

WIRELESS TECHNOLOGY FOR SOCIAL CHANGE

by
Danny Quah¹
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1 INTRODUCTION

The world's population stands at 6.6 billion today. Already, therefore, the 3.5 billion mobile phones circulating represent more than half the world's population. Of course, many people carry more than one such wireless device but still, little doubt remains that a large fraction of the world now has access to wireless communications technology. Moreover, while almost all other modern technologies are concentrated in rich countries—economies where the average person earns more than US\$30 a day—the mobile phone sees numbers just as high and visibility much, much greater in poor countries, where average income falls below US\$10 a day. Five-sixths of the world live in such countries.

The numbers showing commercial success for the wireless industry are impressive. But we should also ask, how has wireless technology changed the world? How has it made life better on earth?

For most people reading this, it is obvious that wireless technology has totally transformed the way we live. We recount anecdote after anecdote when we've been lost in an unfamiliar part of town, and popped up Google Maps on our smart-phone to lead us back to familiar territory; when we've been stuck in traffic making us late for an important meeting, and we managed anyway to reach the people we needed to tell.

In poorer countries these simple acts of hooking up and looking up, of course, are much more than mere convenience. In Kenya, finding the best price for a crop before starting a long arduous journey to market can mean a substantial difference in daily income; being reachable while on the move can mean the difference between being employed or not that day for a contract labourer.

These examples matter, in varying degree, for quality of life. So too in varying degree do they differ from what the United Nations and others have marked for significant improvement in the human condition.

¹ Danny Quah is Head of Department and Professor of Economics, LSE. The discussion here has emerged from many discussions with Aksana Pekun, Director, Transaction Advisory Services - Telecommunications, Ernst & Young LLP.

It is right that we hold wireless technology to the highest standards for tackling the world's most pressing problems in economic and social development. The majority of mobile phones are already in the hands of people living in poor countries. Those sheer numbers, together with the technology's timeliness, speed, dispersion, and decentralization, make wireless technology an instrument ideal for enabling the world's poorest individuals to help themselves. A growing collection of examples show how individuals and groups in the poorest countries use mobile phones in ingenious, important, and even life-saving ways: price discovery in fishing villages in Kerala; violence prevention under armed conflict in Kenya; coordinating humanitarian relief in Syrian refugee camps and in tsunami-stricken Indonesia.

Because the stakes are so high, however, we need more than just anecdote and isolated case study—useful though these latter can be for shedding light on the mechanisms at work. What succeeds in a small village might fail to do so when rolled out across an entire country. We need to see how those successes available in the small can scale up in the large, to help many more of those desperately in need: the hundreds of millions afflicted by disease, disaster, famine, and armed conflict; the billion people on earth living on less than \$1 a day; the five billion people living in countries earning on average less than \$10 a day.

Asking this also gets us to makes explicit the costs and benefits of wireless technology, both in total and at the margin. How much will individuals in poor countries continue to be able to use text-messaging for selfless acts of social good once SMS bulk volume discounts are no longer provided? Having only finite resources and limited political will, is global society better advised to put yet more investment into wireless infrastructure? Or should it instead put those resources into carbon sequestration technologies, mosquito nets provision, or energy-efficient hybrid automobiles? What will most effectively help the greatest number of people?

(To be clear, these questions are obviously related but not answered by the well-known Waverman finding that an additional 10 mobile phones per 100 people raises GDP per capita growth by 0.59 percentage points.)

2 AGREED GOALS

The UN Foundation and the Vodafone Group Foundation Partnership have targeted goals that aim high and, at the same time, acknowledge the specific strengths and weaknesses in wireless technology. My own reading of those goals is four-fold:

1. Develop telecommunications systems to aid emergency humanitarian disaster relief;

2. Provide health data systems to combat epidemic and pandemic disease;
3. Track the impact of environmental change;
4. Foster innovative use of advanced technologies to advance international development.

These are no small aims. The magnitudes that the reader needs to attach to these are truly massive, with significance not always easily grasped. This month's cyclone in Burma and earthquake in China within days resulted in tens of thousands of deaths, many more people still missing, and hundreds of thousands made homeless. The 1918 Spanish influenza epidemic killed 50-100 million people worldwide in twelve months. In the 20th century, worldwide 200 million have died from measles, 80-250 million from malaria, 40-100 million from tuberculosis, and 300 million from each of smallpox and bubonic plague. The December 2004 Asian Tsunami killed 225,000–280,000 people in 11 countries with ocean waves whose total energies exceeded 5 megatons of TNT, double the destructive power unleashed in all of World War 2 (including the atom bombs over Hiroshima and Nagasaki). Ethnic atrocity in Rwanda killed 800,000 in 1994; that in Bosnia-Herzegovina over 200,000 between 1992 and 1995. The 1984 Bhopal industrial disaster killed between 4,000 and 8,000 within two weeks, with perhaps up to 100,000 people afflicted permanently with debilitating illness.

If wireless technology can be applied to alleviate the human misery in these situations, the calibration of its benefits would be incontrovertible. Nor need those benefits be viewed to arise only in extreme, poor-country cases. A Harvard Medical Practice Study estimated that in 1997 over 98,000 deaths in the US were caused by preventable medical errors, among them errors that could be removed through better information and communications management, i.e., wireless technology. Even if this figure were a two-fold over-estimate, that would still be more deaths in the US than due to auto accidents, breast cancer, and HIV/AIDS.

3 CONCLUSIONS

Case studies and anecdotes provide vivid understanding of how wireless technologies can make the world a better place. We now need to go beyond this, to provide top-down quantification of such effects, stacked against the largest challenges before humanity that wireless technology can yet address. In a world with limited resources we need quantitative evidence, if we are to choose wisely from the set of technologies all of which might potentially improve the state of the world. What is at stake is enormous.