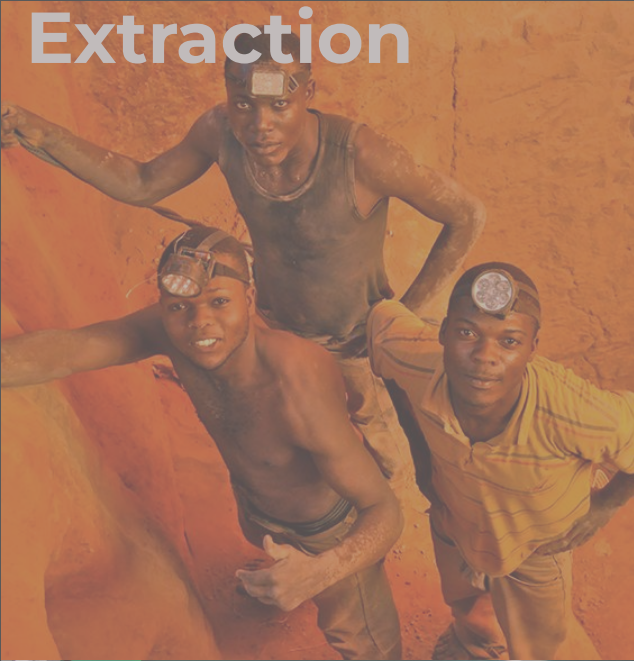


Our responsibility as developers



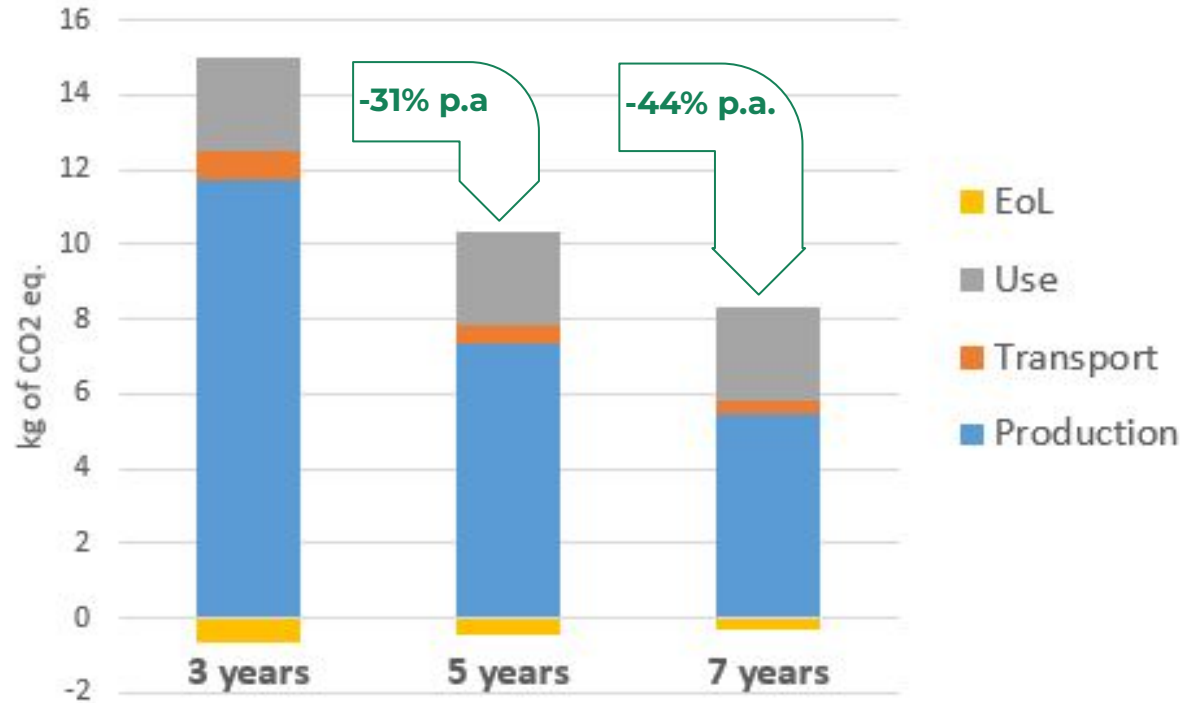
Our alternatives as platform consumers





Using a
smartphone
for 3 to 7 years
can reduce
Greenhouse Gas
emissions by 44%...

So keep it
longer is key!



Comparative of yearly emissions per baseline scenario -
Life Cycle Assessment Fairphone 4 - 2022

WE HOLD THESE TRUTHS TO BE SELF-EVIDENT

SELF-REPAIR MANIFESTO:

REPAIR IS BETTER THAN RECYCLING.

MAKING OUR THINGS LAST LONGER IS BOTH MORE EFFICIENT AND MORE COST-EFFECTIVE THAN MINING THEM FOR RAW MATERIALS.

REPAIR SAVES THE PLANET.

EARTH HAS LIMITED RESOURCES AND WE CAN'T RUN A LINEAR MANUFACTURING PROCESS FOREVER. THE BEST WAY TO BE EFFICIENT IS TO REUSE WHAT WE ALREADY HAVE!

REPAIR SAVES YOU MONEY.

FIXING THINGS IS OFTEN FREE, AND USUALLY CHEAPER THAN REPLACING THEM. DOING THE REPAIR YOURSELF SAVES SERIOUS DOUGH.

REPAIR TEACHES ENGINEERING.

THE BEST WAY TO FIND OUT HOW SOMETHING WORKS IS TO TAKE IT APART!

IF YOU CAN'T FIX IT, YOU DON'T OWN IT.

REPAIR CONNECTS PEOPLE AND DEVICES, CREATING BONDS THAT TRANSCEND CONSUMPTION. SELF-REPAIR IS SUSTAINABLE.



Long-lasting Design



- **Modular smartphones** : easy to repair & hardware upgrades
- **Long term software support**



Empower Repair!



Framework Laptop DIY Edition



INDICE DE
RÉPARABILITÉ



Empower Repair!

<https://longuevieauxobjets.gouv.fr>



Longue vie
aux objets

Particulier

Entreprise

Collectivité



Comprendre la
démarche

Consommer
autrement



Acheter durable



Entretenir et
réparer



Réduire son
impact
numérique



Trier et recycler

Trouvez le professionnel qu'il vous faut

pour partager, acheter d'occasion, réparer, donner, revendre...

133835 professionnels répertoriés

Je veux

Choisir un besoin



un(e)

Choisir une catégorie



Rechercher

Vous êtes un professionnel et souhaitez vous inscrire, modifier ou supprimer votre fiche annuaire : [accéder à votre espace](#) →

An aerial photograph of a city, likely New York City, showing a dense urban landscape with buildings, streets, and a body of water. A large, solid red circle is superimposed in the center of the image. Inside this circle, the words "DON'T RECYCLE." are written in a bold, white, sans-serif font, arranged in two lines.

**DON'T
RECYCLE.**

Source : Earth Day campaign 2021 "Don't Recycle". - iFixit

Recycle Right

<https://www.jedonnemontelephone.fr>

ecosystem
recycler c'est protéger



jedonnemontelephone.fr

Connexion à mon compte

Du 3 au 30 juin grande collecte solidaire de téléphones.
Grâce à vos dons, 3000 téléphones seront offerts à des personnes en grande difficulté.

Comment ça marche ?

Je donne mon téléphone

Mes garanties

Suivre mon téléphone

RECYCLAGE SOLIDAIRE DE VOS MOBILES ET SMARTPHONES

C'EST SIMPLE ET GRATUIT !

Vous avez un ou plusieurs téléphones inutilisés ?
Et si vous faisiez un geste solidaire et
environnemental avec **ecosystem** ?

Il suffit d'imprimer directement une étiquette à
coller sur votre propre enveloppe ou de
commander une enveloppe pré-affranchie.

Pour cela, nous vous proposons deux parcours :

Parcours **RAPIDE**



1 seule étape
pour obtenir l'étiquette

Je télécharge l'étiquette

Parcours **AVEC SUIVI**



Suivi personnalisé
de l'envoi du téléphone

Je crée mon compte

GRANDE
**collecte
solidaire
de téléphones**

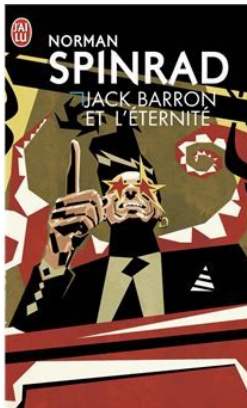
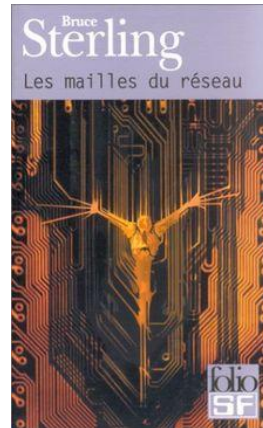
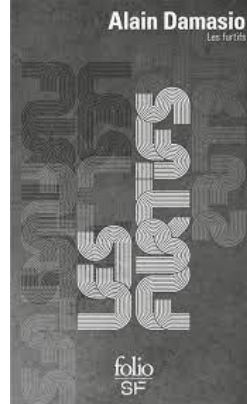
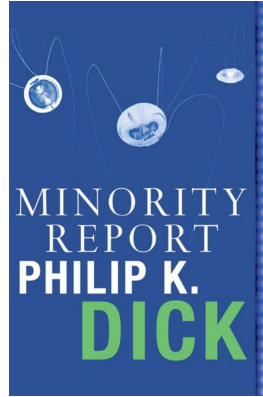
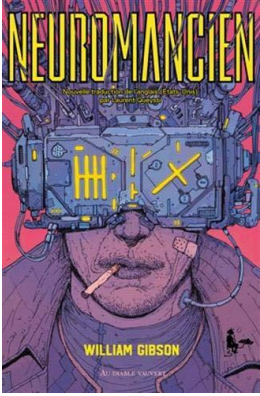
GRANDE
**collecte
solidaire
de téléphones**

Our responsibility as citizens



Photo by Tim Gouw on Unsplash

Techno-solutionism will not save the world



It's up to us to save it!

