What are the environmental costs of current consumer trends, behaviours and purchasing decisions?

Sub-question - the problem of e-waste, including the speed of obsolescence and replacement timescales for electronics goods

On the 29th June 2007 Steve Jobs announced the launch of the first Iphone. The "revolutionary mobile phone"[1] almost doubled Apple's net income[2] as well as undoubtedly kickstarting the company to become the seventh largest[3] globally. The launch marked the spread of technology into all aspects of modern-day life - with this sector currently employing just under 3 million people[4] in the UK alone. This technology has allowed unprecedented access to knowledge but alongside benefits such as this it has created the ever-growing issue of e-waste as well as the problems that are directly caused by online retail.

The amount of e-waste is directly linked to the average life expectancy of technology, such as the phone which lasts for just two and a half years[5]. The precedent of this was arguably decided by the original iPhone which was made obsolete just three years after its release. There are two reasons for the short lifespan of these resource-intensive technologies; the first is the rapid advancement within the technology industry - the first ever "smartphone" was released just twenty five years ago whilst by the end of 2017 over three quarters[6] of Britons owned one which demonstrates the speed at which this technology has gone from a novelty to a necessity. Within this, new features - whether it be facial recognition, a notch in the display or split screen displays - encourage consumers to purchase the latest and greatest even when it is unneeded. This consequently leads to an increase in the number of phones that are disposed of. The second reason is capitalistic greed. The shorter the lifespan, the more phones purchased, the more money technology companies make. This encourages these companies to artificially reduce the performance of this technology. As shown at the end of 2018 when both Apple and Samsung - the two largest technology companies globally - were fined by Italy's competition authority for "significantly reducing their performance."[7] Whilst in 2020 Apple settled consumer fraud lawsuits - for secretly slowing down old phones - in America for $113 million.[8] This pattern is repeated in household appliances, such as how washing machines on average last two years less than they did just a decade earlier[9]. The purpose of this reduction in performance is to encourage people to upgrade to new technology with discarding the old being an undesired side-effect.

Clearly electronic goods - the same as all goods - must be replaced. The issue lies in how the materials for these goods are sourced and then how these goods are discarded. For example, just 17.4%[10] of e-waste produced in 2019 made it to formal management facilities or

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[1] Steve Jobs Iphone presentation 2007 full transcript
[2] Apple's net income in the company's fiscal years from 2005 to 2021
[3] Forbes - the global 2000, 2022
[4] Prospects - overview of the UK's technology industry
[5] What is the average mobile life expectancy
[6] Financial times - Mobile phone calls drop as Britons focus on social media
[7] Financial Times - Apple sued in Europe over a software update that slowed old iPhones. Quotation from Italy's competition authority
[8] NPR - Apple Agrees To Pay $113 Million To Settle 'Batterygate' Case Over iPhone Slowdowns
[9] Americans Toss 151 Million Phones A Year. What If We Could Repair Them Instead?
[10] World Health Organisation - soaring e-waste affects the health of millions of children, WHO warns

recycling centres and when 50 million tonnes[11] of e-waste is produced yearly, there are clear issues that arise.

One problem is the production - which includes both manufacturing and material acquisition. 80%[12] emissions for smartphones are from their production. The mining for both gold and tin - both of which are found in smartphones - accounts for almost 10%[13] of total deforestation in the Amazon. 70%[14] of all Cobalt, which is another essential element for batteries that are found in almost all technology, is mined in the Democratic Republic of Congo. This mining is largely unregulated due to the political landscape found there, meaning that pollution of waterways as well as child labor are both rife.

The discardment of e-waste has issues in an economic, social and environmental sense. $62.5[15] billion is the total global material value of our used devices. Therefore, economically, by neglecting e-waste we are missing out on a multi-billion dollar industry in the formal waste sector. Although it is worth noting here that approximately 20 million people[16] work in the informal waste sector worldwide - with the key word here being informal meaning that this work is unregulated. Unfortunately over 1,000 substances that are harmful to the human body are found in e-waste, such as lead, mercury and nickel. This is exemplified in Agbogbloshie - a Ghanaian scrapyard where 80,000 residents live and work in the informal waste sector. Where 80% of children[17] have dangerous levels of lead in their blood that has been attributed to the e-waste found there. In addition to the health and economic impacts of post-life electronics are the environmental impacts. A single tonne of cell phones contains as much gold as 70 tonnes of gold ore[18], and when 151 million[19] phones are thrown away yearly in America alone it is evident that the level of mining required for electrical goods could be greatly reduced if these phones are recycled. If all phones thrown away annually in America were recycled, it would save the energy equivalent of powering 24,000 homes for a year[20]. To summarise, by disposing of e-waste responsibly whilst also increasing the level of recycling we would be able to decrease toxic mining that destroys natural habitats whilst decreasing levels of greenhouse gas emissions as well as preventing those working in the informal waste sector from absorbing numerous toxins.

In conclusion, the modern-day social norm of mindlessly discarding technology and electronics rather than recycling or repairing them has numerous environmental impacts. These impacts range from increased greenhouse gas emissions from e-waste in landfill - that accounts for 4.75%[21] of total anthropogenic greenhouse gas emissions - to the increased level of mining required that consequently leads to the pollution of waterways. This is seen after 500 miles of the River Doce, located in the Amazon, was contaminated in 2015 after a dam - constructed to accommodate the waste from an iron ore mining facility - collapsed. In order to reduce the

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[11] Financial Times - What happens to your old laptop? The growing problem of e-waste
[12] World Economic Forum - How to save the planet, one mobile device at a time
[13] Mongabay - Mining Activity Causing Nearly 10% of Amazon Deforestation
[14] Congo, Child Labour and Your Electric Car - Financial Times
[15] World Economic Forum - A New Circular Vision for Electronics, Time for a Global Reboot
[16] 2014 ISWA World Congress
[17] The Guardian - From toxic waste to toxic assets, the same people always get dumped on
[18] Ecologist, Informed by Nature - E-waste in Ghana, Where Death is the Price of Living for Another Day
[19] Americans Toss 151 Million Phones A Year. What If We Could Repair Them Instead?
[20] Importance of Cell Phone Recycling
[21] United Nations Climate change - E-waste: From Toxic To Green: India

environmental costs both the consumers and the producers play vital roles. The consumer should transport all e-waste to proper recycling facilities as well as prioritising repairs rather than upgrades, as this both saves money and reduces total e-waste. Alongside this, the producer must make long-lasting technology, increase accessibility for repairs and not purposefully slow down electronics as this will both decrease the speed of obsolescence as well as lengthening the time between the replacement of electronic goods.