Digital Entrepreneurship in Africa

How a Continent Is Escaping Silicon Valley's Long Shadow

OA Funding Provided By:

- Arcadia Fund
- Knowledge Unlatched

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

The title-level DOI for this work is:

doi:10.7551/mitpress/12453.001.0001

Appendix A: Methodology

This appendix provides a window into the methodology and data underlying the findings of this book. For interested and skeptical readers, we thus seek to make the analytical process underlying our empirical project more transparent, highlight choices we made as involved investigators, and convey that we adhered to high standards of social scientific rigor (Miles and Huberman 1994; Tracy 2010). Although we cannot provide a detailed protocol for the research process from start to finish, we will report details insofar as they speak to whether our research adhered to commonly accepted quality criteria for qualitative research (Tong, Sainsbury, and Craig 2007; Tracy 2010).

We view entrepreneurship as a process that is triggered by both contextual and individual factors, leading to outcomes such as ventures or product innovations (Autio et al. 2014; Block, Fisch, and Praag 2017; Davidsson 2005; Santos and Eisenhardt 2009). Entrepreneurship studies have traditionally focused on evaluating the actions and drivers of individuals, but they have only just begun to investigate mutually shaping interactions between actor and context (Autio et al. 2014, 1099; Garud, Schildt, and Lant 2014). Gaining proximal knowledge and documenting the interplay of individual factors, enterprise-level processes, and entrepreneurial environments—all within an understudied empirical setting—could not be done from a distance. Semistructured interviews conducted during city visits were thus the primary data collection strategy of choice.

Our research was designed at a moment of radically changing connectivity throughout Africa. With this rapid expansion in digital access came myriad expectations from businesses, policymakers, and aid agencies that new friction-free prospects for globalized digital entrepreneurship in Africa

could be brought into being. We sought out entrepreneurs and other stakeholders in order to investigate these presumptions and understand their perspectives as those who are "on the ground," living and implementing digital entrepreneurship. We thus sought to elicit entrepreneurs' own interpretive frameworks. For instance, we left the interview questions as open-ended as possible and avoided introducing development and entrepreneurship jargon.

Research Questions

Underlying our research was the motivation to understand whether and how digital entrepreneurship could contribute significantly to Africa's economic development. We did not expect to be able to measure economic development directly, and instead we investigated the growth and sustainability of enterprises (firm level) and whether digital entrepreneurship offered a significant departure from previous livelihood opportunities (individual level). Although the research design process was iterative and ongoing, we used four core questions to guide our inquiry throughout the life of our project: (1) Who are Africa's digital entrepreneurs (i.e., their backgrounds, motivations and mindsets)? (2) How are they and their enterprises pursuing market opportunities through digital technologies? (3) What markets (nature, size, scope) are they able to address? (4) How do their ecosystems support them (or not)?

Selection of City Cases

"Africa" as a scope mandated a multisited data collection effort at a minimum. To generalize and contrast, we used standard replication and comparative analysis (Yin 1994). Expectations about the potential of digital entrepreneurship were derived based on several informal and formal discourse analyses (see chapter 1; Friederici 2019; Friederici, Ojanperä, and Graham 2017). City selection aimed to facilitate close and distant comparison to these discourses and among cases.

We set the study boundary in line with that of the Geonet project (http://geonet.oii.ox.ac.uk). Geonet sought to investigate sub-Saharan Africa because countries within sub-Sarahan Africa were the last to be connected to the global fiber-optic undersea cabling system (Graham, Andersen, and

Mann 2015). Between January 2017 and February 2018, we went, in the following order, on field visits to Kigali (Rwanda), Nairobi (Kenya), Lagos (Nigeria), Kampala (Uganda), Accra (Ghana), Maputo (Mozambique), Johannesburg (South Africa), Addis Ababa (Ethiopia), Yaoundé (Cameroon), Abidjan (Ivory Coast), and Dakar (Senegal).

These cases represented cities in different geographic regions and also represented cities in Anglophone, Francophone, and Lusophone Africa. The countries in which they were located had varied levels of economic development and different sociopolitical environments. The cities were selected with a view toward capturing the geographic and sociocultural diversity of African states and with an eye toward analyzing the environmental factors that support digital entrepreneurship. These cases thus amount to a "least similar" selection logic: if patterns can be identified that apply across all or most of these diverse cases, it is likely that they also hold true in other cases that were not part of the sampling (i.e., other major African cities).

Across the eleven comparative city cases, we were able to develop robust themes supported by extensive source material. The first round of data collection involved fieldwork in *theory-development case study sites*, with the goal to develop theoretical frameworks that could answer our research questions (including the development of concepts, causal mechanisms, and thematic areas). The second round of fieldwork covered the remaining eight case studies, focusing on replication (verifying and refining the initial theory) and on understanding local idiosyncrasies that arise from Africa's immense economic and cultural diversity. A balance needed to be struck between producing thick descriptions and being able to develop themes that were relevant across the cities. This analysis is this study's strength and main contribution.

Kigali, Nairobi, and Lagos were investigated first to develop a preliminary theory on digital entrepreneurship in Africa, which could then be tested for its applicability to other African cities. These three cities were selected because they had developed a distinct profile in digital economy circles. Aside from media presence, we considered factors like the number of hubs, events and competitions, GitHub commits, and other indicators of an active digital economy.

We wanted to include cities along the spectrum of activity, but preferred to exclude places that appeared to have virtually no activity—for example, Liberia and Sierra Leone. We intended to discuss what factors enabled and

constrained digital entrepreneurship, but we also needed a pool of interview subjects in order to base our analysis on empirics rather than speculation. We also needed to start in places with a longer history of digital entrepreneurship to begin to understand processes of learning and adaptation. We thus wanted to begin with at least two cases of top-tier cities in terms of activity (extent and diversity). We expected the top-tier countries to include South Africa, Kenya, and Nigeria; the middle tier to consist of Ghana, Egypt, Senegal, and Cameroon; and the lower tier of Rwanda, Tanzania, Uganda, the Ivory Coast, Mozambique, Botswana, and a few others (see chapters 2 and 5).

Lagos (Nigeria) and Nairobi (Kenya) exhibited similar attributes—namely, similarly high levels of digital entrepreneurship activity in absolute terms, an established entrepreneurial culture, large and well-connected cities, and large domestic markets. Close comparison between these two cities would allow us to establish a large array of digital enterprises and examine other variables in more depth—for instance, the level of NGO/development involvement, M-Pesa as a foundational or platform technology for the domestic market, and so on. Kigali, Rwanda, facilitated distant comparison but allowed us to ask what small countries with great infrastructure, government backing, and lots of ambition achieve, or not, compared to large ones.

The *replication-oriented case studies* (Accra, Dakar, Kampala, Yaoundé, Abidjan, Maputo, and Johannesburg) were opportunities to test emergent findings and to introduce greater variation into the theoretical framework. We sought to include countries with primary languages that were not English and which were operating in different geopolitical and socioeconomic orbits, as determined by their colonial pasts. Francophone countries, for example, use a currency that is pegged to the euro because of their ongoing relationship with France.

We excluded Cape Town as a theory development case study because of its exceptional situatedness and makeup, making it unlikely that we would find enterprise strategies and founder biographies there that would be generalizable to Africa. Not only was South Africa connected to fiber-optic cables much earlier than other regions of sub-Saharan Africa, but Cape Town also is usually seen as untypical of other ecosystems in Africa, given its strong connections to Silicon Valley. We considered including it in the replication-oriented case studies but decided on Johannesburg due to its

closer ties to other cities across Southern Africa and for pragmatic research reasons, as we had better field access there.

Interviews

When it came to selecting the actors that we were going to interview, we were guided by the application of a broad definition of *digital economy*. The digital economy is a section of the quaternary sector of the economy (in which knowledge is a product rather than just a tool), IT-enabled services (taken from the main body of Malecki and Moriset's [2007, 6] description of the digital economy), and informal processes and practices of IT-mediated information production that tend to get left out of more formal models. Thus, a *digital enterprise* is an organization set up to deliver these products and services on a commercial basis. The digital entrepreneurship ecosystem is the social, organizational, and institutional environment that exists to support this activity (see chapter 5). We sought out entrepreneurs who fit within this categorization and the actors that helmed institutions that supported them, including incubator and hub managers and relevant investors and policymakers.

The process of identifying interview respondents was purposive and strategic. We used theoretical sampling and category development techniques. This entails selecting a diverse range of actors to cover the phenomenon as comprehensively as possible. One of the sampling strategy goals was to ensure variety within the sample. This sampling strategy means that the study cohort is not representative of a population (Bryman 2008). We included entrepreneurs, hub managers (the second most prominent cohort), users, government officials, academics and financiers. Table A.1 displays the enterprises that are within the cohort according to their core business or product offering. We selected entrepreneurs at different maturity stages (years of experience, age of startup), operating in different sectors (e.g., e-commerce vs. transport vs. education), using different organizational models (e.g., freelancers vs. CEOs of larger companies), and implementing different business models (e.g., B2C, B2B, B2Gov, social enterprise). We focused on incubators, hubs, and coworking spaces due to their proximity to entrepreneurs. The ecosystem also includes financiers, public sector organizations such as ministries of ICT, and other government agencies.

The process of identifying interview subjects began with internet research that entailed identifying local champions and leaders in the digital economy. Media articles on the digital economy in a particular city often yielded information about actors actively involved in the local digital economy. These articles provided some background to activities at the field sites but tended to be sensationalist in their tone, so we did not regard them as primary data sources. The websites of pitching competitions like Seedstars, Demo Africa, and others generated lists of past participants.

Founders/CEOs were often contacted via email prior to the trip to the field site to ensure that interviews were scheduled in advance of the trip. For the most part, access was not an issue: most respondents were happy to spare time for interviews. That said, there were differences from city to city. Cities that had stronger community attributes and digital entrepreneurship communities that had an international profile tended to be home to interviewees that were relatively open to being interviewed for research. In ecosystems with a strong community, snowball sampling in fact often occurred without our prompting. In ecosystems where professional sociality was less common, clearly, actors who were strangers to each other could not facilitate introductions. Aside from giving us some insight into the closeness of ties in the community, snowball sampling and the willingness of interviewees to introduce us to their counterparts further facilitated access (compared to cold calling). A clear limitation of our approach is that we were likely to exclude some firms that "fly under the radar" and are not connected to the core digital economy ecosystem. For instance, companies that serve institutional customers in particular sectors may be well-known in that particular industry while remaining invisible to digital economy actors.

City case studies were divided among the primary analysts. Friederici conducted fieldwork in Kigali, Rwanda (January 3–22, 2017); Nairobi, Kenya (January 22–February 12, 2017; Lagos, Nigeria (February 12–March 3, 2017); Accra, Ghana (October 15–November 3, 2017); and Addis Ababa, Ethiopia January 3–20, 2018), and Wahome visited Kampala, Uganda (October 4–22, 2017); Maputo, Mozambique (October 22–November 15, 2017); Johannesburg, South Africa (November 15–December 19, 2017); Yaoundé/Buea, Cameroon (January 4–25, 2018); Abidjan, CIV (January 25–February 12, 2018; and Dakar, Senegal (February 12–24, 2018). Field visits were between two and four weeks long. The project's principal

Table A.1
Sampled digital enterprises by sector and city case study

	Abidjan	Accra	Addis	Dakar	Joburg	Kampala	Kigali	Lagos	Maputo	Nairobi	Yaoundé*	Total
Agricultural supply chain	1	4				1						6
Artificial intelligence			1									1
Bulk SMS		1							1			2
Custom software development	1	1	1		3	2	4	1	5	1		19
Data and analytics		1						2		3		6
Digital marketing	1	1						1	1			4
E-commerce	1	3				1	1		2	1		9
Education	1	1								1	1	4
ERP systems		4	3	1	1		1	1	1	1		13
Financial technology		2	2			7	1	4	3	1	1	21
Gaming			1								1	2
Health				1		1		1		1	2	6
IoT, tracking		1						1	1			3
Job search	1		1			1	1	1	2	2	3	12
Last-mile online access	1						1					2
Logistics and supply chain (excluding agriculture)	1			1	1		1	2	1			7
Music streaming										1		1
News, content, and public information		2				1	1	1		2		7
Ride sharing							1	1		3		5
Technology consulting		1	1	2		1						5
Total	**8**	**22**	**10**	**5**	**5**	**15**	**12**	**16**	**17**	**17**	**8**	**135**

*Yaoundé includes two cases of job search enterprises located in Buea.

investigator (Graham) contributed to fieldwork in Accra, Addis Ababa, and Maputo. Semistructured interviews were planned in advance and primarily organized through email. They were captured on audio-recording devices for later transcription. Aside from business premises, coffee shops were a common location for interviews, as they are a popular workspace for nomadic digital entrepreneurs and many others. Several interviews were conducted remotely, often as a follow-up to an initial interview.

In all cases, we solicited information about ICT use, value chain position, change, failure, remaining barriers, and manager perceptions on the effects of faster, more reliable communications on labor costs and services sold. The semistructured interview allowed us to guide the direction of the interview (Bryman 2008) and to follow-up with questions that emerged from responses, thus maintaining the thematic direction of the conversations while allowing room for flexibility.

Most interviews were conducted by a single researcher. Because there were two analysts conducting interviews across multiple case studies, a semistructured approach to interviewing allowed us to gather consistent information and facilitated cross-case comparability while also allowing the lived experiences and perspectives of respondents to come through.

Field Notes

The primary researchers kept field diaries to supplement interviews and record impressions that would not be evident from an interview recording. Field diaries were the means of capturing impromptu, unforeseen informal interviews. We produced a total of 298 pages of field diary notes. Field notes were also particularly useful for recording encounters that could not be captured by recording devices, such as observations at events and other encounters. Our research was not designed as an ethnography, so the primary purpose of the notes was to keep track of interactions, thoughts, and ideas that emerged during interviews or that were observed in the milieu in order to remember to follow-up on them.

Field notes also served as a means of keeping each other apprised of emerging findings. The analysts exchanged and reviewed each other's notes during the data-collection process to jointly discover conflicting findings and new analytical pathways. By recording our vivid impressions as they happened, we were able to share our perspectives and enable other

interviewers to comment on the qualitative data-gathering process from a distance.

Participant Observation and Desk Research

To develop an understanding of the social aspects of the ecosystems, we attended events and gatherings of actors in the digital entrepreneurship arena. The fieldwork travel calendar took into account when these events would be taking place in order to facilitate attendance. These events include a entrepreneur-investor matchmaking event in Kampala, Innovation Africa 2017, and the interministerial meeting for education and ICT held in Maputo, among others. Aside from enhancing our understanding of the sociomaterial environment that constitutes digital entrepreneurship ecosystems, these occasions yield opportunities for informal, unstructured conversations that also deepened our understandings of the local context and how actors benefit from regional and global entanglement. Because we are not able to cite these interactions or observations, we sought to verify and validate them in the interviews that followed.

Finally, we gathered publicly available information about the ecosystems we were travelling to as preparation for fieldwork and also retained the information that we verified firsthand for use as a secondary source of information. This information was located on media dedicated to the digital economy; therefore it was not particularly critical. The media has tended to highlight success stories and report on ecosystems uncritically. Social media, on the other hand, provided a mix of information and was a good source of secondary data. A different study could well rely on data-mining tools to determine the prevalence of particular sentiments or networks among African Twitter users (see Park and Martins 2017). In our case, such data is only supplemental to interviews.

Analysis

The analysis of fieldwork data was a tiered, ongoing process that began in the field. The first round of fieldwork was the first opportunity to test the expectations derived from the discourse analysis, and the rounds of field work that followed refined emergent findings in turn. The data-collection process yielded a large volume of data in the form of interview transcripts,

field notes, and documentary evidence. All interviews were transcribed as quickly as possible, and transcripts saved in a single NVivo file for joint analysis by the two primary researchers (Friederici and Wahome). The data was coded beginning with the themes of the research questions and the discourse analysis.

The two primary researchers took turns coding, which meant that the data remained within the same file. We also kept a coding log, in which we shared notes about the coding process, indicated which files had been coded, and noted what insights had emerged from the coding and if it had led to changes in nodal categories. The thoroughness of the process translates into confidence in our findings.

Coding Based on Research Questions

The most significant limitation of interview data is that it is nonrepresentative and not standardized at the city or country level. This means that cross-country comparisons and generalizations can only be made based on careful, iterative interpretive analysis (Yin 1994). We used an open coding strategy to categorize the interviews along several thematic lines emerging from the research questions.

Entrepreneurs' Mindsets and Experiences

This category aimed to capture entrepreneur's backgrounds, attitudes, goals, and motivations. We were not necessarily concerned with whether there was such a thing as a typical African entrepreneur. The aim was to characterize the entrepreneurs' multifaceted goals and varying backgrounds and how these affect entrepreneurs' trajectories.

Enterprise Market Opportunity Pursuit (Strategy and Scaling)

Economic relations are seldom restricted to local, national, or even regional scales of analysis. By focusing on markets, networks, processes, and the trajectory of individual enterprises and products we were able to ascertain the effects of digital enterprises on spaces and relations.

Entrepreneurial Ecosystems

We sought to understand the contexts around digital entrepreneurs using the entrepreneurial ecosystem concept (see chapter 5), especially the forces that created entrepreneurial communities in these cities. We also wanted to know whether clustering reduced the costs and uncertainties of firms attempting to develop innovations (Maskell and Malmberg 1999) as had

been observed in other ecosystems and whether we continued to witness the stickiness of tacit knowledge to the detriment of sub-Saharan Africa's emerging knowledge economy. However, as we see the beginning of a transformation of sub-Saharan Africa's knowledge economy, we can begin to ask, To what extent is proximity and clustering still necessary for innovation and economic development?

New Themes

A variety of subthemes emerged over the course of our interviews and were categorized under the themes noted previously for analysis. The result was a growing number of nodes within each thematic area. For instance, we discovered complementarities for certain modes of value creation (see Amit and Zott 2001), leading us to also code secondary modes. Over time, we refined the coding plan so that it was comprehensive but not unwieldy. From these categories, we developed concepts and explanations about the practice of digital entrepreneurship. We also hit on entirely new themes, which led us to a wider focus on the "So what?" of our original research questions.

Globalization, Distance, and Development

ICTs have the potential to lessen the importance of physical distance. However, frictions of distance and accessibility continue to influence and shape the ways in which we communicate and interact economically (e.g., Massey 2005; Sheppard 2002). Debates about globalization and development are highly relevant for sub-Saharan African value chains—especially as ICTs are increasingly being employed as tools to foster economic connections with the outside world. We wanted to understand whether firms in sub-Saharan Africa are able to set up productive operations away from the world's cores.

Digital Inequality

The question of who benefits from the establishment of digital infrastructures and technologies emerged as a theme. We observed that the entrepreneurs that we spoke to often were of an elite status group and that the products that they developed, while being open, also had the potential to exclude by virtue of the digital literacy and other affordances required to use them. We sought responses that addressed the extent to which the digital economy reduced or enhanced preexisting social asymmetries.

Validity and Reliability

Qualitative methods enabled us to develop thick descriptive and explanatory analyses using categorical coding of enterprises to condense information from a large sample in a manner that is easily digestible and validating. Although we did not explicitly use counting or frequency methods to quantify responses, coding using NVivo allowed us to be aware of the number of excerpts that were attributable to particular nodes and themes. Thus, every quote that is used in the text is representative of a number of similar sentiments expressed at different field sites. This is an outcome and benefit of using a semistructured interview strategy in which respondents are expected to develop answers to a consistent set of questions. Even when tangents emerged, they were related to a question and thematic area. The ability to have each sentiment validated by a number of respondents is also an outcome of having a large pool of interview subjects. Thus, though each notion might not represent all entrepreneurs, when we present a quote, it represents a significant number of individuals. The research design rests the validity of these insights on having a large number of interviews and on reaching a saturation of the explanations provided in this book.

Different sources of information—interviews, documentary sources, and observation—allowed us to triangulate our findings and also validate them. Archived documents such as news media and policy reports also supplemented our efforts to make note of important continuities and discontinuities that impacted various milieu. For instance, the rationales of South Africa's transformation program are rooted in its history, and the way the policy and its selection criteria are structured is reflective of this. The goal was to support Black Economic Empowerment (BEE) entrepreneurs but also to try to ensure that only the most deserving and capable entrepreneurs received funding. Such a risk-avoidant approach to funding technological entrepreneurship is not typical of other ecosystems, but it makes sense in the context of South Africa's experience. This kind of analysis required being able to validate entrepreneurs' reports with historical background.

The iterative nature of our research design ensured that we were undertaking a continuous process of validation. The fact that there were three of us served as a check on the interpretation of the data. We continuously shared information on our progress in the field and discussed our analyses to achieve a level of congruence among us.

Ethical Considerations

The research design passed the rigorous ethical review of the Oxford Internet Institute's Departmental Research Ethics Committee, a subcommittee of the University of Oxford's Central University Research Ethics Committee, and the screening requirements identified in the ethics screening were integrated into the project design at the moment of the grant agreement.