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COMMENTARY

Reflections on a Decade of Mobiles in Development[1]

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I'm all for discussion and debate, and I've taken part in my fair share over the last decade. But I'm now beginning to wonder if, after all this time, everything the ICT for Development (ICT4D) community could have said has been said. The fact that it is still talking about the same handful of challenges and issues implies that very little, if anything, has changed. Have we really made so little progress?

It was late 2002 that I got my first taste of the fledgling world of mobiles for development (m4d), focusing initially on Africa. Back then people's general reaction to my work was one of surprise. 'Do they have mobile phones in Africa? Can Africans afford mobile phones? Do they have coverage?' While back then it was unclear whether mobile technology did have true development potential, today it is a surprise to meet anyone who thinks they don't (Banks and Burge 2004). It's been quite a turnaround.

Of course, a lot has happened over those 11 years. Driven by the private sector – not the aid industry – mobile coverage and services have grown exponentially, call costs have come down (although still not enough for some people) and handsets are a fraction of their original price. The real game changer, however, was the introduction of pre-pay. The pay-as-you-go model opened up access to the vast numbers of people previously excluded because they lacked a fixed address, a bank account or a credit history – or all three. Across Africa this model still accounts for the vast majority of connections. According to the GSMA's Mobile for Development Intelligence (MDI) portal, it remains over 90 per cent, an almost mirror image of much of the so-called developed world (where contract-based service plans predominate) (GSMA Intelligence).

Making sure we make the most of the incredible opportunity mobile presents has taken up much of the last 11 years of my professional life. My experience of the African continent began ten years earlier in 1993 when I visited Zambia to help build a school. Since then I've returned to live and work on the continent on many occasions, always spending time with grassroots non-profit organisations, the majority of which were locally run. With a deep understanding of the problems and challenges they faced, it was no surprise that the initial focus of my work in mobile was to be there. As mobile phones began to show their development potential they were the ones, I feared, who would be left behind. There were signs that, by focusing on the top tier of non-profits in the developing world – those with funding, access and resources – we were leaving those further down behind, and few people seemed to be paying any attention.

My response was to build a tool which would specifically meet the needs of that grassroots community. The idea for FrontlineSMS[2] came about in early 2005 one rainy Saturday evening in Cambridge, UK. Over

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the previous two years I had been working extensively in South Africa and Mozambique with a South African NGO on a contract with the oldest international conservation organisation in the world – Fauna & Flora International. We were looking at ways national parks could use information and communications technologies (ICTs) to better communicate with local communities – something that has traditionally been problematic. Since SMS usage was just beginning its astronomical climb, it seemed like an obvious communications tool to consider.[3]

While many solutions at the time were being developed around something many grassroots communities didn't have – the Internet – FrontlineSMS focused on leveraging what they did. By connecting a mobile phone or a GSM modem to a laptop computer, messages could be sent and received directly via the mobile network without the need for the Internet, without the need for expensive equipment and without the need for complex technical training. Today, as increasing numbers of both grassroots and international nonprofits find themselves working in places with Internet access, FrontlineSMS has evolved to offer a highly-scalable, web-based solution called FrontlineCloud.

But it's not only the spread of Internet access and mobile coverage – or the lower costs of handsets and calls – that has changed in recent years. We're also beginning to experience a shift in how m4d solutions themselves are identified and developed. It's a disruptive shift that threatens the status quo – which is why I like to call it ICT4D's 'inconvenient truth' (Banks 2012a).

Unlike a decade ago, across the African continent today a tech-savvy programmer with access to a computer, cheap mobile phone, software development kit and the kind of entrepreneurial flare which many Africans have in abundance, possesses all the tools they need to solve a business, technical or social problem without the need for the intervention of the ICT4D community.

Innovation around the mobile phone has been particularly interesting in Africa for some time, often because it is born out of necessity. What's more, many African countries present an interesting environment where innovation in services is as common as innovation in hardware and software. If there's one thing I've noticed over the past

Bushbuckridge, on the edges of Kruger National Park (2003): The early inspiration for FrontlineSMS. Photo: Ken Banks.[4]

20 years working on-and-off across the continent, it's that Africans are not the passive recipients of technology many people seem to think they are.

In fact, some of the more exciting and innovative mobile services around today have emerged as a result of ingenious indigenous use of the technology. Services such as 'Call Me' – where customers on many African networks can send a fixed number of free messages per day when they're out of credit requesting someone to call them – came about as a result of people 'flashing' or 'beeping' their friends (in other words, calling their phones and hanging up to indicate that they wanted to talk). Today's more formal and official Call-Me-style services have come about as a direct result of this entrepreneurial behaviour.

The concept of mobile payments did, too. In increasing numbers of African countries it is possible to pay for goods and services through your mobile phone, something which remains a distant hope for most people in so-called developed countries. Users in rural Uganda were figuring out innovative ways of using their phones to make payments long before Vodafone and Safaricom formalised the service under the guise of M-Pesa (Banks 2012b).

Local innovators are also at work in the middle ground between the grassroots and the more formalised private sector. Here, talented individuals are building all manner of solutions to all manner of problems. You only have to look through sites like Afrigadget,[5] which proudly showcases African ingenuity, to see the kinds of things that are possible even in resource-strapped environments.

Things like Pascal Katana's 'Fish Detector' which, with the aid of a mobile phone, is able to acoustically detect shawls of fish and alert nearby fishermen by SMS.[6] Or Morris Mbetsa's 'Block & Track' mobile phone-based anti-theft and vehicle tracking system.[7]

Both innovations are equally ingenious, but the innovators backgrounds couldn't be more contrasting. While Pascal developed his idea while he was a fourth year student at the Department of Electrical and Information Engineering at the University of Nairobi, Morris had no formal electronics training at all. All they have in common is that they're both from Kenya, smart, interested in tackling real problems and highly entrepreneurial.

Spotting and nurturing this kind of talent is critical to the growth of the ICT sector in East Africa, and universities are increasingly at the centre of this new push. A number of initiatives today continue the earlier pioneering work of Nathan Eagle, a professor at the Massachusetts Institute of Technology who, through his Entrepreneurial Programming and Research on Mobiles (EPROM) initiative introduced the idea of mobile phone programming courses to many of East Africa's Computer Science Departments years ago.

We have three reasons to be optimistic about the future in this part of the continent. Firstly, momentum is building on the education front, with increasing opportunities for students to learn how to program and innovate around mobile, the most widely adopted technology in use in many of their countries today. Secondly, more mobile devices are now being shipped to Africa with data capabilities than without. Very soon, for the first time, the majority of consumers will possess a device with the potential to connect to the Internet, spurring a whole new raft of opportunities for budding innovators and entrepreneurs. Finally, wireless technologies – likely a mixture of GSM and Wimax, and maybe others – will likely be the solution to sharing East Africa's newfound bandwidth among the majority of its citizens. Google is even experimenting with balloons.[8] Increased coverage, particularly in the so-called last mile, represents further opportunities, particularly for the development sector who at present struggle to reach many of the people there.

This rise of home-grown developer communities is happening at a time of increased interest in the potential for mobile-based tools to solve social and environmental problems around the world. In fact there's something of an industry building up around it.

Although things are slowly changing, many ICT4D tools continue to be developed as far away from the problem as you can get and then 'transplanted' into an unsuspecting community in the guise of a 'pilot'. When these projects fail, as many do, rarely is the technology or the approach blamed, however inappropriate they may have been. But this is exactly what often happens – inappropriate technologies implemented in inappropriate ways. There are lessons we can learn from projects that have gone before and lessons we can learn from projects which have gone on to reach global levels of deployment.

To reach its full potential, the ICT4D community needs to address these three key problem areas in the short- to medium term:

1. *Executing best practice.* Technology races ahead at a breathtaking pace, but behaviour change chugs along in a much lower gear. As I remind people when I speak at conferences, technology is the easy bit – people (and their habits and expectations) are far more difficult to manage. Thanks to rampant innovation in the commercial sector, the ICT4D community has even more toys to play with than it did a year or two ago. However, so much of what it debates – and practices – remains the same year after year. 'Understand the problem before tackling the technology, put the user first, build tools and not solutions, learn from your failures, don't reinvent the wheel, use appropriate technologies' and so on. How many more conferences do we need before we finally settle on a set of best practices? We should know by now what is and what isn't a good way to run an ICT4D project. Let's instead match best practice against projects, and let's ensure they become an intrinsic part of the development process rather than simple sound bites and tweets.
2. *Keeping the tech real.* New technologies lead to hype, which in turn leads to new conversations and new big ideas – as if earlier problems had been solved. It's unfortunate that attention spans seem to decrease as rates of innovation increase, and it's easy to be distracted from the technological reality for much of the planet in the age of the ultra-smartphone and iPad. Trumpeting the need for 'appropriate technologies' at a development conference is only helpful if people don't then run off and build iPad 2 apps for African farmers. The reality is that we're still figuring out how to best use text messaging in a development capacity, and that particular technology has been around for years. In short, the ICT4D community needs to keep its technology choices firmly routed in what's appropriate for their users, not what's newly available in their local store.
3. *Mainstreaming ICT4D.* Finally, ICT4D and m4d need to go mainstream within the varying sectors of development. Today, we have a crazy situation where each seems to be divided into two camps – the people who are deploying (or most likely figuring out how to deploy) mobile technologies, and those who aren't. The former put an 'm' in front of their discipline, giving us m-heath, m-agriculture, m-learning, and so on. The rest remain plain old health, agriculture and learning. Even worse, the people within them often go to different conferences.

Earlier this year I 'celebrated' ten years working in mobiles-for-development. We've all come a long way in that time – out of nowhere, in fact – but in impact terms we're still only scratching the surface. No-one knows what the next couple of years have in store, let alone the next five or ten. Much depends on us.

Quite rightly, we will ultimately be judged on what we do, not what we say, tweet, write

or predict. I, for one, spent the best part of my university years critiquing the efforts of the development practitioners who went before me. Countless others have done the same. Looking to the future, how favourably will the students and academics of tomorrow reflect on our efforts? A wasted, or unnecessarily delayed opportunity?

That's up to us to decide.

Notes

[1] For a deeper analysis of my work and the future of mobile technology in development, check out my chapter in the recently-published Global Mobile: Applications and Innovations for the Worldwide Mobile Ecosystem, edited by Peter A. Bruck and Madanmohan Rao published by Information Technology, Inc. More information available here: http://www.amazon.com/Global-Mobile-Applications-Innovations-Worldwide/dp/1573874620

[2] More information on FrontlineSMS and FrontlineCloud is available at: www.frontlinesms.com.

[3] SMS refers to the short message service, which is more commonly referred to as text messaging.

[4] Author's webpage: http://www.kiwanja.net/kenbanks.htm

[5] More information at: http://www.afrigadget.com

[6] For more information, see http://www.afrigadget.com/2009/07/21/fish-call-the-fisherman/.

[7] This service has been covered online at: http://www.afrigadget.com/2008/07/16/18-year-old-self-taught-electonics-genius-invents-mobile-phone-based-vehicle-anti-theft-system/.

[8] Project Loon is a Google initiative aimed at providing balloon powered Internet for everyone. For more information visit: http://www.google.com/loon/.

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