

## Appendix B: Case Study Notes and Market Data

### Abidjan, Ivory Coast

Abidjan is the capital city of the Ivory Coast, and the economic center both for the country and for the entirety of Francophone West Africa. Abidjan is in competition with Dakar as the locus of Afro-Francophone geopolitical activity and influence. The fact that the politics of the Ivory Coast have been marked by armed conflict in the not-too-distant past is hardly evident in Abidjan. The UN peacekeeping mission that had separated Northern and Southern factions in the conflict departed as recently as June of 2017. Between 2003 and 2007, the Ivory Coast was split, with rebels holding the north and the government running the south. Ivorians rarely refer to this conflict and its aftermath unless probed.

The fact that the global digital entrepreneurship ecosystem is inherently Anglophone becomes evident once one enters this non-Anglophone society. The Anglicized term used to refer to the Francophone digital entrepreneurship ecosystem is Frenchtech (as opposed to TechFrançais or some other moniker). Participants are referred to as startupper. That said, the continued influence of France is evident not least in the country's currency, the CFA, which is pegged to the euro. The language barrier translates into digital barriers; for instance, for a city of Abidjan's size, it is surprising to find that Google Maps is unreliable. Google Maps has become a digital infrastructure, and its absence creates an additional pain point for local firms—one that firms in other geographies take for granted not having to deal with.

Nevertheless, there are benefits to being located in Abidjan. The Ivory Coast's policy of encouraging foreign investment means that tech entrepreneurs who receive capital from outside the country receive multiyear tax

breaks. The fact that the global tech world is primarily Anglophone might slow down the arrival of American multinational corporations, thus allowing local companies to establish their niches.

The availability of taxi-hailing apps became an unofficial indicator for the viability of the local digital economy. They suggested a populace that was willing and able to utilize digital applications and that platform infrastructures like Google Maps for logistics were reliable—though they were not reliable everywhere. Google Maps in Abidjan did not capture every road, and landmarks and premises were not always where they were indicated. As discussed in the main book text, this intimated something about the level of investment that digital conglomerates were willing to make in certain areas. Anglophone cities tended to have a strong presence of digital multinational corporations; Francophone and Lusophone Africa much less so. There were, however, two locally owned taxi-hailing firms, suggesting demand and perhaps indicating the presence of the oft-touted African middle class. One of the taxi companies is owned by Congolese investors, an outcome of the aforementioned Ivorian tax breaks for foreign investment.

**Table B.1**

---

**Data Relevant to Digital Markets**

Total population	25.22 million (51 percent urbanization)
Mobile phone subscriptions	32.38 million (128 percent)
Internet users	11.06 million (44 percent)
Mobile internet users	10.15 million (40 percent)
Social media users	4.9 million (19 percent)
Mobile social media users	4.5 million (18 percent)

---

**Annual Digital Growth (January 2018–January 2019)**

Total population	2.5 percent
Mobile phone subscriptions	3.4 percent
Internet users	69 percent
Social media users	14 percent
Mobile social media users	18 percent

---

Table B.1 (continued)

<b>Population and Economic Data</b>	
Female population	49.4 percent
Male population	50.6 percent
Annual change in population size	2.5 percent
Median age	18.7
GDP per capita (current international \$)	3,953
Overall literacy (adults aged 15+)	44 percent
Female literacy (adults aged 15+)	37 percent
Male literacy (adults aged 15+)	51 percent
<b>Mobile Connectivity Index (out of a possible score of 100)</b>	
Overall country index score	45.73
Mobile network infrastructure	41.01
Affordability of devices and services	67.92
Consumer readiness	41.12
Availability of relevant content and services	38.19
<b>E-commerce Data</b>	
Has an account with a financial institution	42 percent
Has a credit card	1.3 percent
Has a mobile money account	34 percent
Makes online purchase and/or pays bills online	7.1 percent
Percentage of women with a credit card	1 percent
Percentage of men with a credit card	1.7 percent
Percentage of women making online transactions	5.3 percent
Percentage of men making online transactions	8.7 percent

Source: We Are Social 2019

### Accra, Ghana

Ghana is the poster child for Africa's development and has a good reputation across the West African region. It is an English-speaking nation that has enjoyed relative peace and prosperity. It is increasingly becoming the destination for global ICT companies seeking to develop entrepreneurship talent in the region (see Avle 2014; Friederici 2017a). It has historic universities and a reverence for technology and technologists. There is a sense among

participants, however, that most “techies” or engineers lack business acumen and are unable to make a technology product work as a business. Some entrepreneurs criticize technology-focused companies, arguing that Ghanaian and African market realities require customer focus and keeping technology simple and pragmatic. Some technically minded entrepreneurs describe feeling taken advantage of by shrewd, more business-oriented entrepreneurs.

There are a number of experienced, astute entrepreneurs, who tend to have set up at or before the beginning of the digital entrepreneurship hype cycle (i.e., around 2010–2012). Successful entrepreneurs tend to be well-educated, often abroad (mainly in the United Kingdom), and/or at one of Ghana’s top universities, especially KNUST (engineering) and Ashesi (business). There are facets of elitism: often entrepreneurs come from well-off, upper- or middle-class backgrounds and have gone to the same handful of elite high schools. Some have international business backgrounds or have worked for international NGOs.

The domestic market for digital technologies is described as small. According to participants, this is partly an infrastructural and partly a human capacity issue: bandwidth and reliability have improved in cities, but not everywhere in the country, and digital literacy remains low. Ghanaian participants feel that government is an important actor and needs to be involved, despite its perceived incompetence and lack of understanding of the sector.

One organization, MEST, is somewhat of a media darling, maybe because it fits into conceived Silicon Valley wisdom about technology startups. Several early MEST incubatees and entrepreneurs have an explicit global focus. More recently, emphasis appears to have been shifted toward Pan-African or low- and middle-income markets. There are a few white immigrant founders and one from Kenya in our sample.

**Table B.2**

---

**Data Relevant to Digital Markets**

Total population	29.78 million (56 percent urbanization)
Mobile phone subscriptions	38.78 million (130 percent)
Internet users	10.32 million (35 percent)
Mobile internet users	9.37 million (31 percent)
Social media users	5.8 million (19 percent)
Mobile social media users	5.4 million (18 percent)

---

Table B.2 (continued)

**Annual Growth (January 2018–January 2019)**

Total population	2.2 percent
Mobile phone subscriptions	11 percent
Internet users	2.1 percent
Social media users	3.6 percent
Mobile social media users	10 percent

**Population and Economic Data**

Female population	50.1 percent
Male population	49.9 percent
Median age	21.1
GDP per capita (current international \$)	4,641
Overall literacy (adults aged 15+)	71 percent
Female literacy (adults aged 15+)	65 percent
Male literacy (adults aged 15+)	78 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	52.73
Mobile network infrastructure	43.56
Affordability of devices and services	56.53
Consumer readiness	59.80
Availability of relevant content and services	52.50

**E-commerce Data**

Has an account with a financial institution	58%
Has a credit card	5.8%
Has a mobile money account	39%
Makes online purchase and/or pays bills online	7.8%
Percentage of women with a credit card	4.4%
Percentage of men with a credit card	7.2%
Percentage of women making online transactions	4.9%
Percentage of men making online transactions	11%

*Source:* We Are Social 2019

## Addis Ababa, Ethiopia

Ethiopia has a centralized (and what is considered by some as an authoritarian) government. The state has an acknowledged interest in computing technologies for development, but it is less open to their connectivity attributes (Gagliardone 2016). This particular political economy allowed us to reflect on the role of the state in digital entrepreneurship ecosystems.

The opinion that Ethiopia's digital entrepreneurship feels like that of other African countries five to ten years back is expressed over and over again. This refers to internet penetration rates, revenue figures, number of startups, investment deals, and so on, but, more subtly, it also refers to entrepreneurial skill and experience. Because there have been very few startups that have been actually operational for a number of years, there are also very few entrepreneurs who have any sort of sense of business models, monetization, and localization/adaptation. Kenyans, for instance, appear to be way ahead and extending their advantage more and more—and this cannot be accounted for by the size of the domestic market/size of the local economy because Ethiopia's absolute GDP and GDP growth has clearly outpaced Kenya's in recent years. In contrast, some of our participants have argued that we are currently at a kind of tipping point or moment of change in Ethiopia, with small changes beginning to have bigger impacts.

Although Ethiopia's culture (as it translates to entrepreneurship) is also unique, this is, as usual, more difficult to capture or describe succinctly. It appears that entrepreneurs are not big visionaries and not focused on building empires or making a lot of money. Engineers are considered the best entrepreneurs, which is something that is considered foolish in other African countries. Business modeling and ways to make money are rarely discussed. Vast domestic market potentials are discussed in abstract terms, but few seem to actually tap into them.

One dynamic particular to Ethiopia is that entrepreneurs find workarounds or make use of regulatory constraints. Ethiopia's complicated licensing regime is mostly a burden, but it also shields exceptional enterprises that have identified this strategic opportunity.

Overall, the size of the digital technology sector is very small given the country's size. Similarly, the hub landscape appears small. Positive signs for ecosystem evolution are increasing legitimacy and normality of entrepreneurship among youth, and the government's careful and piecemeal opening toward this agenda.

**Table B.3****Data Relevant to Digital Markets**

Total population	108.8 million (21 percent urbanization)
Mobile phone subscriptions	68.34 million (63 percent)
Internet users	17.87 million (16 percent)
Mobile internet users	16.41 million (15 percent)
Social media users	6.1 million (5.6 percent)
Mobile social media users	5.6 million (5.1 percent)

**Annual Growth (January 2018–January 2019)**

Total population	2.4 percent
Mobile phone subscriptions	9.2 percent
Internet users	9.2 percent
Social media users	61 percent
Mobile social media users	56 percent

**Population and Economic Data**

Female population	50.1 percent
Male population	49.9 percent
Median age	19.8
GDP per capita (current international \$)	1,899
Overall literacy (adults aged 15+)	39 percent
Female literacy (adults aged 15+)	29 percent
Male literacy (adults aged 15+)	49 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	37.68
Mobile network infrastructure	34.86
Affordability of devices and services	43.51
Consumer readiness	35.18
Availability of relevant content and services	37.76

**E-commerce Data**

Has an account with a financial institution	35 percent
Has a credit card	0.3 percent
Has a mobile money account	0.3 percent
Makes online purchase and/or pays bills online	0.6 percent
Percentage of women with a credit card	0.2 percent
Percentage of men with a credit card	0.3 percent
Percentage of women making online transactions	0.4 percent
Percentage of men making online transactions	0.8 percent

*Source:* We Are Social 2019

## Dakar, Senegal

Dakar is the capital of Senegal and is unique in the region because, though formerly colonized by the French, most Senegalese speak Wolof rather than French. This invited inquiry into the localization and appropriation of digital technology and the effect of this on entrepreneurship. It also had a locally owned M-Pesa equivalent, Wari, which allowed for comparison into how these platforms did or did not facilitate the development of local ecosystems.

The digital entrepreneurship space in Dakar is dominated by the success narratives of Wari and Jokkolabs, an incubator that has opened outposts across the region. Wari's regional scale has allowed it to purchase the Senegalese operations of mobile telecommunications operator Tigo in order to expand its already considerable reach. Jokkolabs is a coworking space and incubator that epitomizes the startup culture and ethos and provides a space for entrepreneurs to try their hands at the digital economy. Jokkolabs itself has been able to spread to other countries, including France, and a few of the companies housed within it have been able to become visible in their own right. Despite the outsized success of individual organizations, however, the ecosystem is not as cohesive or as variegated as others on the continent.

Applying our unofficial taxi-hailing application index, the lack of any taxi-hailing firm suggests that the local market for digital services is not well-developed. Société Générale, a bank with a regional footprint, has nevertheless established its innovation lab in Dakar (after considering Abidjan), indicating a growing sense of Dakar as a regional economic hub. Evidence of this sense of promise is the number of Senegalese that have returned from the diaspora to try their hand at digital entrepreneurship. As noted, the prevalent language in Senegal is Wolof, which is likely to complicate the appropriation of digital economy structures and practices.



**Table B.4****Data Relevant to Digital Markets**

Total population	16.52 million (47 percent urbanization)
Mobile phone subscriptions	16.69 million (101 percent)
Internet users	9.75 million (59 percent)
Mobile internet users	8.91million (54 percent)
Social media users	3.5 million (21 percent)
Mobile social media users	3.2 million (19 percent)

**Annual Digital Growth (January 2018–January 2019)**

Total population	2.8 percent
Mobile phone subscriptions	5.9 percent
Internet users	0.1 percent
Social media users	13 percent
Mobile social media users	10 percent

**Population and Economic Data**

Female population	50.8 percent
Male population	49.2 percent
Annual change in population size	2.8 percent
Median age	18.7
GDP per capita (current international \$)	2,712
Overall literacy (adults aged 15+)	52 percent
Female literacy (adults aged 15+)	40 percent
Male literacy (adults aged 15+)	65 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	37.30
Mobile network infrastructure	28.95
Affordability of devices and services	39.53
Consumer readiness	39.53
Availability of relevant content and services	29.65

**E-commerce Data**

Has an account with a financial institution	42 percent
Has a credit card	2.8 percent
Has a mobile money account	32 percent
Makes online purchase and/or pays bills online	10 percent
Percentage of women with a credit card	3 percent
Percentage of men with a credit card	2.7 percent
Percentage of women making online transactions	7.8 percent
Percentage of men making online transactions	13 percent

*Source:* We Are Social 2019

## Johannesburg, South Africa

Johannesburg is an industrial hub of South Africa. The country has a number of major cities: Johannesburg is its economic heart, but Cape Town is the locus of the digital economy. Why this is the case was an interesting question to consider given that one consistent observation was that digital hubs developed where economic activity was the highest. The question of inequality was also particularly relevant here because the South African economy is much bigger than that of many of the other countries in Africa. The facts that money had been set aside by the government for entrepreneurship and that material infrastructure for connectivity was robust made it an ideal site to consider ecosystem determinants other than capital.

As Johannesburg is a top-tier city, one expects to find a robust digital ecosystem there. There are indeed many hubs and other support organizations that provide a variety of services for entrepreneurs. With respect to the taxi app index, Uber is present, and so is Taxify/Bolt, a firm of Estonian provenance that operates in Africa. The taxi apps operate in fraught, direct confrontation with the preexisting analog taxi economy. This is representative of a sense that one comes away with about the entire digital economy: digital entrepreneurship is a class-based activity. The narrative heard in less economically generative cities about the difficulty of attracting capital is echoed in Johannesburg, a place whose other name, Egoli, translates into English as *place of gold*. Johannesburg is an opportunity to understand that finance capital is heterogeneous. The kind of capital that is invested in extractive industries does not necessarily flow in other directions.

South Africa has a dedicated government program to reduce postapartheid economic disparity, which has channeled resources toward the digital entrepreneurship arena. The issue then becomes determining criteria for measuring who should receive these funds and considering whether these criteria are compatible with high-growth digital entrepreneurship. We have challenged the assumption that this conception of digital entrepreneurship has relevance for Africa, but until a new model emerges, this is likely the direction that many entrepreneurs and ecosystems will continue to pursue.

**Table B.5****Data Relevant to Digital Markets**

Total population	57.73 million (67 percent urbanization)
Mobile phone subscriptions	98.05 million (170 percent)
Internet users	31.18 million (54 percent)
Mobile internet users	28.99 million (50 percent)
Social media users	23 million (40 percent)
Mobile social media users	22 million (38 percent)

**Annual Growth (January 2018–January 2019)**

Total population	1.2 percent
Mobile phone subscriptions	9.8 percent
Internet users	1.2 percent
Social media users	28 percent
Mobile social media users	38 percent

**Population and Economic Data**

Female population	50.9 percent
Male population	49.1 percent
Median age	27.3
GDP per capita (current international \$)	13,498
Overall literacy (adults aged 15+)	94 percent
Female literacy (adults aged 15+)	93 percent
Male literacy (adults aged 15+)	95 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	59.89
Mobile network infrastructure	53.67
Affordability of devices and services	60.79
Consumer readiness	74.92
Availability of relevant content and services	52.64

**E-commerce Data**

Has an account with a financial institution	69 percent
Has a credit card	8.9 percent
Has a mobile money account	19 percent
Makes online purchase and/or pays bills online	14 percent
Percentage of women with a credit card	8.1 percent
Percentage of men with a credit card	9.7 percent
Percentage of women making online transactions	12 percent
Percentage of men making online transactions	17 percent

*Source:* We Are Social 2019

## Kampala, Uganda

Kampala is the capital city and economic center of Uganda. Uganda shares a number of attributes with Rwanda: it is landlocked, it experienced a civil war in its recent history, and its rebel leader became a long-serving president. However, while the Rwandese state frames ICTs as an integral part of its national development plan, the Ugandan government has much less to say about the same topic. Kampala is also relatively close to Nairobi, which led us to consider whether geographic proximity to another digital entrepreneurship hub is an impediment or a boon.

Uganda has been touted as the most entrepreneurial country in the world by the Global Entrepreneurship Monitor. Much of this economic activity, however, can be classified as self-employment and lifestyle entrepreneurship, as opposed to high-growth entrepreneurship, which indicates a willingness in global policy institutions to adopt a more expansive definition of entrepreneurship. Ugandans' tend to supplement their incomes with a *mélange* of activities. Indeed, a large number of the digital entrepreneurs that we encountered were also in employment or worked as consultants.

Digital entrepreneurs are generally well-educated; a good number had attended the historic Makerere University. A number of them are returnees, and there were a few immigrant entrepreneurs.

Uganda is a primarily agricultural economy, and some digital entrepreneurs who had found success had done so by introducing digital solutions to the agricultural sector. Uber was available, suggesting that there was a market for digital goods. However, it appeared that B2B business models were more likely to meet with greater success than B2C ideas. The mass domestic digital market is described as small and was likely to shrink because the government had instituted a social media tax. Social media platforms are often platform infrastructures that foster economic activity. Uganda's very youthful population is governed by an old guard who, having quelled a civil war, are content with what they view as a peaceful status quo. It appears that younger Ugandans are biding their time until they can determine the trajectory of their country and make it somewhat more dynamic and progressive.

**Table B.6****Data Relevant to Digital Markets**

Total population	44.99 million (24 percent urbanization)
Mobile phone subscriptions	24.89 million (55 percent)
Internet users	19 million (42 percent)
Mobile internet users	17.48 million (39 percent)
Social media users	2.5 million (5.6 percent)
Mobile social media users	2.3 million (5.1 percent)

**Annual Growth (January 2018–January 2019)**

Total population	3.3 percent
Mobile phone subscriptions	2.7 percent
Internet users	0 percent
Social media users	-11 percent
Mobile social media users	-12 percent

**Population and Economic Data**

Female population	50.2 percent
Male population	49.8 percent
Median age	16.4
GDP per capita (current international \$)	1,864
Overall literacy (adults aged 15+)	70 percent
Female literacy (adults aged 15+)	62 percent
Male literacy (adults aged 15+)	79 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	36.49
Mobile network infrastructure	23.50
Affordability of devices and services	41.75
Consumer readiness	51.04
Availability of relevant content and services	35.38

**E-commerce Data**

Has an account with a financial institution	59 percent
Has a credit card	2.3 percent
Has a mobile money account	51 percent
Makes online purchase and/or pays bills online	9.5 percent
Percentage of women with a credit card	1.8 percent
Percentage of men with a credit card	2.8 percent
Percentage of women making online transactions	5.8 percent
Percentage of men making online transactions	13 percent

*Source:* We Are Social 2019

## Kigali, Rwanda

Kigali is the capital city of Rwanda. Rwanda represents a vastly different context compared to our other theory-development cases, Nairobi and Lagos. It is a landlocked city with a small population (less than one million). It is an intriguing analytical puzzle to consider to what extent digital connectivity can help small and landlocked nations overcome market barriers from traditional sectors (e.g., small local markets, low bargaining power in international trade negotiations, etc.). Rwanda's state championing of the digital economy offered a different set of considerations than Lagos's market-driven environment or Nairobi's, which also has an international development influence.

Rwandan digital entrepreneurs indicated that they were not particularly motivated by money. Many would have better earning opportunities doing something else, and they do not expect this to change. Almost all digital entrepreneurship that is happening is targeted at the Rwandan market. At the same time, local markets also are limited in scale. Rwanda is small, with an even smaller middle class and few businesses that (think they) require software solutions, and so it is not the case that many huge technology businesses could thrive based on this demand. User inertia is a very prevalent theme. One might say that "old habits die hard," and digital entrepreneurs complain that a lot of "educating the user" is needed both for businesses and consumers. This has led to what entrepreneurs perceive as delays. Yet the narrative that Rwanda is ideal for piloting software solutions that can then be scaled across East Africa and Africa is extremely strong, although there do not seem to be existing companies that have done this.

There is a strong belief in technology's transformative power, beyond or separately from its economic potential, and a sense of "entrepreneurship by fiat" that external observers have pointed to (Strauss 2014). Most local entrepreneurs do not seem to actively seek media attention but get it because there are few local success stories and the government and media jump on cases that ostensibly fit into the narrative of the rising ICT nation. Rwanda is also viewed as a leading ICT destination by participants in other nations (especially Ghana). Yet as with most of the places we visited, the larger-scale (platform, infrastructural) technologies are imported or implemented by large companies or the government.

**Table B.7****Data Relevant to Digital Markets**

Total population	12.65 million (17 percent urbanization)
Mobile phone subscriptions	9.73 million (77 percent)
Internet users	5.6 million (44 percent)
Mobile internet users	5.24 million (41 percent)
Social media users	0.62 million (4.9 percent)
Mobile social media users	0.58 million (4.6 percent)

**Annual Growth (January 2018–January 2019)**

Total population	2.4 percent
Mobile phone subscriptions	14 percent
Internet users	50 percent
Social media users	19 percent
Mobile social media users	23 percent

**Population and Economic Data**

<b>Female population</b>	51 percent
Male population	49 percent
Median age	20.3
GDP per capita (current international \$)	2,036
Overall literacy (adults aged 15+)	71 percent
Female literacy (adults aged 15+)	66 percent
Male literacy (adults aged 15+)	76 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	40.01
Mobile network infrastructure	43.64
Affordability of devices and services	46.91
Consumer readiness	55.47
Availability of relevant content and services	22.58

**E-commerce Data**

Has an account with a financial institution	50 percent
Has a credit card	0.7 percent
Has a mobile money account	31 percent
Makes online purchase and/or pays bills online	4.6 percent
Percentage of women with a credit card	0.2 percent
Percentage of men with a credit card	1.3 percent
Percentage of women making online transactions	3.4 percent
Percentage of men making online transactions	5.9 percent

*Source:* We Are Social 2019

## Lagos, Nigeria

With eight million inhabitants, Lagos is Nigeria's largest city, even though Abuja is the capital. Abuja is the seat of government, but Lagos is the country's economic powerhouse. Nigeria's huge population (it is the most populous country in Africa) means that the possibilities for the development of a local market appear significant. We wanted to consider whether this changed the global versus local outlook of digital entrepreneurs.

Like in Nairobi, where there are some established, profitable technology companies with a long history, they similarly are not exactly integrated with the rest of the ecosystem. Nigeria has more of a gold rush and money-focused mentality (for fintech), as opposed to Nairobi's copresence of social impact orientation and business-mindedness. First and foremost, companies are trying to make money and be the first to capture the large Nigerian market. Revenue is king here, although significant funding rounds have gotten a lot of international exposure as well. There is also a greater amount of VC funds than elsewhere in Africa. Like in Nairobi, however, there might be investment money available, but it only goes to a few digital companies.

The government was interested in creating a narrative about putting ICTs and entrepreneurship on the agenda and showing that something interesting and important was happening in this space, and it has therefore invested in hubs and incubators. There appears to be geographic fragmentation: Yaba, the cluster where CcHub, IDEA, and several businesses are located, is detached from Victoria and Lagos Island, and these are again detached from Lekki, and neither of these is connected with Ikeja in the north (an older business district where the state government is). More so than in Nairobi and Kigali, it appears to be tough for startups to afford office space.

In terms of entrepreneurial culture, there appears to be more of a fend-for-yourself attitude here. This includes less rhetoric about social impact in a narrow sense, but, more importantly, there is not as much of a product and design focus, and also no talk of being passionate about building software, about recognition, or of legacy building as there is in Nairobi. Like in Nairobi, participants argue that there are differences in the approach to entrepreneurship between the Silicon Valley model for tech startups and what works locally and what locals would do. Also as in Nairobi, entrepreneurs appear to have a media/PR persona and a business persona, with latter being much more pragmatic and shrewd.



**Table B.8****Data Relevant to Digital Markets**

Total population	198.4 million (51 percent urbanization)
Mobile phone subscriptions	149.4 million (75 percent)
Internet users	98.39 million (50 percent)
Mobile internet users	90.91 million (46 percent)
Social media users	24 million (12 percent)
Mobile social media users	23 million (12 percent)

**Annual Growth (January 2018–January 2019)**

Total population	2.6 percent
Mobile phone subscriptions	7.4 percent
Internet users	3.8 percent
Social media users	26 percent
Mobile social media users	35 percent

**Population and Economic Data**

Female population	49.3 percent
Male population	50.7 percent
Median age	18.1
GDP per capita (current international \$)	5,861
Overall literacy (adults aged 15+)	51 percent
Female literacy (adults aged 15+)	41 percent
Male literacy (adults aged 15+)	61 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	45.91
Mobile network infrastructure	35.86
Affordability of devices and services	64.11
Consumer readiness	44.15
Availability of relevant content and services	43.75

**E-commerce Data**

Has an account with a financial institution	40 percent
Has a credit card	2.6 percent
Has a mobile money account	5.6 percent
Makes online purchase and/or pays bills online	6.3 percent
Percentage of women with a credit card	1.7 percent
Percentage of men with a credit card	3.4 percent
Percentage of women making online transactions	2.9 percent
Percentage of men making online transactions	9.4 percent

*Source:* We Are Social 2019

## Maputo, Mozambique

Maputo is the capital and the center of all economic activity in Mozambique. It was one of the cities that we saw as representing low activity because of the economic dire straits that it had experienced in recent years. Maputo was an ideal site to investigate the opportunities that digital connectivity represented for individuals to make a sustainable living and see to whom those opportunities accrued. Mozambique is also a Lusophone country, which enabled an analysis of how language affects ecosystem development and market reach.

Mozambique underwent an economic crisis when the IMF discovered secret government debts that were pegged to Mozambique's future earnings from oil reserves, which led to a devaluing of the country's currency. It goes without saying that this had a dampening effect on any economic activity, including the digital economy. However, even (or maybe especially) in such conditions, small-scale and informal economic activity takes place, as people who might otherwise be employed become entrepreneurial to make ends meet. Digital platforms have the ability to facilitate this small-scale business activity. In fact, social media sites like Facebook did indeed allow traders to advertise their goods and contact information. In an underdeveloped economy, infrastructure projects represent a major portion of the economy. Young people with access and backing had the opportunity to establish telecommunications firms that could serve infrastructural functions.

In the middle of this high- and low-intensity economic activity was a small, close-knit group of individuals running startup firms. It is evident that participants in this ecosystem have a socioeconomic status that is higher than the country's average. A clue is that they are at ease speaking English. Mozambique is multilingual, and while it is considered Lusophone, much of the rural population does not speak Portuguese. In the city, Portuguese is widely spoken and English is prevalent in affluent circles. The primary sources of resources for startup firms are development agencies and philanthropy. Organizations like the World Bank, the Finnish government, Save the Children, Microsoft, and others provide small grants and commission services from the firms in the ecosystem. A group of enthusiastic technologists have benefited from this support. Software development teams are quickly assembled to resolve problems for these organizations.

**Table B.9****Data Relevant to Digital Markets**

Total population	30.97 million (36 percent urbanization)
Mobile subscriptions	14.26 million (46 percent)
Internet users	5.43 million (18 percent)
Mobile internet users	4.77 million (15 percent)
Social media users	2.5 million (87.1 percent)
Mobile social media users	2.2 million (7.1 percent)

**Annual Growth (January 2018–January 2019)**

Total population	2.9 percent
Mobile phone subscriptions	3.0 percent
Internet users	2.9 percent
Social media users	25 percent
Mobile social media users	22 percent

**Population and Economic Data**

Female population	51.1 percent
Male population	48.9 percent
Median age	17.7
GDP per capita (current international \$)	1,247
Overall literacy (adults aged 15+)	56 percent
Female literacy (adults aged 15+)	43 percent
Male literacy (adults aged 15+)	71 percent

**Mobile Connectivity Index (out of a possible score of 100)**

Overall country index score	31.03
Mobile network infrastructure	18.69
Affordability of devices and services	42.49
Consumer readiness	39.84
Availability of relevant content and services	29.30

**E-commerce Data**

Has an account with a financial institution	42 percent
Has a credit card	8.9 percent
Has a mobile money account	22 percent
Makes online purchase and/or pays bills online	9.5 percent
Percentage of women with a credit card	7.5 percent
Percentage of men with a credit card	10 percent
Percentage of women making online transactions	8.1 percent
Percentage of men making online transactions	11 percent

*Source:* We Are Social 2019

## Nairobi, Kenya

Nairobi, a city of over three million people (not counting peri-urban surroundings) that is the capital city of Kenya, has become known as the Silicon Savannah, yielding noted success stories in the realm of social digital entrepreneurship and inclusive innovation. The presence of regional and global offices of various international institutions makes Nairobi a global city in the eyes of many business and political leaders. This is reflected in the large population of diplomatic expats and economic migrants from around the world. We wanted to reflect on what effect, if any, this global status had on the trajectory of Silicon Savannah.

There is an interesting tendency for entrepreneurs in Nairobi to say that things are just getting started. However, there is a league of very experienced, very senior entrepreneurs who started their businesses in the late 1990s or early 2000s, grew their businesses organically, and operated largely unrecognized, long before iHub and Silicon Savannah. They are widely respected and venerated, but they are also reclusive and sometimes dismissive of anything Silicon Savannah related. Even if these entrepreneurs and companies are not actively visible in the ecosystem, they play an important role as role models and as builders of talent and professional communities: they have created a labor market and small pockets of networking and learning for software developers (and related jobs) that have now been in place for almost twenty years. More generally, clear social hierarchies and statuses are attached to whoever was there at the Silicon Savannah's famed beginnings or before. There is an inner circle, or several inner circles, centered on the very first generation of entrepreneurs who started businesses in the late 1990s or early 2000s, and then on a few of the Silicon Savannah veterans, who became active around 2010.

There is clear indication of evolutionary processes of human capital and social network development. There is a trend toward professionalization, such as hiring nonfounder CEOs or finding it important to institute an organizational culture in startups. A high number of people with five to fifteen years of relevant, high-level experience can be hired. Nairobi's long-standing role as a hub for East Africa and all of Africa is reflected in the significant presence of immigrant founders.

Businesses often appear to be serving the Kenyan market, but really only have customers in Nairobi. Nairobi is such a huge city that it appears to be

a large enough starting market for many digital businesses. Entrepreneurs in the trenches feel that they have spent recent years figuring things out, learning/failing, iterating, working toward product-market fit, and so on, and that only now will growth begin for most businesses. There is still a buzz, even if it is not entirely clear how many businesses are ultimately economically viable. The plateauing in the last two to three years has had the positive effect of leading to a greater number of realistic, viable business developments and incremental innovations, advanced by not a huge but a decent-sized group of astute digital entrepreneurs who have outlasted the many not so serious wannabes.

**Table B.10****Data Relevant to Digital Markets**

Total population	51.58 million (27 percent urbanization)
Mobile phone subscriptions	46.94 million (97 percent)
Internet users	43.33 million (84 percent)
Mobile internet users	39.86 million (77 percent)
Social media users	8.20 million (16 percent)
Mobile social media users	7.7 million (15 percent)

**Annual Growth (January 2018–January 2019)**

Total population	2.5 percent
Mobile phone subscriptions	15 percent
Internet users	0 percent
Social media users	6.5 percent
Mobile social media users	10 percent

**Population and Economic Data**

Female population	50.3 percent
Male population	49.7 percent
Median age	20
GDP per capita (current international \$)	3,286
Overall literacy (adults aged 15+)	79 percent
Female literacy (adults aged 15+)	74 percent
Male literacy (adults aged 15+)	84 percent

**Table B.10** (continued)

<b>Mobile Connectivity Index (out of a possible score of 100)</b>	
Overall country index score	50.95
Mobile network infrastructure	39.62
Affordability of devices and services	63.06
Consumer readiness	62.52
Availability of relevant content and services	43.15
<b>E-commerce Data</b>	
Has an account with a financial institution	82 percent
Has a credit card	5.7 percent
Has a mobile money account	73 percent
Makes online purchase and/or pays bills online	26 percent
Percentage of women with a credit card	3.5 percent
Percentage of men with a credit card	8.1 percent
Percentage of women making online transactions	20 percent
Percentage of men making online transactions	33 percent

*Source:* We Are Social 2019

### **Yaoundé, Cameroon**

We classified Cameroon as mid-tier because of Douala, which is its economic and digital economy hub. Like Lagos, Douala is a noncapital primary city, so we decided to focus on Yaoundé, the capital of Cameroon. Yaoundé, a centrally located city and the government seat, represented an opportunity to understand why particular cities became digital entrepreneurship hubs. Douala has traditionally been the center for commerce, and it seems that this was the impetus for it taking the lead in terms of the establishment of yet another economic sector. Yaoundé does not have the buzz of Douala or of Buea (a city in Cameroon's Anglophone region that has been nicknamed Silicon Mountain).

But Yaoundé does have digital entrepreneurs, and we wanted to hear from them about why it was that other urban centers had a higher profile and why they remained in Yaoundé. The digital entrepreneurs there said that they did not feel cut off from the benefits of being located in the more visible ecosystems in the country. In fact, they associated being located in

Yaoundé with legitimacy. As in many other places, visibility was also seen as connected with hype, as opposed to authentic entrepreneurship. Some of the companies we spoke to did have well-funded products, but it remains to be seen whether the Cameroonian economy is strong enough to support an entire ecosystem of digital products.

The sociopolitical climate in Cameroon meant that it was also a site for investigating the role of the state and its impact on digital entrepreneurship. The fact that Cameroon is divided into French-speaking and English-speaking regions lead into conversations about language and cultural aspects of digital entrepreneurship. Entrepreneurs from Buea were thus also interviewed during the trip to Cameroon. Buea is home to some of Cameroon's most profiled entrepreneurs. Most recently, Buea and the rest of Anglophone Western Cameroon has been in the media because of a government-mandated internet shutdown. Entrepreneurs articulated the deleterious effect that the shutdown had on their internet-dependent businesses. Some sought to relocate to Douala, which is a few hours' drive away. Even if firms can scale globally and become independent of a reliance on Cameroonian customers, they still require institutional supports or, at the very least, not to be hamstrung by structural factors. None of these towns have taxi-hailing applications. Old yellow taxis swarm Yaoundé's thoroughfares, and they seem to be indicative of an economy that is stuck in the past.

**Table B.11**

---

**Data Relevant to Digital Markets**

Total population	25 million (57 percent urbanization)
Mobile phone subscriptions	19 million (76 percent)
Internet users	6.13 million (25 percent)
Mobile internet users	5.79 million (23 percent)
Social users	3.6 million (14 percent)
Mobile social media users	3.4 million (14 percent)

---

**Annual Growth (January 2018–January 2019)**

Total population	2.6 percent
Mobile phone subscriptions	5.4 percent
Internet users	0 percent
Social media users	24 percent
Mobile social media users	26 percent

---

**Table B.11** (continued)

---

<b>Population and Economic Data</b>	
Female population	49.9 percent
Male population	50.1 percent
Median age	18.8
GDP per capita (current international \$)	3,694
Overall literacy (adults aged 15+)	71 percent
Female literacy (adults aged 15+)	65 percent
Male literacy (adults aged 15+)	78 percent

---

<b>Mobile Connectivity Index (out of a possible score of 100)</b>	
Overall country index score	42.76
Mobile network infrastructure	25.69
Affordability of devices and services	58.64
Consumer readiness	54.90
Availability of relevant content and services	40.42

---

<b>E-commerce Data</b>	
Has an account with a financial institution	35 percent
Has a credit card	3 percent
Has a mobile money account	15 percent
Makes online purchase and/or pays bills online	5.6 percent
Percentage of women with a credit card	2.2 percent
Percentage of men with a credit card	3.9 percent
Percentage of women making online transactions	4.7 percent
Percentage of men making online transactions	6.5 percent

---

*Source:* We Are Social 2019



This is a section of [doi:10.7551/mitpress/12453.001.0001](https://doi.org/10.7551/mitpress/12453.001.0001)

# Digital Entrepreneurship in Africa

## How a Continent Is Escaping Silicon Valley's Long Shadow

**By: Nicolas Friederici, Michel Wahome, Mark Graham**

### **Citation:**

*Digital Entrepreneurship in Africa: How a Continent Is Escaping Silicon Valley's Long Shadow*

**By: Nicolas Friederici, Michel Wahome, Mark Graham**

**DOI: 10.7551/mitpress/12453.001.0001**

**ISBN (electronic): 9780262362849**

**Publisher: The MIT Press**

**Published: 2020**

The open access edition of this book was made possible by generous funding and support from Arcadia – a charitable fund of Lisbet Rausing and Peter Baldwin, and Knowledge Unlatched



**The MIT Press**

© 2020 Massachusetts Institute of Technology

This work is subject to a Creative Commons CC-BY-NC-ND license.



Subject to such license, all rights are reserved.

The open access edition of this book was made possible by generous funding from Knowledge Unlatched and Arcadia—a charitable fund of Lisbet Rausing and Peter Baldwin.



This book was set in ITC Stone Serif Std and ITC Stone Sans Std by Toppan Best-set Premedia Limited.

Library of Congress Cataloging-in-Publication Data

Names: Friederici, Nicolas, 1985- author. | Wahome, Michel, author. | Graham, Mark, 1980- author.

Title: Digital entrepreneurship in Africa : how a continent is escaping Silicon Valley's long shadow / Nicolas Friederici, Michel Wahome, and Mark Graham.

Description: Cambridge : The MIT Press, 2020. | Includes bibliographical references and index.

Identifiers: LCCN 2019034676 | ISBN 9780262538183 (paperback)

Subjects: LCSH: Electronic commerce--Africa, Sub-Saharan. | Entrepreneurship--Information technology--Africa, Sub-Saharan. | Information technology--Economic aspects--Africa, Sub-Saharan.

Classification: LCC HF5548.325.A357 F75 2020 | DDC 381.14206567--dc23

LC record available at <https://lcn.loc.gov/2019034676>

10 9 8 7 6 5 4 3 2 1