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OPINION

Daniel Fletcher: Why Your iPhone Upgrade Is Good for the Poor

Smartphone cameras, for example, are being repurposed as microscopes.

By DANIEL FLETCHER

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Thank you for upgrading.

People around the world have been lining up outside Apple stores this week, eager to part with their serviceable iPhone 5 smartphones and upgrade to the shiny, new iPhone 5s.

In the recent past, millions of people have already retired perfectly good smartphones to make way for the Samsung Galaxy S4, Nokia Lumia 920 and any of the more than 400 models now available in the U.S.

While some lament the consumerism that drives us to buy more and more, as a scientist who focuses on issues of global health and poverty, I have a different response: Thanks.

New phones with larger screens and better cameras may not markedly improve our lives, but the push for more powerful devices—and manufacturers' willingness to respond to demand—is on track to improve the lives of millions of people living in extreme poverty. That's because customers set on having the latest, greatest smartphones are driving a dramatic decrease in cost and increase in functionality that will benefit people whose total annual income is often less than the cost of a single phone.

The reason for this odd coupling between affluent smartphone purchasers and the poor is simple: The enormous capabilities of smartphones are being repurposed and redirected for use in the developing world.



An employee arranges Apple Inc. iPhone 5c and 5s devices at a store in Palo Alto, Calif., on Friday.
Bloomberg

Seven years ago, when one-megapixel cameras started appearing on phones, I began working with a group of students in my lab at the University of California at Berkeley to see if those cameras could capture images of human cells similar to those captured on our \$150,000 research microscope.

By attaching a simple set of lenses to a Nokia phone borrowed from my sister, we were able to image blood cells, malaria parasites and the bacteria that cause tuberculosis.

Several years and prototypes later, we and collaborators are

testing a mobile-phone-based device in Cameroon to screen for parasitic worm infections. We're also testing a modified mobile phone in Thailand to image the back of the eye for retinal diseases, and another in India to provide early warning of oral cancer. Other researchers have created a cellphone stethoscope and a portable ultrasound system. The list goes on.

Our laboratory microscope still has more features than our smartphone microscope, of course, just as hospital medical equipment has more capabilities than the smartphone-based devices that duplicate some of their functions. But with smartphones capable of providing basic primary-care services and diagnostic work, and with expanding wireless services that allow doctors to interpret results and recommend treatments remotely, many of the services we enjoy at the doctor's office will be available in the field—anywhere in the world.

Much of the tinkering that is turning smartphones into possibly life-saving devices is taking place on university campuses, where technologically adept students are responding to challenges to find innovative ways to address global problems. But the inventions can come from anywhere. In between games of Candy Crush, some smartphone user far from a college lab could find yet another inspired way to direct the ever-increasing power in our pockets.

So thank you for upgrading. And save me a spot in line.

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