

The problem of e-waste, including the speed of obsolescence and replacement timescales for electronic goods.

Electronic Waste: Does accountability lie with the corporations and manufacturers?

In this era of groundbreaking technological innovation, tech giants like Apple and Samsung constantly advertise new products containing features that were once thought to be science-fiction. In 2018, I bought Apple's newest iPhone SE, a pioneer of Apple's smartphone market diversification. It was the cheapest iPhone model at a time when an economic downturn was negatively affecting smartphone demand: smartphone costs had become pricier despite having relatively inconspicuous additional features than their predecessors (Scheepers and Verreynne). Nonetheless, the iPhone SE prompted many to question the purpose of purchasing more upscale smartphones, as cheaper models seemed to have features that mirrored those in question. Unfortunately, I would soon realize that my new smartphone wasn't as durable as I thought. A single drop from a mere height of about a metre had "bricked" the device. The problem was that in many cases it's cheaper and more appealing to purchase the newer, upgraded model than to repair your current one. Regrettably, I opted for a newer model as a replacement.

In retrospect, I wondered if there was more to this dilemma between repairing or upgrading. Was it a product of consumerism—society's obsession with newer products, or could there be another reason, perhaps a clever, yet shockingly unsustainable marketing strategy by corporations? Moreover, with technology becoming more advanced and accessible, we are witnessing an alarming increase in electronic waste (e-waste) production, so who is to blame?

Part of the blame must lie in the consumers themselves. As Kelly Goldsmith, an assistant professor of marketing at Vanderbilt University noted, there is a strong psychological force at work here: many consumers see having the latest technology as a status symbol—one that you can carry around and flaunt constantly. She adds how we can associate numerous behavioural concepts with consumerism, namely self-signalling, wherein owning the latest technology prompts you to believe that you are “up-to-date”; social proof, which explains how long lines out of a, say, Apple store, can lead you to believe that the newly-released product holds high value; and scarcity, which is when you fear there aren't enough products available and so you try your best to get one as soon as possible. It's clear that these tech companies are taking advantage of this—Goldsmith claims, "Apple has done an outstanding job of harnessing the social experience around waiting for, expecting, and talking about the iPhone" (Stieg).

Alternatively, a key marketing strategy used by tech companies is to create products that can be easily discarded—items that are difficult to upgrade, simple to break, and impractical to repair. This is called planned obsolescence—products are intentionally made to become outdated in a shorter time period. The average PC lasts around 5 years, whilst the average smartphone lasts for 3 years. In fact, according to Moore's Law, electronics designers could double processor speeds every 2 years, so whilst technology advances exponentially, customers are obliged to purchase new technology roughly every 2 years (Kubit). By shortening the replacement timescales—the time between repeat

purchases—the company is able to generate a larger sales volume, and in turn more profit. A prime example of this happening is how Apple constantly ceases software support for older devices. Numerous class-action lawsuits in the past against Apple over the deliberate slowing down of iPhones unequivocally proved that planned obsolescence is a controversial marketing strategy used by tech corporations (Harris). Whilst increasing technological development can bring a range of benefits, including reduced costs for electronics, increased worker productivity and more innovation, what does this mean for the environment?

The combination of consumer demand and corporate supply has resulted in an environmental nightmare. The process of turning raw extracted materials into the smartphone in your pocket leaves a hidden path of destruction in its wake. Electronics contain “conflict materials”, a name highlighting how armed organizations frequently exploit forced labour to extract minerals in politically unstable regions, namely eastern Congo. They later sell those minerals to finance their operations—purchasing weapons. These minerals are then shipped to assembly plants in countries like China where workers utilize them to manufacture electronics with the aid of toxic chemicals like PVC and mercury. Due to prolonged exposure to harmful chemicals, workers were significantly more vulnerable to chemical poisoning, miscarriages and cancers.

Moreover, with electronics being discarded at a rapid rate, most of this e-waste is either sent to a landfill or shipped overseas to workshops in places like China and Ghana, where it's much cheaper to deal with and regulations aren't as strict. However, e-waste also contains many valuable materials that can be extracted for remanufacturing. Without safety equipment, in exceedingly risky situations, and for poor remuneration, workers extract valuable metals, like copper, from discarded devices, afterwards burning the non-profitable components. When these materials (rubbers and plastic casings) are burned, toxins that are hazardous to the environment and to human health are released. There is reportedly a

higher incidence of birth defects and infant mortality amongst workers and those in the immediate and surrounding vicinities (“5.4 E-waste: The Dark Side of Moore’s Law – Information Systems”).

The main issue is that these tech corporations are externalizing their costs; whilst the corporation garners more profit, it neglects the consequential higher environmental and social costs. Workers are subjecting themselves to health hazards by working in unsafe facilities which receive lacklustre funding from corporations and unsatisfactory guidelines and oversight from often mismanaged or corrupt governments.

With greedy corporations capitalising off of the growing consumer culture seen in recent years, the actions of corporations are arguably more significant than the actions of consumers. These corporations must focus on shifting to the circular economy, where products are sourced sustainably and this culture of obsolescence is abolished by prioritizing product takeback, recycling schemes and internalizing costs. Inversely, Nathan Proctor, director of consumer protection group US PIRG’s “Right to Repair” campaign, argues “repair is a critical part of fixing our relationship with these products, and is more efficient than recycling. People must be empowered to repair their own stuff”, summarizing that tackling the problem of e-waste not only involves corporations transforming their marketing schemes, but also relies on the consumer making responsible decisions with their electronics (Gault).

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