

# A Note on the Availability (and Importance) of Pre-Paid Mobile Data in Africa

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**Abstract:** We argue that access to prepay data will be as essential to the widespread adoption and use of the mobile internet in developing countries as access to prepay airtime is/was to the adoption of the mobile telephone. In late 2009, we conducted a desk assessment of the availability of pre-pay (pay-as-you-go) data from the major operators in 53 African countries. In 36 cases we were able to identify at least one operator in each country which offered pre-pay data, and in 3 cases we could determine that no prepay data was available. Information available from operators was vague, incomplete, and hard to obtain, suggesting a threshold in general awareness and enthusiasm on the part of operators may not yet have been crossed. We describe an ongoing follow-up “crowdsourcing” activity underway to fill in information from the remaining 14 countries, and suggest topics for further research, both on the demand and supply sides of the prepaid data equation.

## Introduction

The mobile internet is going global (Morgan Stanley Research, 2009). In the first decade of the 21<sup>st</sup> century, most of the growth in mobile Internet use was concentrated in Japan, South Korea, North America, and Europe. But another chapter in mobile internet adoption is beginning to unfold in the developing world (Boyera, 2007; Chigona, Beukes, Vally, & Tanner, 2009), particularly in China, where market researchers estimate that a hundred million people or more go online via their handsets (Elkin, 2010), and in South Africa, where mobile internet users are more prevalent than traditional PC-based internet users (Goldstuck, 2010).

Of course, voice and SMS remain king in Africa, with mobile data (other than SMS) accounting for a low proportion of operator revenue. Given that many older and entry-level handsets are not data-enabled, most ICT4D research and practice also remains focused on voice and SMS; studies exploring mobile Internet use among resource-constrained communities are rare.

Nevertheless it is important to explore the possible paths to widespread adoption of mobile Internet in developing countries. This is a larger question than can be covered comprehensively in a small note, but we argue that one key to inclusive mobile data usage will be prepaid pricing schemes. In this model, as currently exists for voice and SMS, a consumer purchases ‘airtime’ of a certain quantity that enables them to make a preordained amount of phone calls or SMS messages. For the poor, being able to manage expenditures in an inexpensive, discrete manner has been central to the widespread accessibility and adoption of mobile telephony (Dhawan, Dorian, Gupta, & Sunkara, 2001; Hodge, 2005; Prahalad, 2005). Given advances in both the bandwidth of mobile networks and the functionality of

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many affordable phones, our motivation was to assess whether prepay data was similarly available.

Our research approach was inspired by (Neto, Best, & Gillett, 2005) who in 2004 conducted a survey of African regulators. They found considerable variation in the regulations (and indeed legality) of the 2.4 and 5 GHz radio bands, used to carry WiFi, and postulated that the variance was limiting its diffusion. We thought we could do something similar (in 2009) with another crucial technology at a similar level of nascent and (possibly) disparate development around the continent.

## Methods

From late October 2009 to January 2010, we utilized a combination of Internet research and direct contact with mobile providers to determine the availability of prepaid mobile data connectivity. Although we did not speak all of the languages, a combination of human and automated translation overcame any significant language barriers.

Using information from the GSM Association, we compiled a database of mobile network operators in every African country. Beginning with their corporate sites, if available, and progressing as needed to personal contact via email and phone calls to customer service, we sought to determine if a) the operator's network had data capabilities, b) if phone-based data was available to individual customers, and c) if it was offered in a prepay model. Additionally, when possible, we noted the pricing schemes.

In June 2010 we began a second wave of data-gathering to cover the countries left unassigned by the original design. We used a "crowdsourcing" technique, driving friends and colleagues, via our professional networks, to an online editable map ([http://bit.ly/prepaid\\_data](http://bit.ly/prepaid_data)) where informants could fill in details on each country. We will update this working paper with results of the crowdsourcing exercise as they become available.

## Results

For reasons detailed below, determining with certainty the *presence* of prepay data was more feasible than the *absence*. Of the 53 countries assessed, we could ascertain from deskwork that prepay mobile data service is available from at least one operator in 36 of them. In 14, it is unclear due to a lack of information from the providers. In only three countries – the Seychelles, Comoros, and Sao Tome and Principe – is it likely that there is no prepaid mobile data service. It should be noted that the latter two have monopoly mobile network operators..

The ambiguity in results arose for a number of reasons:

**UNCLEAR WEBSITES** Our experience suggests that some mobile phone operators (logically, perhaps) do not prioritize their websites as sources of information for customers. Consider the lack of mobile information on the website of Djibouti Telecom (Evatis) or the lack of a functioning website for Moov in Burkina Faso. Indeed, Burkina Faso presents a good illustration of the shortcomings: of the four identified providers, Zain did not respond to email inquiries, Onatel and Telecel Faso have no relevant information on their websites, and Moov, as mentioned, does not have a working site.

**POOR SUPPORT** Numerous customer support telephone numbers and email addresses were erroneous or went unanswered. In Zambia, the local affiliate of the multinational operator MTN lists email addresses that bounce when contacted.

**NO COMMON TERMINOLOGY** While working through the available resources from operators, and in speaking with various representatives, it became clear that IP-based mobile communications lack a coherent language for the community to use. Perhaps because the practice of accessing the Internet through a mobile phone is still new to many, or perhaps

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because it is complicated by carrier-specific offerings with novel brand names, speaking about mobile data services requires an overtly technical slew of acronyms. For the customer lacking the sophistication to parse GPRS, IP and 3G, it is often unclear what the operators offer. Moreover, despite their very different interests and needs, operators market the “mobile Internet” to both nomadic workers seeking USB modems (dongles) for their netbooks, and to more casual users seeking simply to access Facebook on their phone.

## Discussion

The first-order finding, that a significant portion of the African population has access to prepaid mobile Internet services, is certainly heartening, especially because fixed line broadband access remains minimal. As a necessary, but insufficient, factor in unleashing the next wave of mobiles for development (M4D), the provision of prepaid mobile data is important. That such a significant number of mobile data providers are explicitly making available prepaid mobile Internet demonstrates at least a trend towards widespread recognition of this pro-poor business model.

But amidst this success are reasons for concern. For one, data coverage, even in countries promoting its use, is not comprehensive. As the next generation of mobile standards are rolled-out in Africa, bringing faster speed to urban users, it could exacerbate the rural-urban digital divide. Moreover, simple access is not sufficient. A significant portion of the operators’ publicly available information is either insufficient or unclear enough to make ascertaining the availability of mobile Internet nearly impossible. Even when our research was able to definitively uncover the presence of prepaid mobile data, it was rarely prominently presented, let alone the focus of the offerings. Disarray confounds easy adoption of a technology through a confusing user experience.

Previous research has demonstrated that word-of-mouth and peer-to-peer learning are channels for the diffusion of innovations – people regularly turn to friends and colleagues to configure their phones for data (Gitau, Marsden, & Donner, 2010). However, widespread use of the mobile Internet will likely occur more rapidly if mobile network operators provide market leadership through the promotion of the technology. In this sense, Kenya is perhaps a leading exception. Safaricom is offering 10 MB of data for around USD 0.10, and has at least some English language advertisements to share this offer (Hersman, 2010).

Like other technologies before it, the mobile Internet is in the midst of a process of adoption, exploration, appropriation, and deployment (Rogers, 2003). The hurdles to its diffusion are multiple, but while diffusion research typically focuses on the demand side, interplay with suppliers of technology plays a role in determining the ultimate level of adoption. Though *technically feasible*, the *practical obscurity* of the mobile Internet is a supply-side barrier to its diffusion in Africa. (And we have not even assessed the actual availability of such services, in up-time and on proportion of masts, across the countries of the continent.)

These barriers, either fundamental, such as a lack of rural network coverage, or more subtle, like the ones identified here, are part of the wider context that will influence consumer patterns of use. For example, the use of ICTs in Kenya differs from the West due to differences in bandwidth, costs, social norms, and security risks (Wyche, Smyth, Chetty, Aoki, & Grinter, 2010). Similar research into the variation in the everyday use of technology should be undertaken for the mobile Internet, given the variations in supply and ease of access throughout Africa.

Given the nature of this desk assessment, it is difficult to authoritatively determine the absence of prepaid mobile Internet in any given country – the closest we can come is in the Comoros where the monopoly provider’s webpage for all prepaid mobile has been “Under Construction” for much of 2009-2010. But even when operators provide *some* information,

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tiers of access to the mobile Internet and differences in the commitment of network operators to this form of connectivity, will continue to slow its adoption.

In some markets, such as South Africa, the presence of a “killer app,” such as Mxit (Chigona, et al., 2009), has done much to awaken users to the data capabilities of their phones, but in most of Africa, this potential is unrealized. In order to accelerate the take-off of the mobile Internet in Africa, operators and application developers can dedicate more attention to the promotion of coherent and compelling strategies that will bring the bottom billion into the next level of connectivity.

Realizing the full potential of the mobile Internet to improve the everyday lives of Africans will take a variety of improvements in the surrounding ecosystem that includes regulation, education, technology and market forces. The industry must convert its public information from overwhelmingly voice and text to a more cohesive and delineated offering that includes data. Though a small one, industry promotion of the technology that is both coherent and clear is currently a factor that is significantly behind.

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