

## Digital for Development in Sub-Saharan Africa

### Opportunities and Challenges

Jenny C. Aker and Joel Cariolle

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Digital infrastructure—including the internet, mobile phones, and other tools that can be used to collect, store, analyze, and share information digitally—has increased substantially over the past 20 years (World Bank 2016). Between 1999 and 2014, people with access to mobile phone coverage grew from 10 percent to 90 percent (ITU 2014; GSMA 2013). Mobile phone coverage has expanded rapidly in Africa, Asia, and Latin America, from largely non-existent networks at the turn of the century to a point where over 70 percent of the population of sub-Saharan Africa is covered by the mobile network (GSMA 2013; Aker and Blumenstock 2014).<sup>1</sup>

This expansion in mobile network coverage has corresponded with increases in mobile phone adoption and usage (Aker and Mbiti 2010). According to the World Bank’s 2016 *World Development Report*, more households in certain regions own a mobile phone than have access to electricity or clean water, and approximately 70 percent of the poorest populations in developing countries owns a mobile phone (World Bank 2016).<sup>2</sup> In sub-Saharan Africa alone, one-third of the population has an active mobile phone subscription, with similar rates across all regions.

In addition to mobile phone subscriptions, over half of the world’s mobile-broadband subscriptions are based in developing countries, with coverage rates in Africa reaching close to 20 percent (ITU 2014). The number of internet users has increased significantly, from 1 billion users in 2005 to an estimated 3.2 billion users at the end of 2015 (World Bank 2016). Yet while internet access and smart phone penetration has grown substantially in Africa, disparity remains wide across and within countries. In fact, smart phone usage is still primarily concentrated in urban, wealthier, and more highly educated populations. According to the World Bank (2016), less than 20% of the sub-Saharan African population had used internet three month prior to the survey, and SSA is yet far from meeting the Sustainable Development Goals through digital (SDGs)(GSMA, 2019).

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<sup>1</sup> As the growth of mobile telephony has been driven largely by the private sector, this growth has not been uniformly accessible to all segments of society, and was initially skewed toward a wealthier, educated, urban and predominantly male population (Aker and Mbiti 2010; Aker and Blumenstock 2014).

<sup>2</sup> Growth of the worldwide subscriber base is fastest in developing countries, with four out of five new connections being made in the developing world, and 880 million unique developing-market subscribers estimated to register new accounts by 2020 (GSMA, 2013). As of 2009, over two-thirds of the population of Asia and three-quarters of the population of Latin America had access to mobile phone coverage (Aker and Blumenstock, 2014). Roughly 55 percent of the world’s 2.3 billion mobile-broadband subscriptions are also based in developing countries, with coverage rates in Africa reaching close to 20 percent in 2014, as compared with 2 percent in 2010 (ITU 2014; Aker and Blumenstock 2014).

Nevertheless, the widespread diffusion of mobile phone and broadband coverage has spurred the deployment of a number of private and public-sector digital services, and therefore raised the prospects of growth, employment and poverty reduction in sub-Saharan Africa (World Bank, 2016; Hjort & Poulsen, 2019). Over the past decade, numerous digital initiatives have been developed and disseminated by both the public and private sectors. Yet research on the impact of these initiatives on poverty is still limited, often focusing on particular countries and sectors. Existing research suggests that the digital provision of such services can be more efficient, yet the impacts of these initiatives on poor households and small and medium enterprises (SMEs) is mixed.

The purpose of this research initiative is to develop policy-relevant research on the potential use of digital technology in improving key development outcomes, with a specific focus in Francophone West Africa. The research addresses three separate but interrelated themes

- How are digital technologies being used to provide public services in West Africa and the rest of the continent, and what is their impact upon poor households?
- What is the dissemination and usage of digital financial services in West Africa, and what does this mean for households and firms, especially for remittances and credit?
- How does the adoption and usage of e-mail, the internet and mobile money affect the performance of African SMEs? Are there industrial and spatial spillovers resulting from a larger diffusion of these technologies?

### Digital for public service provision<sup>3</sup>

**The number of digital initiatives facilitating public service provision in West Africa has increased substantially over the past decade, with positive impacts in the areas of education, health and remittances. However, these are focused in targeted countries, and these impacts do not necessarily translate into “downstream” effects on well-being.**

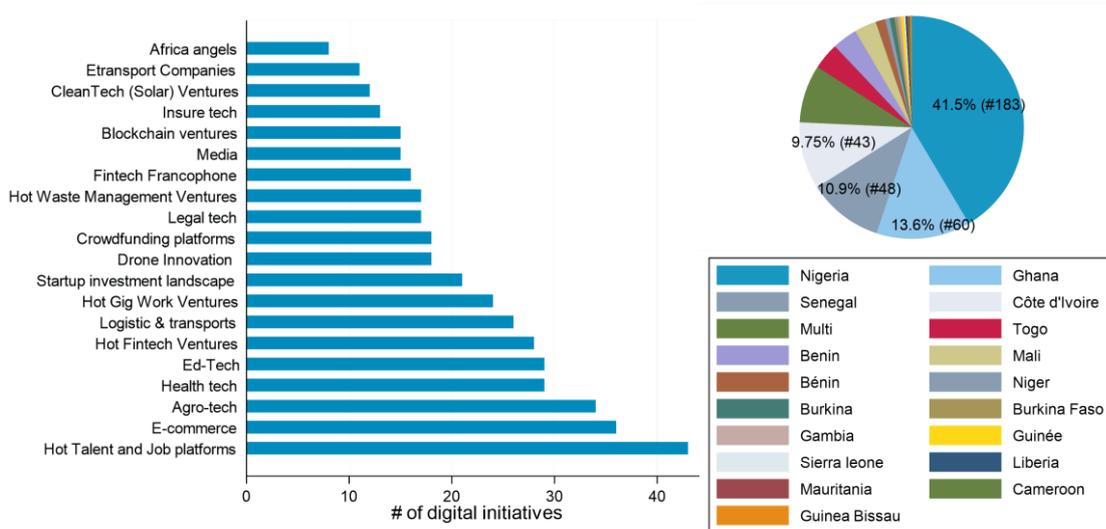
The uptake of mobile phone technology has facilitated the multiplication of digital innovations throughout sub-Saharan Africa (SSA). In West Africa, this uptake of ICTs has enabled the implementation of more than 400 operational digital initiatives in 2019 (Briter Bridges, 2019) across a wide range of sectors and countries (Figure 1).

Fintech, Ed-Tech, Health-tech, Agro-Tech, E-commerce and Job platforms represent the sectors most affected by the expansion of digital initiatives. However, only four countries – Nigeria, Ghana, Senegal and Côte d’Ivoire, in decreasing order – contain more than 75% of these initiatives. Therefore, the digital innovation process is unequally distributed throughout the region, mostly benefitting the four biggest economies.

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<sup>3</sup> Defined as the provision of services to promote economic, social and environmental sustainability.

**Figure 1. Digital innovation multiplication in West Africa.**



Source: Briter Bridges, innovation maps, 2019.

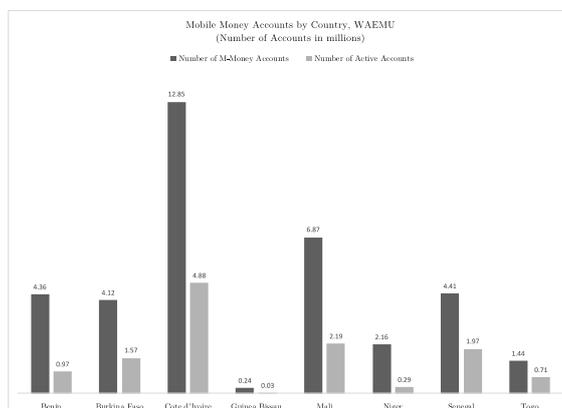
A small but growing number of economic studies of these initiatives suggests that their impact is mixed. In particular, the research suggests that such initiatives are primarily successful in improving the efficiency of public service provision – in other words, providing a public service of a given quality and quantity at a lower cost. However, such systems often require substantial fixed costs to build the necessary digital infrastructure. Second, while digital public service provision is effective in the areas of agriculture, education and health, these results are mixed in terms of their impact on welfare outcomes, such as income and learning.

**Digital for financial inclusion**

**With over 59 mobile money deployments across the West Africa region, digital financial services (DFS) offer households and firms the opportunity to pay bills, transfer or save money. However, adoption and usage of DFS remains varied across the region, in part due to the outreach of agent networks, thereby limiting their potential for the rural poor and for small and medium enterprises.**

Whereas mobile phone adoption in the region is 67%, and there are 59 mobile money products offered by service providers, there is significant heterogeneity of adoption across the region (GSMA 2019). In fact, there is a stark contrast between adoption and usage; out of the total number of registered accounts, 34.6% have shown some activity, with the number of active users ranging from 1% in Niger to 20% in Ivory Coast (GSMA 2019). This appears to be due, in part, to the limited mobile money agent infrastructure, limited inter-operability between Mobile Network Operators (MNOs), as well as the regulatory framework of the BCAEO and specific ECOWAS countries (Aker et al 2020, CGAP 2016). Surprisingly, although the WAEMU region has common currency and central bank, there is little interoperability between the sub-region’s mobile money deployments and banks.

**Figure 2. Mobile money accounts (In millions) by country, WAEMU.**



Source: Global Findex Database.

Perhaps as a result, MNOs in West Africa primarily offer first-generation digital financial services – ie, mobile money, rather than digital credit, savings and insurance, as is common in East and Southern Africa (CGAP 2016), as opposed to second-generation services, such as digital savings, credit and insurance offerings. While there are examples of such second-generation DFS in Ivory Coast, Ghana and Senegal, these are primarily focused in urban capitals, thereby limiting the potential outreach and impact of these services on rural households and for SMEs.

### Digital, entrepreneurship and job creation

**While digital services offer new perspectives for SMEs in sub-Saharan Africa, these services have not been fully exploited by SMEs.**

While the uptake of mobile phone technology has facilitated the multiplication of internet-based innovations throughout sub-Saharan Africa, this dynamic bumps into the large internet divide and their low penetration among firms. In 2015, internet penetration rates did not exceed 60 percent of the population in the subcontinent, with some West-African countries such as Niger, Sierra-Leone, or Guinea-Bissau displaying penetration rates lower than five percent of the population. According to World Bank Enterprise Surveys, less than 60% of SMEs were using email during their operation, and 30% of them used a website. In comparison, 90% of large firms surveyed over the same period were declaring using email and/or a website during their activities.

Analyses of the relationship between digital usages (ie, e-mail, internet and mobile money) on firm's performance indicators suggests that firms adopting digital technologies have more workers, higher sales and higher exports, are more productive, and potentially generate positive spillovers on other firms. On the other hand, when the diffusion of these technologies remains limited, there is a risk that they benefit only to the most performing or innovative companies, and can generate negative spillover effects on the rest of the entrepreneurial ecosystem.