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Turning the Rift Valley into Silicon Valley: Mobile Phones and African Entrepreneurship

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Graduating from Stanford University at the edge of Silicon Valley during the height of the dot-com bubble in 1999 leaves an indelible mark. As an increasing number of my classmates became overnight millionaires, virtually the entire student body was in a start-up frenzy—at local bars it was more common to hear heated conversations about NDAs and stock options than weekend parties or sports scores. While this era may be a thing of the past, the feeling of entrepreneurial empowerment among graduating students has recently reemerged, only this time in a corner of the world about as far from Silicon Valley as you can get.

While in Kampala, Uganda, earlier this year I spent some time with a fund manager and CEO of a local Ugandan mobile phone operator. He described the massive amount of liquidity in the money markets of the Middle East and how, over the past 12 months, investors have decided it is time to start taking Africa seriously. The fund manager (one of many) was charged with investing more than $1 billion

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into infrastructure in Uganda alone, with similar figures available for other neighboring countries. It was hard not to get déja vu—the last time I had heard of investors with this amount of capital was as a college senior back in Silicon Valley.

Until recently, Africa has been essentially invisible to major venture-capital markets. Conventional wisdom has maintained the image of a needy Africa, a continent dependent on philanthropic handouts typically mediated by massive NGOs—certainly not a continent that could possibly spawn the next Google or Microsoft. However, this recent influx in investment represents an entirely different view of Africa: one that reflects not the massive problems endemic to the continent, but the massive opportunities.

The investors are being proven correct. Thanks to the investment in telecommunications infrastructure, Africa has become the fastest-growing mobile phone market in the world. This was a major reason that prompted me to leave MIT in early 2006 for positions at Ethiopian and Kenyan universities. I have spent the past year working in a small Kenyan coastal town and have had the opportunity to witness how mobile phones have been changing the lives of people here in ways impossible to imagine when sitting in an office in Boston. Kenyans are repurposing phones to take the place of other infrastructure they lack, ranging from MP3 players to credit cards. African mobile phone services have dramatically affected my life as well. In the small Kenyan town where I live, I can pay for my taxi rides and even groceries through my mobile (impossible in Boston or in most other places in the West). I have Wi-Fi throughout my house thanks to the new GRPS/EDGE data services ubiquitous throughout the country and priced at 7MB per one US dollar—more than 10 times cheaper than my mobile data service in the States.

Within the past year, the number of mobile phone subscribers in Africa has risen to more than 100 million. But who put thought into the services and applications these 100 million Africans would want on their phones? Applications currently available on these millions of handsets were typically developed by a software engineer suffering through a long winter in Finland—certainly someone with more incentive to get a phone to successfully Bluetooth sync to his Microsoft Outlook calendar, rather than building novel services that provide information about local vegetable markets, commodity bartering, or crop forecasts. To understand what a Kenyan needs on his or her mobile phone, you need to come out here—and better yet—you need to *be* Kenyan.

With the help of corporate sponsors like Nokia, we are introducing mobile phone programming to African computer science students. Who better to develop mobile phone applications for Kenya than Kenyans themselves? The response to the mobile phone programming curriculum introduced during the 2006–2007 academic year was overwhelming. Hundreds of Kenyan and Ethiopian computer science students have now been taught Python, Java, and SMS-based mobile application development. While hopefully more sound than the dot-com bubble, the recent investments into infrastructure and ICT within Africa have created a similar entrepreneurial drive within many of my students. These classes have lead to dozens of entrepreneurial projects concerning the development of mobile phone applications specifically for the African market. Several of these projects have gathered international media attention, while others are being formed into start-up ventures based in Nairobi, Addis Ababa, and beyond.

However, the most surprising aspect of this work has been the caliber of the top computer science students within the local universities. Their skills certainly place them on par with their MIT counterparts. However, as I advise others interested in starting similar projects, these top students are rarely the ones with the best grades. In Kenya, the truly exceptional computer science students typically work several jobs while just barely passing their classes. The hope is to keep these students motivated to stay in school long enough to graduate before they go off to relatively lucrative computer science jobs. (Ironically, it is the students unable to get those jobs who apply for graduate school.)

In the past, these top students may have left Africa to work for large Western companies. As the flow of investments into Africa continues, students are becoming increasingly eager to play a leading role uncovering the ICT opportunities within their own countries. In cafeterias and student bars, I now overhear conversations about the intricacies of business plans and locations of affordable Nairobi office spaces. Helping to equip these students with the skills they need to take advantage of their own burgeoning Silicon Valley has been one of the most satisfying experiences of my career. For those interested in teaching students who have amazing amounts of resourcefulness and entrepreneurial spirit, I can't recommend this experience enough. ✦

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