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A Response to "A Dialogue on ICTs, Human Development, Growth and Poverty Reduction"

Essay by Ethan Zuckerman, September 17, 2009 in response to A Dialogue on ICTs, Human Development, Growth, and Poverty Reduction

If we imagine Washington Irving's Rip Van Winkle falling asleep in a developing nation in 1998 and awaking today, it's likely that he'd be fascinated and surprised by mobile phones. When Rip went to sleep, only a few hundred million people had access to mobile phones, and most lived in wealthy nations. A decade later, the ITU sees 4.1 billion mobile phone accounts, two-thirds of them in the developing world. The changes brought by mobile phones are both subtle and omnipresent - mobile phone numbers painted above shop doors allow merchants to untether from their stalls; carpentry ads scrawled on road signs turn a craftsman with a phone into an independent, mobile business; secure money transfers from abroad pay the village school fees that grant a child an education.

The rise of the mobile phone has challenged many of the predictions about information in the developing world offered by information and communication technology for development (ICT4D) specialists. Instead of embracing community solutions that offered shared access to information, many poor people have been willing to pay large sums (as Steve Song and others have documented, sometimes more than 50% of their disposable income) for personal access to communication tools. Presented with a model that extends connectivity into some poor communities without government subsidy, often turning a profit, the development community is rightly looking for ways to build tools for economic and community development on top of these platforms.

While we are wise to embrace the successes of the mobile phone platform, we need to think carefully about the implications of a mobile-based communications future in the developing world. Much of the thinking about ICT4D has focused on the benefits of the internet, an open, decentralized platform that's different from mobile phone networks in critical ways. It's unclear that some of the emergent behaviors we've celebrated on the Internet can be easily replicated in a mobile-centric world.

Jonathan Zittrain argues that much of the success of the Internet comes from its "generative" capacity. A software developer can create a novel application, distribute it online, and create functionality that's never existed before. Zittrain offers Skype as an example of an application that has become increasingly popular in developing nations for very low-cost voice communications. Internet-linked personal computers are generative because a developer doesn't need to ask permission from a network owner before creating a new service, and users can decide whether or not to try the application.

Creating novel functionality on a mobile phone network is much harder. Truly revolutionary applications like mobile money transfer have generally been deployed in tight collaboration with network operators - M-PESA was not an independent startup, but an initiative of Vodaphone/Safaricom with support from IBM and DFID. It is unclear whether Safaricom would permit a rival mobile banking system to develop expanded functionality and deploy on the same network.

Mobile applications in the developing world generally focus on providing services via short message services (SMS). This is due in part to the need to provide services on a wide range of devices, and in part to the comparative ease of deploying SMS gateways without cooperation from network operators. Voice-based services (IVR - interactive voice response) would often be a better technology for the needs of low-literacy users, but it's difficult to deploy at scale without co-locating equipment with network operators. The developers of Ushahidi, a crisis mapping platform that allows citizens to report violence or election fraud via SMS, report that developing the first version of their web and SMS application in less time than it took Kenyan mobile phone operators to grant them an SMS shortcode. Unlike with the Internet's decentralized DNS system, assignment of shortcodes is generally centrally controlled, giving operators control over the promotion of platforms by refusing to issue easy-to-remember codes. (Imagine if Skype had needed permission from AT&T or France Telecom to register skype.com.)

Because mobile phone networks are centralized, they are more easily controlled by governments than the Internet. Filtering and censoring the Internet has proved a frustrating cat and mouse game for both governments and activists. Despite millions of dollars spent to filter the Chinese internet, hundreds of thousands of Chinese users access and publish banned content. By contrast, Ethiopia simply turned off SMS services in June 2005 over fears that students were using the technology to organize protests against rigged elections - and services remained turned off for more than two years.

SMS was utilized in the wake of Kenya's 2007 presidential and parliamentary elections both to organize political protest and to incite ethnic violence. Two days after the electoral commission declared the incumbent the winner of the presidential election, Kenyan mobile phone companies blocked services that could be used to send large volumes of SMS messages. This may have been an effective measure to limit incitement to violence, but it also cost the opposition one of their most valuable organizing tools. With close cooperation of mobile phone operators, the Kenyan unity government was able to compile a list of 1,700 phone users who had authored or forwarded incendiary messages, and was considering prosecution of those users.

The perception that mobile phone networks can be centrally monitored and controlled has a chilling effect on the development of some critical tools and applications. Activists in Russia have proposed a system to combat police corruption by encouraging drivers to report requests for bribes. Research suggested that drivers were unlikely to use the system either by voice or SMS because they believed the government monitored mobile phone networks closely and would persecute users of the system.

While the Internet was not designed to provide strong anonymity, human rights defenders have embraced the platform because only modest technical effort is required to disguise an individual's identity. This is much harder to accomplish with mobile phone networks, which record a phone's hardware signature and SIM. As governments begin registering SIM cards as a way of tracking criminal and terrorist activity, anonymous publishing or reporting via mobile phones grows far more difficult.

The tensions between the pervasive access offered by the mobile phone and centralization suggest the difficulty of predicting the future of communications in the developing world from developed world models. And they challenge those of us who are excited about technology and development to recognize the unique opportunities and tensions presented by any combination of technologies with social, government, and economic structures.

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