

Tablets, Notebooks, Smartphones. Mobile devices are among the most popular consumer products today. They have created many new ways of communication, leisure activities and work. Maybe you are even watching this video with a mobile device right now.

In 2012 alone, an estimated 800 million Smartphones were sold worldwide. But only few consumers actually know how and where the devices are produced.

So what's it like, the life of a Smartphone – from the production of raw materials through to processing, distribution, usage and disposal? And what are the problems in each phase?

Let's take a Smartphone, say from Apple or Samsung, as an example and look at this chain.

Development and design

First, there is the development and the design of a new Smartphone model. This is done by the development departments of the companies themselves. At Apple, for example, at their headquarters in California.

Production of raw materials

The production process starts with the production of raw materials. For a Smartphone, a whole variety of materials is needed. Metals such as tantalum, cobalt and copper are particularly important.

Cobalt is used for highly powerful batteries. The largest cobalt manufacturer by far is the Democratic Republic of the Congo. About 100,000 Congolese work in cobalt mines, often with terrible working conditions. Extremely long working hours, low wages and insufficient protective equipment are common.

Also large amounts of tantalum are sourced in the Democratic Republic of the Congo. The Congolese tantalum export fell into disrepute in the 90s because it financed civil war.

Today, the production and export of raw materials is still financing civil war in the Congo.

In addition, there is the industrial pollution. Raw materials are often produced through surface mining taking up large areas of land. Also, big amounts of chemicals are needed to extract the desired materials from ore. Reaching the environment these chemicals pollute rivers, lakes and soil.

Manufacturing

The production of individual components and assembly are mostly done at supplying factories in China and India. These factories are run by companies like Flextronics, Salcom or Foxconn. Foxconn has become one of the main producers of electronics worldwide and almost 1.5 million people are employed in its factories.

There too, working conditions are disastrous. The mostly female workers are forced to work extremely long hours, don't receive social benefits, don't have co-determination rights and repeatedly suffer damage to their health, caused, for example, by aluminium or nickel dust. The pressure put on workers has resulted in several cases of suicide at Foxconn factories, repeatedly hitting the headlines.

Marketing and sales

The mobile devices produced are then sold all over the world. Many in industrial countries like Germany. But also emerging markets such as China or Brazil are large consumers. Like other brands, Apple and Samsung spend much money on marketing.

Disposal and recycling

On average, the German consumer purchases a new mobile phone every 18 months. Such short product lifespan is supported by different factors. Manufacturers quickly produce new models. Every 1 to 2 years a new model goes on sale. The devices themselves are constructed so they can hardly be repaired. And applications are intentionally developed so they can only be used with the latest model.

Mobile service providers subsidise the devices with their contracts. Often, contractors get the latest model for free or at a special rate every 2 years.

As a consequence, in Germany alone about 23 million Smartphones were sold in 2012. At some point, the old models become part of the 1.8 million tons of electronic waste produced in Germany every year. Part of this waste is highly contaminated with heavy metals. So far, there is no regulated and efficient recycling system that decreases the environmental burden and recycles valuable raw materials.

Conclusion

Every phase of the production chain is important for countries. The economy is strengthened, urgently needed jobs are created and money is earned. But working

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conditions and the environmental conditions urgently have to be improved as well. The problems mentioned apply to all major manufacturers of electronic devices.

A look at the value chain shows: The margin is particularly visible with more expensive brands. Market leaders present margins much higher than the sectoral average. For example, about half the price of an Iphone is pure profit for Apple. Such high profits should not be achieved at the expense of workers and the environment.