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"Apple iPhone's Big Recycling Mess: Is the iPhone 4S the Face that Launched 200 Million Pounds of Smartphone Scrap?"

By Tom Kaneshige

Like many people, I never worried much about fulfilling my two-year wireless contract in the days before the iPhone. My trusty flip phone had worked for four or five years in the early 2000s, until I lost it.

Today, though, I count the months.

Last week, AT&T charged me an extra \$18 to renew my contract with the iPhone 4S because I still had time remaining on my existing contract. I paid the ransom and became a proud iPhone 4S owner. Not sure what I'll do with my iPhone 3GS, maybe throw it into Apple's e-waste recycle bin or give it to a friend.

But that's the problem: I'm now one of millions of people who throw away a perfectly functional smartphone every 15 to 18 months – the average lifespan of a phone.

"It's now the norm to discard electronics deemed 'obsolete,' which in many cases may be no longer than a year or two old," Martin Nielson, CEO of E-Waste Systems, told me from his London offices. "With innovation comes waste."

To be fair, Nielson doesn't blame the innovators. He is getting ready to upgrade from his iPhone 3GS to an iPhone 4S, too. He's planning to sell his iPhone 3GS to someone who, in turn, will likely chuck an even older phone into the dumpster, probably a BlackBerry or Android phone.

"If you do the math, you end up with accumulatively well over 200 million pounds of e-phone scrap generated just by the announcement of the iPhone 4S," Nielson says. "Apple alone will sell a staggering quarter of a billion iPhones in the next two years. That's dramatic tonnage."

Apple sold more than 4 million iPhone 4S units in the first three days. There is no question that Apple opened the floodgates to an array of competing smartphones that seemingly hit the market every month. The first iPhone shipped in the summer of 2007 and has since sped up the perceived obsolescence rate of smartphones in general.

Recycle Raw Materials, Not Fill Up Landfills

The silver lining: A typical smartphone is chock full of valuable metals and materials that can be mined and recycled into new smartphones. It makes a lot of economic sense to do this, too. For every

inbound ton of electronics coming into a properly designed recycling plant, Nielson says, 98 percent can be extracted and sent out the back end.

"We would like to get our hands on more smartphones because they actually have a richer content of materials within them to harvest and mine," Nielson says.

Of course, the flipside to valuable metals and materials is that they are often toxic. If a smartphone has been discarded in a landfill, for instance, metals can seep into the water table.

Improper mining of metals from smartphones (think: blowtorching plastic) also can result in harmful carcinogens being released into the air. In countries lacking environmental protections, smartphone leftovers from corner-cutting recycling plants are often tossed into the nearest river.

Reuse: A Green Apple?

Nielson has seen Apple come up the green learning curve over the last few years. Apple claims it exceeded a 70 percent recycling rate last year for all electronic products. In other words, Apple recycled 70 percent of the total weight of the products it sold seven years earlier. Seven years is the average product lifetime. Most companies struggle to hit a 50 percent recycling rate.

"Apple is good at it," says Nielson.

Today, Apple offers a reuse and recycling program that will give cash for your old iPhone depending on its condition. Reuse differs from recycling as your old phone enters the secondary electronics market. "Reuse is the higher form of recycle," says Nielson, because it extends the life of the product before it gets recycled or thrown away.

Extending the life of electronics has been a driving force behind iFixit, a website that provides free repair manuals and advice forums. I spoke with iFixit CEO Kyle Wiens at Macworld Expo earlier this year, where he was a featured speaker. And he told me what drove him and a friend to start iFixit in a dorm room at Cal Poly, San Luis Obispo, seven years ago:

"By creating a central database of repair manuals, we're hoping it will lower the barrier to entry to repair, and people will extract more value," he said. "Let's say a cell phone lasts two to three years. We should be looking at a cell phone lifespan similar to the cell tower technology, which is maybe every five to 10 years."

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