Mobile Internet, the new Star of Africa?

The mobile revolution in Sub-Saharan Africa is flourishing like never before. By the end of 2014, there were 347 million unique mobile subscribers in the region - a number that doubled in only five years and is estimated to pass the half billion mark in 2020. While almost all of the mobile phones in use have basic multimedia and texting, only 48% of their users subscribe to mobile Internet. But as mobile networks continue to expand and the cost of smartphones continues to fall, the number of mobile Internet subscriptions is expected to triple by the end of the decade.

So what happens when millions of Africans go online for the first time in the coming years? Is the African mobile revolution on the verge of turning into an African mobile *Internet* revolution?

Evidence of what is to come can already be seen in the financial services sector, where mobile money (mMoney) is boosting financial inclusion at all levels of society across the region. The core service allows users to make money transactions without the need for a bank account. Users can pay in cash to their mobile accounts and have the actual money paid out at provider agents such as kiosks, post offices and petrol stations across the country, even in harder-to-reach rural areas. Although mobile money is still in its infancy, examples in Kenya and Ghana show the potential of the Internet to provide access to a full range of financial services, including insurance, credit and savings for individuals and businesses.

The innovation's most prominent showcase is M-Pesa, a mobile money services provider with 12.3 million active customers and over 6 million daily transactions that has transformed Kenya's economic and social landscape. M-Pesa has allowed Kenyans to safely transfer money to each other regardless of whether their remote village boasts a bank branch or a road to the nearest city large enough to host one. To further deepen financial inclusion, innovators are expanding these systems from being merely a mobile "wallet" – that is a system for transferring funds – to acting as a mobile bank, offering a wider range of financial services.

A company in the same group, M-Shwari, allows customers to receive micro loans of as much as $12,500 and make deposits of as little as $0.01 through the phone. This means that all members of society and especially those in the informal sector have access to financial services. Since its launch in November 2012, M-Shwari has seen $1.5 bn. worth of deposits on 9.2 mio. savings accounts while issuing 20.6 mio. loans worth $277.2 mio. to 2.8 mio. unique borrowers. Perhaps, surprisingly, but in line with experience of microfinance from elsewhere non-performing loans are only at 2.2%[1].

1 [1]Cook, T. and McKay, C. (2015). How M-Shwari Works: The Story So Far. *Technical Report.* FSD Kenya, CGAP.

The application of mobile Internet solutions is also showing its potential in agriculture, a sector in which economic growth is at least twice as effective in reducing poverty as growth in other sectors[2]. Today, Internet-enabled businesses within agriculture have grown to the stage where they can achieve scale and impact. Farmers can connect with expertise and information on everything from weather, crop selection, and pest control to management and finance. The use of smartphones can also improve their access to markets and increase their pricing power. M-Farm, from Kenya, weeds out middlemen by making market information required by small-scale farmers to better negotiate prices fully transparent. Kenyan farmers send an SMS to get information pertaining to the retail price of their products, buy their farm inputs directly from manufacturers at favourable prices, and find buyers for their produce.

Governments across SSA have also understood the potential of mobile Internet to achieve economic growth and social change. In Nigeria, for example, the government has used mobile technology to reinvent its system for delivering fertilizer subsidies. Plagued by a highly corrupt system that prevented the distribution of subsidized fertilizers to genuine farmers, the government now uses an Electronic Wallet System to reach the farmers directly. The farmers receive electronic vouchers via SMS on their mobile phones, which can then be redeemed to buy the fertilizers directly from agro-dealers with a 50% discount. With over 14 million registered farmers since its formation, the "Growth Enhancement Support Scheme" has already achieved major savings, eliminated opportunities for corruption, expanded the number of farmers served, and far exceeded its production targets[3].

Unlike in industrialized countries, the mobile phone is the default device in Sub-Saharan Africa for anything ranging from information gathering to mobile banking and social networking. In fact, in some parts of the region, there are more people with mobile phones than have access to electricity. This unparalleled reliance on mobile and especially Internet-capable devices can be explained by the lack of infrastructure and basic logistics across the region: Whereas we use a combination of high-speed Internet and the local bank branch to make financial transactions, these things simply do not exist in Sub-Saharan Africa. Especially in rural areas, building infrastructure that provides adequate facilities with the opportunity to use personal computers and landlines does not seem feasible and is too costly. But as necessity is the mother of invention, this has opened new business opportunities, which, thanks to the spread of mobile phones, have successfully been exploited.

With the diffusion of smartphones across the region, the potential benefits of mobile Internet might expand to even more sectors such as health care and education. In health care, remote diagnostics is an emerging field that allows (often scarce) health care workers to perform tests on patient samples in the field and to get results interpreted by medical experts remotely.

2 African Development Bank (2010). Agriculture Sector Strategy 2010-2014. *Technical Report.* African Development Bank Group.

3 Modube, G. (2014). Effectiveness of e-wallet practices in grassroots agricultural services delivery in Nigeria - A case study of Kwara state growth enhancement support scheme. *Journal of Experimental Biology and Agricultural Sciences.* 2(4):410-418.

Chemical biologists from the University of California, Berkeley are currently testing a device in India, which can perform biomedical tests on a variety of commercially available and ultra-low-cost test strips and electrodes. The device can be used to test for toxic metals in drinking water, to measure a patient's blood-glucose and electrolyte levels, and even to quantify and diagnose malaria. It could also be used to screen for other diseases, such as Ebola, HIV, hepatitis or Dengue fever. Results are transmitted over an audio cable connected to the headphone jack of any mobile phone and uploaded over the voice channel of any available mobile network. An automated cloud database or a medical expert can then return relevant information about test results to the device by text message. In addition, the private hospital or government agency controlling the cloud database can monitor the results to track the spread of infectious diseases.

An additional potential use is in education where mobile devices might allow schools and universities to connect more effectively with distance learners. By communicating and sending course materials via mobile phones, students receive more frequent support from their teachers and can pursue their education wherever and whenever they want. Mobile phones may also help to reduce the cost of education for distance students as the costs incurred from daily transportation to and from school on top of books, tuition and other fees can be prohibitive. Moreover, curricula and content designed for the mobile phone are able to leapfrog the necessity to own or access a computer and provide additional flexibility and cost reductions for the distance learner.

Mobile learning (m-Learning) solutions have the potential to combine scalability, very broad geographical availability, very low unit costs and the flexibility required to adapt to life in the world's poorest countries. Today, the current lack of access to broadband connectivity and smartphones is a significant obstacle preventing potential benefits that would result from m-Learning. Though small-scale m-Learning programs have used SMS and basic Internet platforms successfully, materials, resources and curricula will remain limited without the ability to use other formats available for smartphones such as PDFs, Word or Excel documents, and interactive applications for taking exams, browsing course content and completing assignments. This reinforces the potential of mobile Internet for the success of m-Learning applications.

The Internet is a tremendous, undisputed force for economic and social change. The examples given above prove that there is already an upturn of activity paving the way towards a future in which Sub-Saharan Africa can reap the Internet's benefits. To sustain this momentum, however, governments and the private sector will need to ensure that the foundations are in place to support demand and continue this wave of innovation. Increasing mobile broadband coverage and access, developing a workforce with appropriate skills, and improving digital literacy in the broader population will be critical for the future growth of the Internet in the region.

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