



Edited by Bitange Ndemo and Tim Weiss

DIGITAL KENYA

An Entrepreneurial Revolution in the Making

PALGRAVE STUDIES OF ENTREPRENEURSHIP IN AFRICA



Palgrave Studies of Entrepreneurship in Africa

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To the new generation of entrepreneurs

Foreword

This is not your usual run-of-the-mill entrepreneurial business book.

The authors are going after nothing short of a transformation in the African business environment, specifically in Kenya. There are scores of books on innovation and entrepreneurship, but this one is clearly focusing on what could make Kenya tick in an age of innovation and rapidly evolving technology.

Kenyans, along with many of their fellow Africans, have leapfrogged into the modern, smartphone world without passing through the historical wire-line telephone stage. The economics of mobile telephony are different from those of older forms of telephony—and, of course, a smartphone is *much more* than a telephone. It is a general-purpose computer that can access the Internet, run local programs, serve as a remote controller, and tell users where they are with the Global Positioning System, among myriad other tasks—and, by the way, make telephone calls.

But this book is not just about mobiles. In fact, it is mostly *not* about mobile technology. It is primarily about fostering innovation, harnessing talent, gathering capital, finding or defining markets, and asking the right questions. It is also about the for-profit and nonprofit world and the roles each can play in an economy. The authors do not duck the challenge of government policy when it comes to competition. The book wrestles with the relative merits of domestic and international market making—for every country, participation in the global market has a larger potential

than any domestic market, but for entrepreneurs just starting out, local sales may at first be much easier to close than global ones.

What I particularly like about the book are the dialogues with prominent entrepreneurs, investors, and thinkers in Africa. These give very concrete examples of what has been done and how it was done. Their pragmatic examples provide essential guideposts for fulfilling the promise of African innovation. Adapting to the unique and varied strengths and characteristics of the continent is a vital ingredient to business success. This book has set my mind buzzing with possibilities—and I hope yours will react the same way.

Vinton G. Cerf

Vincent “Vint” Cerf is an American Internet pioneer, celebrated as one of the “fathers of the Internet” and active today in many organizations that are working to help the Internet deliver humanitarian value.

Praise for this Book

“*Digital Kenya* is a candid look at the backstory of Kenya’s celebrated entrepreneurial revolution. It combines insightful analysis with honest conversations in the unique voices of the nation’s tech leaders. A sober look at Kenya’s dream of becoming the ‘Silicon Savannah’ — and an essential guide to the new African narrative.”

— Bob Collymore, CEO, Safaricom, Kenya

“Insightful, thorough, and revealing. *Digital Kenya* thrusts the nation’s tech entrepreneurs, policymakers, financiers, and thought leaders into the limelight. How is Kenya transforming itself into an unprecedented world tech leader? What historical, cultural, and other barriers is it facing? Will it succeed? *Digital Kenya* tells all from a truly African perspective.”

— Joseph Mucheru, Cabinet Secretary, Ministry of Information and Communications, Kenya

“This book just will change your vision of what’s possible in life, when people dare to think big. *Digital Kenya* explores the country’s astounding emergence as a tech powerhouse on the world stage — and the challenges still ahead. It’s comprehensive, colorful, and one-of-a-kind.”

— Victor Kyalo, Principal Secretary, Ministry of Information
and Communications, Kenya

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Note to the Reader

Digital Kenya is a book of arguments and ideas. Some of these may resonate with your views, others may conflict, and some may be counter-intuitive making you want to brush them away or write an immediate e-mail to the author or editors. All that is fine and intended!

We have set out to create this volume not only to document a story that has received global attention but also to ignite a conversation about the historical, cultural, social, economic, and political dynamics at play in one particular country in Africa. To narrow the focus, the book investigates the entrepreneurial revolution as it is unfolding today in Kenya's technology sector. In this sense, the book risks seeming static, quickly outdated, and incomplete, especially during the current period of rapid transformation. But it can also be an important repository—a guide, really—that provides a stable reference point, reflecting where Kenya's changes have been coming from and where they are headed. The book, then, is a snapshot, an attempt to capture some of Kenya's remarkable complexity at the present moment and to bring to life a life-changing conversation that started in Kenya but that is ready to spill over into other countries on the continent and around the world. There is a lot to talk about!

To add further to the inherent interest of the book's topic, we pushed the authors (and ourselves) to formulate a specific argument underlying each chapter instead of just describing the facts of how Kenya's ICT

sector is shaping up. We spoke with 14 key figures in the field to get a sense of the burning issues that matter to them, and in the end, the book was written jointly by professionals and scholars. Hence, the chapters vary in their balance of practice and theory. Despite the natural difficulties of speaking to both audiences at the same time, we believe that a stronger tie between practice and academic scholarship is, in fact, crucial for the socioeconomic development of Africa.

Digital Kenya is full of opinions, full of life, right down to the introduction and concluding notes. Every chapter went through a rigorous review process, with multiple feedback loops among the authors, editors, and external reviewers, to ensure high quality. And everything in the book is purposefully as rich in detail as we could make it—waiting to be discovered by readers like you, disassembled, checked for validity, and reassembled to build new arguments that fuel future conversations. We are moving forward to uncover new terrain, and we want to take you along.

Having said all that, we are also conscious of the unique historical conditions that societal life in Africa is embedded in. We have therefore followed the academic leadership of other scholars (see Nkomo 2011) and, throughout the book, have placed the word “Africa” conceptually (if not literally) in quotation marks in recognition of the fact that Africa was an invention of colonial powers (Mudimbe 1988)—as was well described by Mwalimu Ali Mazrui (1993), who said, “The shock of colonialism and imperialism had awakened Africans to the fact that in relation to the Western oppressors, Africans were *one*”—and to follow the many other cultural leaders who continue to remind the world that Africa is not a country.

Thanks to the generosity of the Ford Foundation, this publication is free of charge and accessible to anyone with a laptop, an energy source, and Wi-Fi. We deliberately refrained from confining ourselves to traditional publication models, because we seek to make the information and insights offered in these pages available to the many, benefiting many audiences, rather than just to the few. Indeed, we tried to create a book that attracts and reflects a particularly broad range of diverse interests and readerships. The book will be a handy companion for all those who are new to technology entrepreneurship in Kenya and Africa. It will be

a muse for those seeking guidance, inspiration, and a frank look behind the scenes at one of Africa's most successful technology scenes. And last but not least, it will be an uplifting bedtime read with under-your-pillow potential for those who see true value in—and might even wish to participate in—working on the grand future challenges, facing Kenya, Africa, and the rest of the world today.

Although we are academics by profession, we have tried to bring together chapters and written conversation sections in an accessible and comprehensible style to convey context-specific information and high-impact recommendations—and to outline a path for future research that we hope will help inspire the next generation of Kenyans as they take up their work where others have left off. Our purpose is to share rich knowledge and bold new notions with you in the dawn of an increasingly global quest for answers, both in Africa and around the rest of the world.

To us, *Digital Kenya* is a treasury of ideas. We hope you will agree—and enjoy reading it. Thank you for picking up a copy.

Nairobi and Köln
August 2016

Bitange Ndemo
Tim Weiss

References

- Mazrui, A. (1993). Introduction. In A. A. Mazrui, & C. Wondji (Eds.), *UNESCO general history of Africa. — Abridged ed. Volume 8 Africa since 1935* (pp. 1–25). James Currey and University of California Press.
- Mudimbe, V. Y. (1988). *The invention of Africa: GNosis, philosophy, and the order of knowledge*. Bloomington/Indianapolis: Indiana University Press.
- Nkomo, S. M. (2011). A postcolonial and anti-colonial reading of “African” leadership and management in organization studies: Tensions, contradictions and possibilities. *Organization*, 18(3): 365–386.

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1

The Paradigm Shift: Disruption, Creativity, and Innovation in Kenya

Bitange Ndemo

Introduction

A paradigm shift is underway in Kenya. New innovations are destroying old ways of doing business, and smart young start-up entrepreneurs are at the forefront of this quiet but historic transformation. Teams of skilled developers and programmers have sprung up in innovation hubs, incubators, and accelerators across the country to build information and telecom solutions that capitalize on the country's mix of challenges and opportunities. At the same time, we have seen a number of spinoffs of Kenya's unique entrepreneurial revolution reach across Africa and into other corners of the world, attracting global recognition for the country.

Digital Kenya addresses the many different aspects of these technological changes, innovations, and entrepreneurial activities, including policy

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formulation, impediments, and opportunities. It is the first book to chronicle the digital entrepreneurship revolution in Africa and describe how it has emerged in the face of high unemployment rates, poverty, lack of technological infrastructure, and disparate cultural interpretations of entrepreneurialism and risk taking. In this context, the book heralds a new way of thinking about and understanding emergent opportunities in the digital world and how best to exploit them in the face of significant developmental challenges.

The book also shows how the paradigm shift that facilitated Kenya's digital revolution was the result of a number of overlapping factors. For one, India's experience and policy framework served as a benchmark and source of inspiration for growth in the face of real challenges. As in India, innovators in Kenya learned that information and communications technology (ICT) had great potential to help propel the country out of unemployment and poverty. The percentage of Kenyans in gainful employment compared with those actively seeking employment has been estimated at 40 percent. The World Bank reported that of the Kenyan 800,000 youth (ages 15–35) that join the labor market every year, only 50,000 secure a job. Some 70 percent of them are unemployed. But rather than view youth unemployment as the ticking time bomb it is often described as, a number of innovators have used the platforms created by ICT as a strategy to absorb large numbers of well-educated unemployed youth and thus to contribute to economic growth. *Digital Kenya* reviews the many different ways this was achieved and the challenges faced along the way.

In addition, the book describes the development of pro-entrepreneurialism policies and partnerships in Kenya. A simple five-point policy became a key driver of the shift—focusing on the development of ICT infrastructure, leveraging of ubiquitous mobile platforms to build applications, creation of local content, building of human resource capacity, development of public–private partnerships, and creation of employment opportunities for the growing youth population—with the result that Kenya's policy environment has slowly become a conduit for successful ICT development.

The laying of the first fiber-optic cable on the Eastern Seaboard of Africa, the TEAMS cable, it will be shown, was another crucial step and heralded a new chapter for cheaper telecommunication access. With it, opportunities to mainstream Internet access were created, such

as subsidizing broadband for all universities and creating start-up hubs where entrepreneurs had access to high-speed Internet.

Soon new Web applications (apps) were being created. M-PESA, the money-transferring app, capitalized on the fact that only 5 percent of the Kenyan population had access to bank accounts and created a solution that revolutionized citizens' financial freedom. The post-election violence of 2007–2008 also brought some unexpected innovation when a small group consisting of Erik Hersman, Ory Okolloh, Juliana Rotich, and David Kobia began to collect eyewitness reports of violence from emails and text messages and upload them to Google Maps, giving rise to Ushahidi (Swahili for “testimony” or “witness”), a groundbreaking information-gathering, visualization, and interactive mapping tool that is now used around the globe. Ushahidi, along with M-PESA, changed the minds of even the doubters that it was possible for innovation to stimulate world-class entrepreneurialism in Kenya.

Although the landing of the cable was a foundational step in Kenya's emergent entrepreneurial revolution, the opening up of public data was equally important. Kenya developed the Kenya Open Data Initiative, a portal to fuel new apps and new enterprises. Civil society, through the online discussion portal KICTANet, began to push for additional data sets and raised many additional policy issues beyond a mere call for data. Other factors, such as investments in research and seed capital for social enterprises provided by institutions such as the Rockefeller Foundation, propelled Kenya's many ICT programs and projects in ways that involved and empowered the less fortunate.

The Purpose

Digital Kenya seeks to bring into perspective the ongoing debate about adoption of disruptive ICTs not just in Kenya but throughout the world. Kenya is not new to disruption, considering the fact that our own innovations, such as M-PESA, Ushahidi, BRCK, and BitPesa, are causing disruptions in other parts of the world—and that many more Kenyan-led innovations are underway. To ensure that Kenya and Africa continue to contribute to this important growth, we must open up the conversation

about entrepreneurialism and risk and be supportive of disruptions coming from elsewhere. The ICT revolution is a global and competitive phenomenon that is heralding a new paradigm of creativity and innovation in virtually every part of the world. In fact, by the time this book goes to press, there will be hundreds of new apps on the market and nations newly acceding to disruptive change—alongside new movements to restrict rapid technological advancement.

It is hoped that the book will help policymakers approach policy differently than they have done in the past. Looking at policy from various perspectives—such as the entrepreneurial approaches explored in Chap. 1, “Inside a Policymaker’s Mind: An Entrepreneurial Approach to Policy Development and Implementation,” by the author of the present chapter (and co-editor of the book)—as a strategy for dealing with some of the more pressing challenges could revolutionize how we tackle development challenges in general and help the world make real progress toward the United Nations’ Sustainable Development Goals. Opening access to hospital registry records, for example—which can help researchers discover new patterns of diseases and ultimately improve health systems across the globe—is one such strategy.

When historians write Africa’s digital story, Kenya will likely assume its place as the cradle of ICT revolution on the continent. Never before has an African nation gone through a disruption such as the digital transformation that is still underway in Kenya. With so much creativity and innovation going on, the nation is witnessing a gigantic paradigm shift. It is a revolution of a kind that is empowering ordinary citizens and reshaping their communities and lifestyles, heralding a new way of thinking about and understanding entrepreneurial opportunities and how to exploit them.

Chapter Overview

Digital Kenya investigates the power of technology in Kenya to help strengthen every sector and of entrepreneurship as the key driver in innovation creativity and disruption. The book records the so-far-undocumented story of technology start-ups, entrepreneurship, and policymakers that have been on the forefront of ushering in a new era for Kenya.

The words “creativity” and “innovation” were uncommon in Kenya and in Africa until the advent of the digital age and thus mark how far we have come. In 1982, the Kenyan government banned the use of computers in public offices for fear that the new technology would take away secretarial jobs. Today, virtually every public office has computers—with more people than in the past engaged in their use—to enhance service delivery. Chapter 2, “The Internet Journey for Kenya: The Interplay of Disruptive Innovation and Entrepreneurship in Fueling Rapid Growth,” by Muriuki Mureithi, takes us back to this time and gives the historical background of the foundation of the digital revolution in Kenya. In doing so, it describes the evolution of the digital enterprise and also presents the significant challenges of the day, including new competition, changing customer engagement and business models, unprecedented transparency, privacy concerns, and cybersecurity threats.

Although most research on the role of the digital economy in economic development has focused on the “digital divide,” Chap. 2 also describes how new research is linking digital transformation to faster economic growth in much the way the Asian Tigers (Hong Kong, Singapore, South Korea, and Taiwan) did with industrialization. African countries have incorporated (information and communications technology - or technologies) ICTs in their development planning—or “vision”—policies. Kenya’s Vision 2030, for example, promotes ICT as one of the flagship areas to help the nation realize its vision.

Chapter 3, “The KINGS of Africa’s Digital Economy,” by Erik M. K. Osiakwan, describes the history behind the frontrunners in ICT transformation in Africa: Kenya, Ivory Coast, Nigeria, Ghana, and South Africa, designating them as the “KINGS.” The chapter argues that, like the Asian Tigers, the KINGS will lead the continent’s technology innovation, thanks to their rapid growth and high-tech entrepreneurship, setting the pace for the rest of the continent.

Market Opportunities

Africa presents a sea of economic opportunities in virtually every sector, and the continent’s (comparatively youthful) population structure compared with that of other parts of the world is an enormous opportunity

in this digital era. The demand for online services is increasing, including the digitization of records to improve data visibility. These are all areas that will require a young, educated population—which is now abundant in many African countries. Chapter 4, “Addressing Voids: How Digital Start-ups in Kenya Create Market Infrastructure,” by Marissa Drouillard, seeks to unlock the hidden market opportunities presented by market-enabling digital platforms. It reviews various market-enabling digital platforms in Kenya brought to light through research on digital entrepreneurship ecosystems, finding examples where Kenyan digital start-ups have achieved success in breaking down traditional barriers and offering better value propositions to customers.

The combination of knowledge and technologies makes a powerful tool for change. Chapter 5, “Reimagine What You Already Know: Toward New Solutions to Longstanding Problems,” by Jay Larson and Michael Munger, argues that knowledge and technology combined can change societies dramatically, creating opportunities that were previously unthinkable. African nations now stand on the threshold of revolutionary changes based on ICTs, especially mobile platforms, and the chapter makes a strong case for why education needs to be reimaged from the ground up. Once society takes education out of the four walls of the traditional classroom into homes, libraries, Internet cafés, and city streets, a completely new learning experience becomes possible—an experience that innovators need to harness now in order to leverage our digital potential.

The private sector has had interesting engagements with the ICT sector in Kenya, specifically through social entrepreneurship. Chapter 6, “I-Entrepreneurship: Changing Lives through Technology,” by Carmen Merab Wamukoya and Amolo Ng’weno, examines the growth of social entrepreneurship in Kenya and demonstrates how businesses can create shared value in the field of technology. It illustrates the role of impact sourcing as a means of generating employment through an examination of Digital Divide Data, Kenya’s innovative ICT program for the training and education of disadvantaged youth. It also reviews the potential of ICTs to transform businesses and provide an enabling environment for the development of technology-based social enterprises.

Customizing a complex technology to local environments makes it simpler and more relevant even in the most unexpected areas. Today, even the poorest citizens in shantytown areas participate in social media, which has given rise to new approaches to communication. Chapter 7, “From Cyber Café to Smartphone: Kenya’s Social Media Lens Zooms In on the Country and Out to the World,” by Mark Kaigwa, explores the expressions of the “connected Kenyan.” Often used by Kenyans online, it is the common denominator in all of the other chapters of the book. It seeks to answer questions such as what happens once a Kenyan comes onto the grid of Internet connectivity—be it smartphone or cyber. What is his or her experience, how do they find their way, and what becomes important to them? What is to be said for the digital spaces of community and expression that have emerged and become part of the fabric of how information now travels? The chapter addresses these questions and argues that it is not enough to be connected: It is also how you are connected and how the news, for instance, finds you that defines the depth of ICT penetration in a community.

The Inner Life of Technology Entrepreneurship in Kenya

To foster greater opportunity, Kenya has sought to develop an ICT ecosystem—which was soon dubbed the “Silicon Savannah”—in Konza, 60 kilometers south of Nairobi. This project seeks to address the problems of disjointed development, in which research communities rarely interact with industry, for example, and even less with policymakers. Chapter 8, “Building ICT Entrepreneurship Ecosystems in Resource-Scarce Contexts: Learnings from Kenya’s ‘Silicon Savannah,’” by Johannes Ulrich Bramann, explores how ICT entrepreneurship ecosystems can be established in resource-scarce contexts, such as a scarcity of financial resources, established ICT sectors, and relevant human capital. It sheds light on the evolution of Kenya’s ICT ecosystem and examines the barriers and subsequent enabling processes encountered when growing an ICT ecosystem in a resource-scarce context, providing a holistic perspective

on the barriers and enablers encountered in the areas of culture, human capital, finance, policy, entrepreneurial support systems, and markets.

Many countries in the Global North offer a variety of incentives for start-ups. Yet African countries have not, so far, been able to encourage or support start-ups in the same way. Chapter 9, “The Challenges of Technology Entrepreneurship in Emerging Markets: A Case Study in Nairobi,” by Marlen de la Chaux and Angela Okune, investigates why the creation of technology start-ups in Nairobi has remained challenging despite support from an increasing number of innovation hubs and seed capital investors. The authors look at three different groups—entrepreneurs, innovation hubs, and seed capital investors—and expose the divergent views among these groups that lead to contradiction, misalignment, and ambiguity in Kenya’s ICT industry. De la Chaux and Okune attribute this phenomenon to the fact that the industry is still in an emergent state, with the result that the many stakeholders hold divergent views on the exact challenges—in the areas of finance, skills, and market readiness, for example—and how they need to be addressed, thereby inhibiting the development of a shared agenda for growth.

Chapter 10, “Organizational Cultural Hybrids: Nonprofit and For-Profit Cultural Influences in the Kenyan Technology Sector,” by Eleanor R. Marchant, builds the case that in order for progress to take place in the Kenyan technology sector, we need to move beyond the stale debate about whether non-profit grant funding is good or bad—and instead find ways to take advantage of the multiculturalism that exists in the sector. The chapter draws on existing theories about culture at organizations to demonstrate that even incubators, often associated with the for-profit model that dominates the discourse, are not purely for-profit when they are examined more holistically using the lens of cultural theory. Using Schein’s theory of the three levels of organizational culture—that is, observed behaviors and artifacts, espoused beliefs and values, and underlying assumptions—the chapter demonstrates in a more nuanced way that cultural hybridity exists at key organizations in Kenya’s technology sector and how practices and behaviors of these organizations are shaped by their fundamental underlying assumptions.

Managing the Fine Details of Doing Business in Kenya

There are no longer confused arguments about why a country would, or would not, seek an ICT-enabled transformation. As Nagy Hanna in *Mastering Digital Transformation: Towards a Smarter Society, Economy, City and Nation* explained, it is “through ubiquitous connectivity, digitization of content and processes, crowdsourcing, collaborations, tools, knowledge networks, sensors, data capture and sharing, artificial intelligence, and analytics, [that] ICT can help build innovative enterprises, mobilize local knowledge and problem solving, and make global knowledge accessible to all. ICT can network actors and organizations across sectors and regions, build collaborative platforms to co-create development solutions, and enable client-centric service delivery.” To achieve these benefits, there must be good leadership and an enabling dynamic policy environment.

Chapter 11, “Inside a Policymaker’s Mind: An Entrepreneurial Approach to Policy Development and Implementation,” by the author of the present chapter, offers an analysis of the policy process that led to the ICT boom in Kenya during President Mwai Kibaki’s administration (2003–2013) and of the policy developments that spurred the highly successful innovations in the country’s ICT sector. The chapter explains the course of establishing the institutions that supported ICT entrepreneurship and describes the process involved in the making of far-reaching policies and analyzes, using three case studies in ICT policy development—the TEAMS fiber-optic cable project, the M-PESA application project, and the Posta land development project—and discusses their contributions to Kenya’s ICT boom, arguing that if there is any lesson to be learned from the Kenyan experience, it is that political will is by far the most important aspect of policy development. Countries in the Global South are replete with failed projects, in part because of a lack of political will. The chapter also describes how other factors, such as pro-activeness, innovative outside-the-box thinking, and an appetite for risk, played key roles in the success of the Kenyan ICT transformation process.

International organizations seeking to collaborate with local organizations need more than an enabling policy environment. They also need to understand local dynamics. Chapter 12, “The Art of Managing Worldviews in Kenya’s International Technology Sector,” by Tim Weiss (co-editor of the present volume) and Klaus Weber, documents what a prospective investor needs to do to become successful in Kenya’s tech scene. It investigates if there is such a thing as a Kenyan recipe—a holy grail—for success. The research brings into focus two different worldviews, a “Kenyan worldview” and an “international worldview,” that stand on different sides of the question of how to do it “right.” This dynamic sheds light on the contested issues that have surfaced during Kenya’s international tech boom. However, it also shows that tension and contestation, if tackled with the right mindset, can also become opportunities. The chapter thus introduces the art of managing worldviews in order to help equip actors with new tools to work through challenges and infuse technology entrepreneurship with a unique Kenyan character.

Chapter 13, “Developing Strategies to Harness the Power of Parallel Entrepreneurship in Africa,” by Eskor John, identifies some of the most salient factors related to parallel entrepreneurship—factors that, if better understood and supported, have the potential to make a significant contribution to the transformation of Global South economies. It also explores the contextual factors contributing to the growth of entrepreneurship in Africa and the prevalence and implications of parallel entrepreneurship. It concludes with a number of recommendations on how to support and develop parallel entrepreneurship in other contexts and countries.

The success of an enterprise depends on the ecosystem in which it operates. Leveraging primary and secondary sources, Chap. 14, “Venture Capital in East Africa: Is There a Right Model?,” by Stephen Gugu and Wilfred Mworira, seeks to establish if there a right model for venture capital in East Africa, concluding that the ideal model does not currently exist. The study suggests that the high cost of operating a fund in the region and the length of time it takes to find, evaluate, and make investments are the top concerns among fund managers. In addition, fund managers in the region are called upon to take on roles that are atypical of conventional fund management, including, in particular, getting heavily

involved in investees' businesses. The authors conclude that in order to succeed, venture capital needs to adapt more effectively to suit the context and characteristics of venturing in the region.

In Chap. 15, "Entrepreneurship for Society: What is Next for Africa?" by Tim Weiss (co-editor of the present volume), the author weaves the chapters of the book and the conversations with thought leaders into a single narrative. He highlights key issues and trends, among them a profound mindset change that is underway in Africa, affected through self-awareness and pro-activity. He goes on and revisits the cultural impact of state and non-governmental organisation (NGO) dependency, something that has been a critical barrier to innovation on the continent. In his critical inquiry on the entrepreneurial revolution he also asks: Which traditional norms and values should remain and which new ones should be incorporated and adopted to foster—rather than impede—societal development? Weiss then continues and expands on the mythical character inherent in the information age that exposes the deeper wish to level the playing field through digital solutions albeit power continues to remain in the hands of a few global companies. This fallacy, however, he argues should not stop us from resolving challenges in the education sector, and advancing social impact. Rather a calls for a mindful creation and implementation of innovations, critically assessing the intended and unintended consequences of change. He concludes with a roadmap for the years ahead, and with that introduces an intriguing discussion that places Africa's response to various grand global challenges on the center stage.

Summary

Our aim with this book is to generate debate on the role of ICTs in economic development through entrepreneurship. It is also intended to create awareness of the emerging opportunities in ICT and to present new ways of exploiting them. There is no doubt that ICTs are changing the African narrative: Africa is no longer the Dark Continent. Africa is rising. The rate of change in Africa today as a result of ICTs is unprecedented and cuts across all sectors. From innovations such as M-PESA to large-scale business process outsourcing developments, ICTs are creating jobs,

addressing poverty, reducing inequality, and providing mechanisms to monitor and address the Sustainable Development Goals. Governments are becoming more productive, farmers are getting value for their produce, transportation is becoming more efficient, and education is increasingly accessible and practical. External stakeholders are noticing, too. Multinational corporations are increasingly setting up research laboratories in Nairobi, and international policymakers are coming to Kenya to learn how we did it. These are just a few examples of ICT's impact in Kenya. There will be even more promise if we continue to adopt ICT instead of fighting it.

We hope that *Digital Kenya* will serve as a resource for those wishing to better understand the genesis of Kenya's ICT boom for policy, practice, and research.

Conversation #1

The Past, Present, and Future of the 'Digital Nyika': How to Fix an Aircraft in Flight

Jimmy Gitonga of Afroshok Media



Jimmy Gitonga took the scenic road to getting here. Having studied physics and applied mathematics at the University of Nairobi, he then studied electronics at Kenya Polytechnic. He ran a consumer and professional electronics firm, Audiophilia Electronics, that was involved in designing and installing a radio broadcast studio for WorldSpace (a global satellite radio network).

He then veered into graphic design, web design, Flash development, and motion graphic—after which he went into animation, working on the pilot project of the British–Kenyan children’s television series Tingatinga Tales. Jimmy is a founding member of the ARK, a design house that developed the Zuku brand for the Wananchi Group and designed the iHub space. He was also a past iHub community lead, overseeing the growing membership base, and targeted programs toward team members, start-up, and how these members can deliver solutions to the enterprise and public sectors in Kenya and across Africa. Today, Jimmy runs Afroshok, his own boutique design firm, and is an iHub ambassador involved in community projects.

Jimmy, what fascinates you about digital technology in Kenya?

Recently in Kenya, we witnessed a moderately sized exit through the purchase of a technology start-up at about USD1.7 million.¹ Several months later, we had another kind of tech start-up exit, not in realization of dollars but in a failure of top management, brought about by what I would call culture and vision fit issues.² During this period, I attended a number of seminars and industry events, and I began noticing interesting trends that affect how we, as Kenyans in particular and as Africans in general, are interacting with digital technology and the proliferation of digital products.

Let us look at this in more detail. In Kenya, we can see a cultural transition happening as the generation that witnessed the independence of the country moves off the stage. The generation born between 1970 and 1980 saw the political realignment that came after the Cold War and has now grown up. Apartheid and its proxy wars came to an end as propped-up countries like Somalia and Yugoslavia collapsed. In the 1990s, Mandela became a global icon because of the Internet and easy access to it through personal computers. The personal computer and the Internet came to Africa especially with the backdrop of these global political realignments. Remember, the electronics giant Apple could not sell a certain model of computers to so-called “enemy states” of the USA. The mobile phone arrived on the scene in the 2000s, and now so has cyber-warfare, where

¹ See Moraa, Hilda. 2015. *A Kenyan Startup Journey: My 10 Key Lessons*.

² See <https://medium.com/@brendawambui/corruption-in-the-silicon-savannah-9e393a00aa0e#.8uz9dnugf>.

politically opposed countries have taken their differences online. So the place of governments and the ICT sector are intertwined.

For most Kenyans, the mobile phone and the Internet arrived together—and the people picking up these two technologies are mostly below 35 years of age.

Jimmy, what would you say were the key milestones that brought Kenya's ICT sector to where it is today?

I handled my first computer at the University of Nairobi. There was no degree in computer science then, just a post-graduate diploma. For programming languages, we studied Basic, FORTRAN, and COBOL. We worked on Wang terminals connected to the university's mainframe. I finished at the university and joined Kenya Polytechnic for a transition course to electronic engineering, where we studied everything related to “light [electrical] current” technology. I was equipped for the computer age in Kenya. The pre-Internet software development industry was also gaining traction at the time, with names like Lotus, FoxPro, and Dbase coming in.

Around this time, the Internet landed visibly in Kenya through a company of young Turks called Africa Online and an older-guard company called FORM-Net Africa. Almost anyone who has become prominent in the Internet space in Kenya came from or passed through these two companies. One thing that did not happen is the landing of fiber-optic cables on the East African coast. The cables went round Southern Africa, passing Mauritius and landing in India. Kenya and other Eastern Africa countries would have to rely on expensive satellite Internet connections for another decade.

At the same time, most of Africa was in political upheaval as the Cold War period closed with the emergence of “multi-partism” and human rights. These were attached to the Bretton Woods institutions' Structural Adjustment Programs (SAPs) that were implemented from the 1980s onward. The SAPs wiped out most of the social facilities that African countries had created after their independence. In Kenya, health and

education were hit hard. A system called Cost Sharing was introduced. A lot of people who had already been hammered by falling prices of local goods, due to liberalized markets, could not afford medication for their babies or schooling for their children.

The real Kenyan economy shrank relative to population growth with rural-to-urban migration growing earnestly. Nairobi's population grew by over 61 percent between 1989 and 1999, compared with a 34 percent growth in the entire country. This is the time that Microsoft's Windows 95 spread and with it the Microsoft Office suite of packages. Computer manipulation skills were in demand, creating a market for computer-related training that was colloquially known as "learning packages." This fed the need for alternative tertiary training for the urban immigrants and school-leavers as well as bringing current management executives in many companies up to digital speed.

By the time the Internet 1.0 dot-com bubble burst, in 2001, Kenya entered into a "Second Liberation" political era, with the end of the rule of the political party that had been in power for close to 40 years. Foreign investment and the effects of the privatization of state corporations continued, with the entry of mobile telephony networks in Kenya as well as most of Africa. Safaricom, a spin-off from the state corporation Telkom Kenya, brought in affordable mobile connectivity to a country that had slightly over 320,000 fixed lines at the time. By 2002, there were 500,000 mobile phone users, and the growth has been in double-digit percentages ever since.

At this time, the Kenyan government removed importation-related taxes on mobile devices and computers. This allowed almost anyone to afford a mobile phone, and laptops began to be a common site at universities. Kenya's then Permanent Secretary in the Ministry of Information and Communication, Doctor Bitange Ndemo, led a move to break away from the bureaucracy-plagued Eastern Africa Submarine Cable System and set up The East African Marine System (TEAMS) consortium. Once launched in 2009 and after a number of cable mishaps, the TEAMS

cable has upgraded its designed capacity from 640 Gbps to the current 1200 Gbps, and Kenya—along with most East African countries—uses this cable because of its better transmission quality and reliability. Other cables have come in, too, leading to a total of four fiber-optic cables in Mombasa. Access to the Internet has become a reality for many people.

In 2007, Vodafone, through Safaricom, launched the M-PESA money transfer platform. Since then, M-PESA has become the global leader in mobile money transfer and raised the possibility of Kenya and Africa being at the forefront of world m-commerce. Just a year later, the crisis crowdsourcing platform Ushahidi was created to monitor the increasingly opaque Kenyan election scenario in early 2008. This platform then went on to become a globally recognized and used way to monitor crises.

In 2010, the first tech community-led “hub” was opened. The iHub, which stands for “innovation Hub,” is a co-working and hacker space and, in its own words, “a nexus for technologists, investors, young entrepreneurs, designers, researchers, and programmers.” The iHub was the pioneer among the numerous co-working and incubation spaces across Africa today. It is here and in other African technology, art/culture and co-working spaces that the question of the global positioning of the African digital entrepreneur began to be raised.

If Africa Online and FORM-Net Africa formed the first wave of digital entrepreneurs and companies, these four events—the Kenyan government’s genuine commitment to ICT, the M-PESA platform, Ushahidi, and the iHub—were the milestones in the making of the Kenyan technology landscape (with its new moniker, the Silicon Savannah).

What do you think of the Silicon Savannah’s future? What can we expect?

That is a good question. And such questions have started to be posed in the expounding of the vision of the Silicon Savannah. Is it possible or is it a dream, driven by the hype of tech-savvy Kenyans? Are these dreams realistic? What will it take to put Kenya and Africa on the global

technological map? In Kenya, again, you can see the two parties in it, the government with its politico-economic agenda and the people's relationships with this as they go along doing their business.

As the initial media spotlight continues to dim, a number of fundamental issues about business anywhere are becoming apparent. Kenyan entrepreneurs do not yet have the requisite knowledge and commercial infrastructure to build globally recognized technology companies when compared with their Western counterparts. What is being asked of them is equivalent to fixing an aircraft while yet in flight. Not only is the global technology landscape changing rapidly, but African entrepreneurs are being asked to stake their claim as it changes. And if that is based on the timeline of California's Silicon Valley, then we are 50 years late to the party.

Being late to the party is one thing. But what are the underlying issues at play?

Africans seem to have a penchant for accepting foreign ideas and absorbing them without critically investigating their source, history, necessity, and workability in the context of the African space. Look at the words being used in the African technology environment—words like Silicon Savannah—and you can see that not a lot of thought was put into the connotation, as if the perception of the American Silicon Valley had been taken wholesale and simply plastered onto an African scenario. This way of thinking started some time ago, and Silicon Valley is just the most visible part of that iceberg.

Stepping back a bit, Africa's destiny in the world began much earlier and changed significantly in the 1500s, when the Portuguese began sailing to Africa. At that time, Africa south of the Sahara could stand toe-to-toe with Europe in social, commercial, and military prowess. The Portuguese became the most active Europeans in Central Africa and met the Kingdoms of Kongo and Ndongo, among others, that were as good as the Portuguese were in diplomacy, war, and commerce. The Portuguese carried out the business of slavery in earnest to provide for the labor necessary to conquer the new colony of Brazil.

In order to gain a foothold in the kingdoms of Benin, Kongo, and Ndongo on the African western coast, a number of missionaries were sent to “Christianize” the Africans. One of the most important concepts was that “slavery was a normal part of world affairs”—a European Christian construct and a position favored by King Afonso I, ruler of the Kingdom of Kongo (1456–1543).³

The Portuguese slave traders had a plan. As the people became “enlightened” by Christian education, communities were convinced to rebel against Afonso’s rule. The ensuing rebellion would be used as an excuse by the Portuguese to wage war against these communities in the name of aiding Afonso, thus creating prisoners of war who invariably added numbers to the slave trade. Before long, Afonso’s kingdom was falling apart, his authority diminished, and some areas became depopulated. This was a strategy used again and again across Africa by the “other” Europeans.

The Industrial Revolution took this state of affairs to an even higher level. With the “Scramble for Africa” and colonialism, Africa fell behind the development of the European and later American and Asian nations in world affairs. Globalization picked up speed, accelerating in the twentieth century because of two World Wars and electronic communication. Now, in the twenty-first century, globalization is spreading at the break-neck speed of the Internet and the mobile phone.

Today, in the post-Industrial Age, a new concept has emerged—that of the digital entrepreneur. These two words carry a different emphasis, depending on whether you use the Western or African perspective. In the West, “entrepreneur” is massively important right now because it virtually disappeared during the Industrial Age. Before that, everyone was an entrepreneur. In Kenya, particularly, almost everyone is *still* an entrepreneur. It is the “digital” that is new. This means that in the future, formal

³ See ‘Portuguese and other Europeans in Africa in the early 1500s,’ <http://www.fsmitha.com/h3/h17port2.htm>.

employment, especially in ICT, will increasingly be seen as an option to an “informal” vocation or a transition to self-employment.

But this state of affairs is not spread evenly across Africa. Canal+, a French media company, held a conference in Nairobi where I participated as one of the organizers. Delegates from French-speaking countries in Africa were invited to understand how ICT hubs are spreading throughout Africa and the possibility of this happening in their countries in particular. As we talked about thinking outside the box, it became clear that most of French-speaking Africa lags behind the English-speaking communities in digital entrepreneurship, because the France-based education system follows the old paradigm of standardized learning, in which innovation is not encouraged. An entrepreneur needs critical thinking, persistence, adaptability, creativity, and initiative. The situation is not helped much by the fact that most Western technological ideas are shared on the Internet in the English language.

What is the way forward for the future of digital technology in Africa?

Let me give you an example. Africa is still portrayed in Western media as if we were in the sixteenth century. Adding post-colonialism and the international aid guilt trip, Africans are relegated to handouts that come in many forms while the extraction of minerals and human resources continues. Africans consume the messaging that they must take what they are given and become entrapped by Western ideas and ideology. This leads to collective low esteem and apathy, creating passive people who are absent from the conversations that affect them on the world stage.

There are things we as Africans can learn from our history when looked at from a Western worldview. But as Minna Salami, an African writer said, “These images are so negative that it takes us tremendous effort to not see ourselves through the eyes of this distortion.”⁴ It will take a lot of work and some time for the Western worldview of Africa to clear.

⁴ See Minna Salami. ‘To change the world, change your illusions’; <https://www.youtube.com/watch?v=PiVB5niLrWg&feature=youtu.be>.

In this digital era, African entrepreneurs need to see themselves clearly and consider a different, bolder perspective as they strike out to make their mark in the world. We need to reinvent Africa and use digital technology, the mobile phone, and the Internet to do it. Just as most of Europe is defined through the Industrial Revolution (“German engineering,” etc.), perhaps African communities can be defined and reimagined through the lens of digital technologies.

What are some of the lessons, implications, and changes in mindset that you think are necessary?

Allow me to propose three lessons that we need to take from our history. First, we must remove our Western-colored view of Africa and look at it in a new way in order to create a conducive environment. Individualism is the lens through which people in the West view themselves. We must recognize that we Africans base our social outlook on collectivism. This immediately explains the differences in approaching the identification of innovative solutions. For the West, innovation stems from solving concerns revolving around the individual. In Kenya, the innovations that have been built are to solve non-individual problems.

Before M-PESA, there was Sambaza. This was—and still is—a service designed to allow one person to buy mobile phone airtime for someone else, say, a son in the city buying for his mother, who lives up-country. The problem was that the airtime was sold in large denominations, even though most subscribers wanted small amounts at a time. So, enterprising Kenyans would buy the large-denomination cards, usually for 100 Kenyan shillings or more, and resell airtime to others in smaller amounts, charging a fee for the service—with the result that using a service developed for one purpose created opportunities for another. M-PESA took advantage of this enterprising nature, allowing two individuals to transfer money to each other and Safaricom to make some money off that, unlike in the Sambaza system. Safaricom then produced small-denomination airtime cards branded as Bamba. M-PESA and Bamba cannibalized Sambaza. This mobile commerce innovation was based on non-individual needs. The same non-individual premise could be attributed to Ushahidi, the company that I talked about at the beginning. And so, we

should expect more non-individual and social innovations to come from Africa (mobile banking and retail have already taken hold).

Second, the initial innovations in Silicon Valley focused on “silicon” based ideas. It was used in the production of electronic components and microcircuits. Some of the companies involved were Shockley Semiconductor Laboratory and Fairchild Semiconductor, from whom Intel and Advanced Micro Devices, among others, were spawned. These innovations were taking place in the Santa Clara Valley in San Francisco. It is these innovators who “developed a culture of openly denying the hierarchical culture of traditional corporations. People remained faithful to each other, but not to the employer or the industry.”⁵ This is Silicon Valley.

We need to recognize this, because nowhere in Africa is silicon itself being used to innovate through production. Africans are joining this innovation space during the digital—and, more correctly, the mobile—era. So “digital” is a better description of African innovation at this time. Also, though “savannah” is used to depict an African landscape, it is not an African word. It comes from a Native American community for the grassland prairies they inhabited.⁶ Should we not be using the name that Africans themselves gave their grasslands?—*Nyika!*

This renaming—“Digital Nyika”—even though a seemingly small change, is an exercise that forces us to look at the African innovation space without biases. We can then learn from other innovative spaces around the world, copy what is necessary, build what infrastructure we need, and innovate for Africa first. Only then can uniquely African knowledge and financial investment grow in an environment that is in itself unique.

Third, it should be noted that most of the tech solutions that have come out of Africa and ventured onto the international stage had a local problem at their core. That is all well and good. But the current Silicon

⁵ Access Wikipedia. ‘Traitorous Eight’. https://en.wikipedia.org/wiki/Traitorous_eight for more information.

⁶ Access Wikipedia ‘Savanna’, <https://en.wikipedia.org/wiki/Savanna> for more information.

Valley thinking in Africa has caused the ideas we see coming out of our innovation space to be mostly copies of what we see in America and other places, with the only new ingredient being “How can it work here?” Still, Ushahidi is an example of a global problem solved first locally. There was no other solution like it nor would there have been one, because the conditions for its creation were unique to Kenya and other developing economies.

Africa in space and time must take charge of its destiny, using digital technology to take advantage of the confluence of a young and growing demographic, an increasingly multipolar political world, and all the advantages of not being saddled with generally older populations and analogue technological systems. If you look around, this is already taking place—and is increasingly crossing over to innovations that combine software and hardware.

That is our Kenya, a new Africa, the birthplace of mobile money and crisis mapping.

What will be next?

Thank you, Jimmy!



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Part I

Looking Back and Looking Ahead

2

The Internet Journey for Kenya: The Interplay of Disruptive Innovation and Entrepreneurship in Fueling Rapid Growth

Muriuki Mureithi

Introduction

Kenya's information and communication technology (ICT) sector has witnessed a dramatic turnaround. Barely 20 years ago, in the mid-1990s, the sector was an irritant to the political system and was best discussed by geeks in hushed tones. The political system saw emerging ICTs as an affront to challenge its leaders' power and control over information flow. Such was the environment that the first efforts to introduce the Internet in Kenya, in 1995, were met with an official rebuff through a full-page advertisement by the then Kenya Posts and Telecommunications Corporation (KP&TC), a monopoly state enterprise, declaring that Internet services amounted to resale, and were therefore illegal. It was in this harsh environment that the Internet was born in Kenya. In short order, it was banned entirely in the government civil service until 1999.

In such an environment, the Internet was only for brave nongovernment organizations (NGOs), geeks, and small companies with

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international business interests. Indeed, none of the universities had Internet connections. Concerted advocacy changed the tide, and by 1997, the government promulgated the Telecommunication and Postal Sector Policy recognizing ICT's contributions to development, and by 1999, passed the Kenya Information and Communication Act, a new telecom law establishing a multi-operator environment—followed shortly thereafter by official recognition of the Internet. However, the market still had to endure a monopoly international gateway through the state-owned incumbent operator for another seven years, till 2007.

The Telecommunication and Postal Sector Policy had envisaged a national teledensity (i.e., telephone lines per 100 people) of 5 % by 2015. But in fact, rapid growth realized a teledensity of fully 88 % by September 2015 (Communications Authority of Kenya 2015).

In the two decades before 2015, the sector came of age, and so did the institutions driving the Internet. Today, the Government of Kenya has now fully embraced the Internet and ICTs as drivers of socioeconomic growth and, in a very bold move, established a high-level agency to mainstream e-government as a tool for governance and for reaching out and interacting with the nation's citizens. Working with various stakeholders, the government has even promulgated a national ICT policy that actively envisages national growth driven by ICTs.

Slowly but surely, new and revolutionary technologies and business processes have come into the market, disrupting older technologies and business processes. The policy and regulatory framework has had to give way to respond to the new environment, and finally, the early actors have had to give way to new actors. Indeed, none of the key actors from 20 years ago exist in 2015. KP&TC, for example, has given way to Telkom Kenya, which is quite different from the old monopoly, KP&TC.

The evolution is profound. At the technology level, Kenya has moved from offline store-and-forward (FidoNet) technologies and reliance on copper for connectivity to cellular, and now, to fiber optics. Similarly, the bandwidths of 2015 would have been inconceivable two decades ago. In September 1995, Kenyan Internet users shared 32 Kbps to serve the entire country—a far cry from the 1.7 Gbps available 20 years later. From the international NGOs who introduced email, Internet service is for the masses today and is used by many in daily activities. The Kenyan government, which through KP&TC was dead set against email and

Internet and banned it in government services, is now a key promoter of a digital future for Kenya.

The net effect is that the Internet is widely available and much cheaper, with applications for numerous aspects of daily life. Still, 26 % of Kenyans are not using the Internet for various reasons, including gender disparities in access and use, affordability, content relevance, and basic access. This chapter attempts to document the disruptions that have brought Kenya this far over the past 20 years and to explore lessons that can help guide the nation over the coming 20 years—while addressing new frontiers that have not so far benefited from the rise of the Internet.

Evolution of ICTs

The evolution of ICTs has been very fast and has affected all stakeholders—users, operators, and the government. The following phases can be discerned in the evolution of ICTs in Kenya and the role of civil society organizations (CSOs):

- **Phase 1** Before 1994, electronic communications other than email were hardly known. Users were largely international NGOs for international communications. Email service providers relied on upstream Internet service providers (ISPs) based abroad to poll its servers once or twice a day to collect and deposit mail. The upstream ISPs distributed the mail globally. Because of the high cost of leased lines, calls were reversed, that is, instead of Kenyan operators initiating calls, the calls would be initiated from abroad. The Association of Progressive Communications (APC) network of organizations was one of the principal upstream distribution supports for local email service providers.
- **Phase 2** In this phase, awareness of the Internet increased and email was launched. A milestone workshop organized by the Telecommunications Foundation of Africa in July 1995 attracted ten email service providers—a relatively high attendance, reflecting a growing interest in understanding the new technology. Immediately after the workshop, KP&TC made its declaration that Internet services were an illegal use of leased lines.

- **Phase 3** In 1994 and 1995, the African Regional Centre for Computing launched a full Internet system with financial support from the British Government's Overseas Development Agency to pay for an international leased line. With increased awareness, clear business opportunities were emerging and attracting private-sector businesses that wished to launch commercial Internet services. Regulatory and operational bottlenecks affected access to bandwidth, however, leading to very high costs of access for consumers. The role of the CSOs as suppliers of Internet services declined dramatically because of competition from commercial operators. Funding of Internet development also evolved, from donor funding to commercial funding by entrepreneurs.
- **Phase 4** Since 2000, with the entry of the Communications Commission of Kenya (CCK) as the nation's telecommunications regulator, the government has legally recognized the Internet and established a proactive relationship with CCK as a development partner. Entry barriers in licensing and fees came down. The government also accepted the Internet as an integral tool for development. Challenges, however, have remained—emerging monopolies, access to rural areas, affordability, the high cost of equipment, and the lack of content.

It is clear that the evolution of the Internet in Kenya has been rapid, with fundamental changes affecting every stakeholder:

- At the institutional level, this evolution has seen a decline in the influence of the East African Internet Association (EAIA), a nonprofit organization founded in 1995, that advocated and catalyzed the growth of the Internet to Telecommunications Service Providers of Kenya, a nonprofit organization representing technology service providers, in order to address the Internet's then-current operational problems.
- The evolution has seen the role of CSOs move from the supply side of services in 1992–1995 to the demand side. Today, the CSOs' concern is to reach higher levels of equity of access in terms of affordability for rural areas and the poor and of application in governance. The private sector drives the supply side on a commercial basis.
- At the operational level, the dominance of the CSOs in driving the growth of the Internet before 1994 has given way to the private sector, and the efficiency of distribution of local mail has been addressed with

the launch of the Kenya Internet Exchange (an Internet exchange point launched by Kenyan ISPs in 2000 to cut costs by avoiding the use of expensive international links [mostly satellite at the time]).

- At the technology level, FidoNet technology dominated in 1994. Because of the high cost of international calls, operators reversed traffic to upstream ISPs on a periodic basis. Transmission was through KP&TC, low earth orbiting satellites, and high-frequency radio to rural areas. The technology has since changed to make use of online connectivity after the introduction of the Internet in 1995.

Internet Diffusion and Impacts of Disruptive Innovation

Network Establishment, from 1990 to 2000

Technology moved from FidoNet store-and-forward systems being polled by GreenNet in the UK every six hours to a 64-Kbps online link for the country and then to today's high speeds of 1.7 Gbps over the submarine cables in 2015. End users could only reach 14 Kbps to poll into the FidoNet systems, which had a limited number of dial-in lines, all owned by KP&TC. These have given way progressively from analog first-generation (1G) systems to today's fourth-generation (4G) systems as coaxial cables have been superseded by fiber optics.

New technology has also seen disruptions and the consequent demise of planned projects. Regional telecommunications networks, Code Division Multiple Access, trunked radio, and paging networks are some of the planned projects that failed to take off. In addition, innovations have killed legacy technologies and businesses, including postal services, money transfers, and copper-line access.

Offline Technologies

FidoNet was the technology of choice in the early years, when a customer would have to compose an email message and send it from a computer with a modem to an internet service provider (ISP) server, where it was

stored. The email would be picked up only after the server had been polled, sometimes up to six hours later, by an upstream ISP (hence the “store-and-forward” terminology). The upstream provider helping most of the NGOs in Africa at the time was GreenNet, established by the Association for Progressive Communications (Levey and Young 2002). The upstream provider would download all email destined for the various Kenya-based NGOs and distribute mail for their international clients. Given the very limited bandwidth, the mail consisted principally of text messages and, rarely, attachments—which had to be encoded by the sender, and then, decoded by the user. It was only after decoding that the user knew if the attachment was, for example, additional text or a spreadsheet.

Email set-up at the customer end was expensive. A customer had to invest in a computer, a modem, and a telephone line. Similarly, the ISPs had to invest in telephone lines¹ and modems for connectivity to their customers. With a teledensity of less than 1 % nationally, installing the telephone lines was a major barrier—not to mention that the modems had to be of a type approved by KP&TC (which, incidentally, did not have the skills needed to keep up with approvals for the ever-increasing array of new technologies).

Kenya had deployed mobile cellular in 1992 using Enhanced Total Access Communications System network technology, which—being analog—could not support the Internet.

At USD9 per minute, tariffs for international calls were high—much higher than for a similar call from the UK to Kenya (hence the need to reverse calls so that charges were borne from the UK end).

With all these challenges, the email service was almost entirely for use by international NGOs operating in Kenya (such as the Environment Liaison Centre International [ELCI], African Organisation for Standardisation, and Mission Aviation Fellowship), which provided store-and-forward email services that were largely for communicating with their affiliated organizations—and that were not available to the general public. ELCI was the first to introduce email out of Kenya in 1990 (Levey and Young 2002).

In 1992, electronic mailing was being piloted at the University of Nairobi and the Kenya Medical Research Institute—the earliest local

¹The African Regional Centre for Computing started with two dial-in lines.

encounters with email in Kenya's academic circles (National Research Council 1996).

Outside the major organizations, the African Regional Centre for Computing came on board as a local NGO to offer services to other NGOs and commercial entities. The work of the Centre catapulted Kenya to online connectivity for the first time in October 1995 on a 32-Kbps link to the UK, setting the stage for disruptions that radically changed the communication systems in the country and slowly nibbled away the mighty KP&TC—whose response was not only to ignore the technology but also to attempt to block it entirely, a decision that has haunted the organization ever since.

Online Internet

October 1995 was a turning point in Kenya's communications history, when a leased line connection was established, providing Internet for the first time. At 32 Kbps, Kenya was at last connected to the Internet, and the dream of information sharing became a reality. The system's bandwidth was low even for those days and not much for information gathering—but now, at least email did not have to wait to be polled up to six hours later.

Shortly thereafter and in quick succession, two ISPs serving the commercial and personal markets—Africa Online (Prodigy USA) and Form-Net—started offering service, and for the first time, competition entered the market. By the end of 1995, the two each had a 64-Kbps link and 100 lines to serve their clientele. This opened a floodgate of other operators, and by the end of 1995, more than 10 were advertising for services, and reported accounts totaled approximately 5000 (Aguyo 1997).

Sector Regulation Defining Connectivity

Kenya's telecommunications sector was regulated under KP&TC Act Cap 411, promulgated in 1977. Under this Act, KP&TC was the exclusive monopoly provider of telecommunications services. It enforced this monopoly with zeal and, when expedient, could spin off services or licences to third parties at its discretion (GOK 1978).

As an example, KP&TC sold its paging interest under a five-year exclusive licence to a private company. Other services licensed included providers of customer-premises equipment, telephone bureaus, and Internet services. The discretion afforded to KP&TC by the Act was used selectively to lock out competitors, and when necessary, to enforce its monopoly powers through the courts. On at least two occasions, entrepreneurs were arraigned in court for operating radio communication services without the approval of KP&TC.

As a monopoly, KP&TC controlled all telecommunications services. The emergence of an alternative communications system (albeit one using the same infrastructure) was threatening KP&TC's stranglehold on the sector, which is why KP&TC could not support the new service and indeed went all out to stop its use in July 1995. Email services nevertheless continued to grow, but KP&TC's actions created a very hostile environment. This had a negative impact especially on government email use and that of large corporate organizations. Indeed, the government banned the use of email and the Internet in its communications until 1999.

Eventually, however, the winds of change across East Africa seeking to dismantle monopoly telecommunications operators had a significant impact in Kenya. In 1996, the government promulgated its first policy envisaging competition among telecommunications services in a liberalized environment (GOK 1996), and by 1999, parliament had enacted a legal framework that ushered in true competition (GOK 1998). The Internet now became fully recognized as a service for development. The year 1999 was therefore a turning point that unshackled the Internet and set the pace for Kenya's growth in the coming decade.

The continuing challenges, however, were the continued control of international connectivity by Telkom Kenya and the last mile to the customer, which the ISPs had to deal with until 2007.

Connectivity

In the early days, connectivity to customers and to international bandwidth were controlled as a monopoly by KP&TC, and with KP&TC's limited capacity, telephone lines were inadequate. Unfortunately, even

when they were available, the failure rate was extremely high, and leased lines were very expensive.

Because of the lack of the telecommunications services in rural areas, the only available options for reaching out to NGOs were the use of high-frequency radio and low earth orbiting satellites. HealthNet, for example, used low earth orbiting satellites extensively to reach out to its community-based-organization partners in rural areas (National Research Council 1996).

Agents and Market Responses

KP&TC managed the telecommunications system as a monopoly, with a total switching capacity of 380,000 lines and slightly more than 269,000 connected customers as at the end of 1997. International services were satellite-based through Atlantic and Indian Ocean Intelsat satellites and two earth stations in the town of Longonot, Kenya. An additional earth station was built in the town of Kericho, Kenya, to serve Japan and later retooled to provide local satellite services by very-small-aperture terminals (VSATs).

At the end of 1997, Kenya had 77,163 people waiting for telephone services but was only capable of connecting 10,000–13,000 lines per year—implying that it would take more than 7 years to connect all the waiters (International Telecommunication Union 1998). Clearly this was a good time to facilitate the entry of fresh capital into the sector rather than crippling the local entrepreneurs. As of the end of April 1998, the number of waiters had increased to 80,000, and it was clear that unsatisfied demand existed in cellular, data services, and paging largely because of the monopolistic tariffs.

The network was creaking with age and obsolescence because of limited investment. The main switching exchange systems required urgent attention to replace old exchanges and transmission systems that had outlived their useful life and were therefore prone to failure. Several old exchange systems were upgraded. These strategic communication facilities were running on obsolescent crossbar technology that was difficult to support because spare parts were difficult to procure. In total, 150,000 telephones, or half of the total telecommunications network, were connected

to exchanges based on old, obsolescent technology. It was just a matter of time before key parts failed and the system became disabled (Mureithi 1999).

In addition to age, the network suffered from serious congestion because of its lack of expansion of facilities, making it difficult to place calls, particularly in industrial areas. Lines to the customer were of copper wire and prone to damage by water, rodents, and cable theft. As a result, failure rates were high. On average, there were 186 faults for every 100 telephones per year, which compared poorly with a world average of 5 faults for every 100 telephones per year (International Telecommunication Union 1999). To address the high failure rate of the last mile, KP&TC launched Instafone, a fixed wireless service designed to overcome faulty customer lines.

As in other public telecommunications networks in Africa, the dominant product was voice telephony, followed by data services. These brought in annual revenues of USD307 million in fiscal year 1996–1997, making KP&TC the fifth largest operator in the Africa in revenue terms (International Telecommunication Union 1998).

Customer-Premises Equipment and Telephone Bureaus

Customer-premises equipment and telephone bureaus, including private automated branch exchange systems, terminal sets, and faxes, had been liberalized since 1991. Product availability and the easy mode of entry into the market segment had brought more than 245 companies into the customer-premises-equipment market, with tangible benefits for the consumer in terms of lower prices, better-quality products, and more reliable support.

In addition, KP&TC had also licensed 250 telephone bureaus, with many more operating without licences, particularly in residential areas.

Service Offerings That Supported the Emerging Internet

Three years after the Internet launch, Kenya was on track to develop services that anchored the emerging Internet ecosystem. With its monopoly,

KP&TC continued to play a key role in complementing an emerging private sector.

Some of the key infrastructure provided by KP&TC included data services and leased lines. KP&TC had introduced Kenpac X25 (packet switched), available since May 1994, with a capacity of 1200 ports; analog leased circuits; and KenStream (64 Kbps), with a capacity of 2000 ports. By 1998, the analog leased lines in use had increased to 1695, and the digital lines had increased to 196 (64 Kbps). KP&TC also launched a national Internet backbone known as the East African Internet Exchange, with a capacity of up to 30,000 customers by 1998 intended to ensure that 90 % of the population would be within reach of the Internet at local call rates.

To complement the terrestrial infrastructure, which was severely limited, KP&TC launched Kensat (offering VSAT) and Safarisat (offering Inmarsat) satellite services.

The private sector exploited the KP&TC infrastructure by launching a range of ISPs, including the African Regional Centre for Computing, Africa Online, Form-Net, Inter-connect, Swift Global, Net 2000, NairobiNet, and Insight Technologies. This unleashed further competition, which brought down prices, increased the points of presence in all major towns, and generally raised Internet awareness.

The greatest challenge was the low level of locally relevant content on the Internet, and therefore, its utility in daily life. Another challenge was in the area of licensing and pricing of leased lines by KP&TC. ISPs had to pay an initial five-year operating licence fee of USD8330 and an annual operating fee of USD4200. Kenya restricted the use of satellite technologies (e.g., VSAT) that would otherwise have offered cheaper international connectivity and provided more capacity to ISPs than was available through KP&TC. The restriction was to safeguard KP&TC's monopoly on international connectivity.

Interest in the Internet was growing. Kenya had 458 Internet hosts—the highest number in any country in Sub-Saharan Africa (International Telecommunication Union 1998). The number of email accounts was estimated at 20,000 and growing rapidly. The total number of dial-up lines was estimated at 600, and the number of .ke domain names at 292.

Cost was also a major barrier in the early years. The costs for Internet dial-up service included installation at USD20, monthly charges of

USD72, and an hourly use rate of USD5. Use of Internet bureaus was equally expensive, with a fee of USD0.20 per minute. At the same time, access to computers was very limited, because of costs and numbers. By 1997, the estimated number of computers in the country was 50,000 (Aguyo 1997).

The greatest handicap for the development of Internet services was the regulatory restrictions they faced. Access to customers and international bandwidth had to go through Telkom Kenya. ISPs had very little leeway on quality of service to consumers and on input costs—and hence had limited marketing leverage—as well as limited means for innovation.

Implications for the Knowledge Industry

Because of the poor infrastructure, the access to, sharing, and storage of information were all still manual. And even with the arrival of the Internet, access to information was still limited because of the limited capacity of the links—with the result that information access was very expensive. Yet the dream of an information society was alive and growing.

The downloading of large files (around 1 MB in those days), especially presentations with graphics, was a nightmare, often taking hours. Users had to visit ISPs for assistance in downloading such files onto floppy disks, Internet surfing was discouraging because of the limited information on the Net, search engines like AltaVista were problematic, and any useful information had to be downloaded immediately because one could not be sure of getting it again on the Net! (Today's Google had yet to come into the market.)

Internet Evolution from 2000 to 2010

The decade from 2000 to 2010 unleashed the full capacities of the Internet. By the end of 2000, it was clear that local Internet traffic was increasing rapidly but had to be switched from overseas at great cost. The ISPs therefore made the pioneering decision to build the Kenya Internet Exchange to switch local traffic. Unfortunately, it was shut down by the

regulators for an entire year on the grounds that the traffic exchanged through it contravened the exclusivity of Telkom Kenya.

Finally, with the entry of second-generation (2G) digital cellular communications, it became feasible to use an alternative for carrying Internet traffic through General Packet Radio Service. In line with the existing market structure, cellular operators could not be licensed as ISPs and therefore had to transit their email traffic through other licensed ISPs.

In 2007, the curtain came down on Telkom Kenya's monopoly on international gateway, which brought down many barriers to the Internet. Evolution was driven through connectivity via submarine fiber optic cables in 2009, liberalized international gateways and last- and first-mile solutions, and finally, the convergence in services.

The government came back into the market with initiatives to intervene in areas the private sector was not addressing, specifically in rural areas and in international connectivity. In this regard, the government invested in international submarine fiber optic cables and national fiber connectivity. In addition, the decade saw activities that helped entrench the Internet. These included infrastructure to develop data centers, efforts in the domain name space, and government intervention on costs to end-user terminals by the elimination of certain taxes. The decade, in short, ushered the Internet onto a high-growth path.

Geographical: Network Coverage

At the advent of email and the Internet in Kenya, the access to the Internet was restricted to the availability of copper lines. With under 300,000 lines nationally (80 % in the urban areas), this access was severely limited. Cellular in the early years since 1992 was analog, and the emergence of the GSM standard in 1995 was exclusively voice. It was only on the introduction of General Packet Radio Service in 2002 that an alternative last mile was finally introduced in the market.

Fast growth in cellular rapidly increased the customer based in 2001, as cellular connections overtook fixed lines. This was a typical market disruption, with cellular becoming the platform for Internet access going forward. The rapid growth of cellular with improved technologies from

2G to 4G and widespread coverage has continued to enhance the Internet experience. From nine base stations in 1995 covering Nairobi City Centre, coverage today is nationwide, reaching 90 % of the population.

Lessons from the Internet Revolution

The Internet evolution has presented some key lessons:

Disruption Is the Sweetener That Drives Change

A dynamic environment that spawned disruption and was not limited to the technologies and processes but also included the actors was a key to change. Internet advocacy has seen a large turnover among CSOs because of disruptive pathways to enabling policies. Government-imposed barriers that spawned innovations included banning the Internet outright, closing the Kenya Internet Exchange, and imposing punitive costs.

Defensiveness was a principal barrier thrown up by the incumbents as they defended their positions—sparking innovation and market disruption. This behavior has been consistent and keeps refreshing the market with new and improved services at lower costs.

Disruptive Innovation Is the Weapon against Big Players

The Internet introduced by the African Regional Centre for Computing was a game changer, and today, all the organizations that did not change have been killed by it.

Disruption Is a Deadly Game

Many of those who innovated and disrupted others were to undergo the same trials themselves eventually, and unless they transformed themselves in turn, they fell by the wayside. Today, only Wananchi Online still exists as an entity.

An Agent Is Critical for the Game Change

CSOs were the pioneer developers and promoters of email service provision in the mid-1990s. After establishing the business case, the private sector came on board and commercialized the Internet—in the process, pushing out the CSOs from an operational role. The CSOs took on a new role in expanding the service, with particular focus on the demand side, based on their advocacy of empowerment, access rights, and personal development.

The Agent Itself Must Change Tactics

The role of CSOs has changed radically from that of developer and promoters to that of advocates. The rapid evolution of the technology and business models has spawned the rapid rise and fall of the CSOs. None of the CSOs existing in the early days still exist today, except the Computer Society of Kenya. Typical CSOs are cited in Table 2.1.

Table 2.1 Civil society organizations driving Internet evolution

CSO	Mission
East African Internet Association	Introduce the Internet in the country
Kenya National ICT forum	Contribute to formulation of ICT policy
National E-Commerce Task Force	Lobby the government on the implementation of e-commerce
Telecommunications Dealers Association of Kenya	Bring down the cost of telecom accessories
Kenya Information Society	Catalyze the growth of an information society
Telecommunications User Association	Lobby for service-level agreements with providers
Information Technology Standards Association	Foster IT standards
Computer Society of Kenya	Make information technology more accessible
Telecommunications Service Providers of Kenya ^a	Liberalize Internet provision
Linux Chix	Promote women in computing and the use of open source

^aRebranded in November 2015 as the technology service providers of Kenya

The demise of the various CSOs was caused by their narrow focus in the market, and once their issues were addressed, their reasons for existence ceased.

The Kenyan government has come full circle, from being dead set against the Internet in the mid-1990s to embracing it as a key tool for development, and now, intervening in areas that the private sector is not willing to venture into.

Conclusion

Twenty years of Internet evolution have propelled Kenyans to the edges of a knowledge society and empowered them in profound ways in how they relate, conduct business, and even structure their society. The turning points in this evolution have always revealed passionate individuals out over the stumbling blocks ahead, whether they were of a regulatory nature or the suffering of their fellow citizens caused by lack of services. This combination has been instrumental in disrupting business processes and technologies that did not address societal needs, thereby releasing the power of innovation. This is the power Kenyans need to harness in order to sustain their momentum and to continue to lead as an innovation hub for Africa.

At the same time, the fast growth has spawned growing disparities in Internet use and benefits to society—including a gender gap (because more men than women use the Internet), a poverty gap (when cost becomes a barrier to access), and an urban–rural gap (because those in rural areas are worse off). These gaps will continue to be a challenge in the next decade. But to judge from the experiences of the past 20 years, they will provide the fertile ground to inspire innovation and new disruptive business processes that can close the gaps and propel all Kenyans into the knowledge society.

References

- Aguyo, S. (1997). Internet benchmarking in Kenya. In H. R. Mgombelo & M. C. M. Werner (Eds.), *Telecommunication for business in Africa*. Amsterdam: IOS Press.

- Christensen, C. M. (2001). Assessing your organization's innovation capabilities. *Executive Forum*, 81(2), 27–37.
- Communications Authority of Kenya. (2015, July–September). First quarter sector statistics report for the financial year 2015/2016. <http://www.ca.go.ke/images/downloads/STATISTICS/Sector%20%20Statistics%20Report%20Q1%202015-16.pdf>. Accessed 25 Feb 2016.
- Government of Kenya (GOK) (1978). *The Kenya posts and telecommunications corporation act, chapter 411*. Nairobi: Government Printer.
- Government of Kenya (GOK). (1996). The policy framework paper. *Economic Reforms for 1996–1998*. <https://www.imf.org/external/np/pfp/kenya/kenya.pdf>. Accessed 25 Feb 2016.
- Government of Kenya (GOK). (1998). Kenya information and communications act 1998. http://www.researchictafrica.net/countries/kenya/The_Kenya_Communications_Act_1998.pdf. Accessed 25 Feb 2016.
- International Telecommunication Union (ITU) (1998). *African telecommunications indicators 1998*. Geneva: ITU.
- International Telecommunication Union (ITU) (1999). *Challenges to the Network: Internet for Development*, Geneva, ITU
- Levey, L. A., & Young, S. (Eds.) (2002). *Rowing upstream: Snapshots of pioneers of the information age in Africa*. Johannesburg: Sharp Sharp Media.
- Mureithi, M. (1999). *Liberalizing telecommunications: Empowering Kenyans in the information age*. Nairobi: Institute of Economic Affairs.
- National Research Council (1996). *Bridge builders: African experiences with information and communications technology*. Washington, DC: National Academy Press.

Conversation #2

Exploring the Ideal Role of Government, NGOs, Angel Investors, and Universities for Technology Entrepreneurs

Erik Hersman of BRCK



***Erik Hersman** is an entrepreneur and technologist focused on advancing the use of technology in Africa. He is the chief executive officer (CEO) of BRCK, makers of a wireless WiFi device designed and engineered in Kenya for use in emerging markets. In 2010, he founded the iHub, a pioneering innovation hub in Nairobi for the technology community, bringing together entrepreneurs, hackers, designers, and the investment community. He is also a co-founder of Ushahidi (“witness” in Kiswahili), a nonprofit company whose free open-source software is used to collect*

and map information for crowdsourcing, social activism, and public accountability; and of afrigadget.com and whiteafrican.com, online communities that explore Africa's creative solutions, entrepreneurship, and development challenges. He is also a general partner in the Savannah Fund and sits on the boards of Akirachix, Angani, the Kijabe Forest Trust, and the Whitaker Peace and Development Initiative. You can find him on Twitter at @WhiteAfrican.

Erik, you are wearing multiple hats in Kenya's ICT sector. What is the story behind that?

What gives me the right to do what I do rather than anybody else is actually what it comes down to. Well, nothing—besides that I am the one who did it, right? Anybody can do the same things I do! It just takes your desire and ability to champion something. I will go back into some of the history. So if you look back to 2005, that is when I started blogging about tech in Africa. Fast-forward three years from that, I had written about a lot of start-ups, I knew a lot of people, and I was part of the blogging ecosystem that was really burgeoning at that time. So it was a network of people who knew each other.

Then, we came across the post-election violence and craziness that were happening after the elections. Ushahidi was formed, and I was one of the founders. I remember that I came to Nairobi in August of 2008 and was sitting down with a bunch of other guys at BarCamp Nairobi. There was a large turnout. A great amount of interest, and there was everybody present. All the guys who are now CEOs of their own start-ups in the ecosystem, but we were still just ordinary tech guys at the time.

So, we were sitting around afterward, and we were saying, “Why is it that the tech guys in the city only meet up once or twice a year at these events? What if we had a place of our own?” And that was the seed that would eventually grow to become the iHub. So why did not somebody else do the iHub? Because it is a lot of work to come up with the money, to come up with the bigger vision of where this thing needs to be. And keep in mind that I was running operations for Ushahidi at that time,

and actually through all of my time running the iHub, I still did. It is the ability to and the desire to champion an idea, even though there are way too many excuses not to do it. So how do you still push that idea forward beyond what your normal day-to-day job is? I think that is the biggest challenge. Look across the continent. Look at the people who are leading the tech hubs, generally. They are champions of the idea that we can build something together that is greater than any one of us and brings us all together in a different way. It is a desire to champion the idea and do the hard, scrappy work to get people together and convince people to show up for meetings and do all those little, oftentimes unnoticed things.

The iHub started, and that was after we talked to many people, asking, “Hey, will you give us some money for this or that and the other thing?” Nobody wanted to give us any money. Google and Nokia at the time, you name it. Nobody wanted to give us money. So finally, as Ushahidi, we sat down and said, “Listen, as Ushahidi, we can be a really good vector for the money that is needed for the iHub.” And so that is what we did. Omidyar Network and Hivos funded Ushahidi and we built the foundations for the iHub with that.

But very early on, even before we had the space, I went out to people that were in the tech community already, that were my peers and people I respected and who were also respected by the general community—people like Becky Wanjiku, Conrad Akunga, Riyaz Bachani, and Josiah Mugambi. I said, “Hey, will you be the iHub advisors alongside me and help make the big decisions in the iHub’s future, for the community?” We cannot make everything a purely democratic, everybody-votes-on-it process, but we can have a group of us who will help make some of the bigger decisions. And so, that was what we did.

When we first launched the iHub in March of 2010, Conrad Akunga told everybody, “Listen, here is the foundation. What gets built on top of this is up to you. Now, it’s over to the rest of the community to help make this community what it is.” And I think that is the kind of magic that makes the iHub, compared to most of the other tech hubs that are

focused on incubation and other things. It is about the idea that we, as a community, need to be connected to each other and we need a space. We need a place, we need a meeting space that will allow us to almost accidentally find each other from time to time, which will draw us in and connect us in ways that would not exist if we did not have it.

After Ushahidi and the iHub came Savannah Fund and BRCK. How do they fit into the picture?

I think this is oftentimes deceptive. There are teams built around each of these ventures. Teams that are actually more involved in operations than I am. What happens is that there are obvious gaps in the market that need to be addressed. And if I put my name behind it, with, for example, Savannah Fund or with some other initiative—Gearbox is a newer one—it is not so much that I do anything day to day on it. I will sit there in board meetings and help with the ideation, the formation, the governance structure, but I do not have to be involved in the operations. It is more about finding the right people who capture the right vision of it.

So what hats do I wear? Now, I no longer wear this hat, but one that is relevant here was forming the Afrilabs Association and being the first chair for the initial years before passing it on. There is the Savannah Fund and being a general partner in it, but Mbwana Alliy actually runs it day to day. There is forming Gearbox, being on the board and helping create, but Kamau Gachigi leads it day to day. There is AkiraChix, which was the women in this community who built the whole thing, and they just asked me to join the board when they became an official organization three years into it.

And there is BRCK, which I spend 90 % of my time on. I focus on BRCK because it is a venture-backed, for-profit company. All the other things take up that other 10 %, where I am just dipping in and helping as needed. The most valuable thing about me in each of these things is that, by being a part of it, I can either use my knowledge, network, or experience to help make decisions better and faster, but more importantly, I can help push things to actually get them done. There are a lot of people who talk about things, and there are very few people who do them.

Erik, there is a lot of controversy about government intervention into private-sector activities. What is your take? What should be the ideal role of government?

So the role of the government is very simple: To reduce friction in the system for the technology industry to grow. What does that break down into? It breaks down into regulation that is actually good for business—speed of setting up business, tax breaks for new companies, things like that. Another example of friction in the system that does not need to exist is legacy laws that are 30 to 40 years old and put a 20 to 30 % duty on components imported into the country. I can import a fully assembled, packaged BRCK duty free. Yet the components to make it have a heavy import duty—which means it does not make sense to import. In other words, I cannot create a new manufacturing industry in Kenya if we do not have the ability to bring in raw materials that are not produced in Kenya. Like this, we never will create industries unless we change these legacy laws. So again, government's job is to reduce friction. And by reducing friction, they increase wealth and they increase jobs.

Then there are other things, such as providing foundational access, of which the subsidization of the undersea cable by the government was a massive example. That is exactly what the government should be doing, massive projects that bring in both the public and private sectors and help things move further. Another one is regulation around spectrum allocation or licencing.

How about foreign aid and NGOs? What should their role be?

In a well-functioning state, most NGOs would not exist. There is only a limited role for them, because the market answers many of the problems, and the government should answer the rest. However, here in Kenya, we have one of the highest count of NGOs per capita in the world. It is an interesting dynamic though, because international NGOs bring in money for some things, which bastardizes the market for other things. It creates a whole realm of craziness that you would not find in other places.

Let me give you an example. NGOs build bridges that after two years become dysfunctional. This cost a few million US dollars to make, and

after two years, is no longer relevant. Other examples are new livestock programs in northern Kenya that only work as long as the NGO workers are there. As soon as they leave, it all falls apart. These are the kinds of things that we have seen for five decades now, and it does not seem to stop.

Now, if a business had this high of a failure rate, they would not keep operating. NGOs, however, seem to have a limitless amount of money that comes from unilateral and bilateral aid and just keeps on coming in. NGOs keep on having to fund something, and it goes a bit like this: “Oh, let’s quickly procure something, because, shoot, we gotta spend this money before the end of the year.” Or, “Hey, let’s go fund innovation!” Not knowing what “innovation” means to them. They know that 80 to 90 % of the money will be absorbed in overhead and HR costs instead of the innovation that the NGOs say they are going to fund. If you want to see innovation happen, then find vehicles where people are already doing interesting stuff and dump money into the companies that are growing great things and trying new models.

Having said all that, I think there actually is a role where international NGOs can help, and that is with government. That is, funding some of the regulatory research. Research so that laws can be made or something like public–private partnerships on large-scale intra-country projects, such as installing terrestrial cables. Helping to subsidize some of that stuff as it gets built out across the country is valuable, and if it can reduce some of the load on the government, then, sure, that can work.

As someone who runs a for-profit company, if someone wants to provide you with grant funding, you look at all that is going on in the market and you are to decide if it fits the company’s focus and mission. I will take the free money if you hand it to me, but it has to be aligned with what I am trying to do. You need to dump money into me because what I am doing is great, not because what you are doing is great and you want me to do it for you. This type of decision is hard for younger executives, because it comes with some experience. If you are a leader of a company, you have to be strong enough to make the right call for your company. And if you are not making the right call and take a grant that does not

make sense for your company, well, that is on you. Do not blame an industry because you made a bad decision.

Angel investors are crucial in funding the ideational phase of a business. What is the current state in Kenya?

For angels investors, those who have significant-enough disposable income to risk on investing, in Kenya it is a lot easier to put money into something like property and real estate. That is because we are seeing year-on-year growth of that. It is just astronomical! So it tends to be a smart decision to put your money into those things. What we are starting to see, however, are people in business who have made enough money that they are willing to diversify their portfolio out of just real estate. Where it has changed over the past two to three years is that we are seeing a few more people willing to dabble in tech investments locally. It is not large money—maybe USD25,000 here, USD100,000 there—but it is enough to get some companies off the ground. This will continue once angel investors start seeing a little bit of success, and this will bring in more of their peers.

Local angel investors can bring to the table more than what outside investors can offer. Outside investors largely bring in money and experience for early-stage company growth, strategy, and management. That is all good. But what they do not bring is connections to other businesses here in Kenya. Connections can immediately increase the share value of the business that the angels have invested in, and so, making the right introductions to CEOs or other companies is powerful. The problem currently is that angel money in Kenya is usually too expensive compared to money from abroad. If you have an investor coming in from the USA, they will give you USD50,000 and take 15 % of your early-stage, pre-revenue company. The Kenyan angel will give you USD50,000 and want 50 % of your company, if not more. We need to find a balance where we decrease the cost of equity-based money from local angel investors and increase the knowledge base and connectivity of the money for outside investors. It should not just be money invested in a company. What actually needs to happen is that you are investing mentally and physically in the start-up in order to help it grow their company.

How do you see the current state of human capital development in Kenya for the next generation of entrepreneurs?

I do not think universities will be the answer; at least, I have not seen them work for technology education. Graduates fresh out of university are, in general, not prepared to work in a technology company. They are not coming out of these institutions with the necessary skills. The people who do are usually the ones that are self-taught. That is quite disappointing. The universities in Kenya are too bureaucratic and not teaching the right stuff in the classes. Not across the board, but generally, students still learn the same computer languages that they were being taught eight years ago, even though current technology has changed.

Why are people still learning these things? And why are they not being challenged to learn new things? And why are university professors not the ones leading the charge on this? I like what the Moringa School is doing, and I like what a couple of the finishing schools for software engineers are doing. I think that is an interesting model and where we will see more hiring happen in the future.

I love bringing on people into my own company. The young people who have been self-taught and have a raw sense of what they should do. A raw skill set which allows building and growing them in my company. I think on-the-job training—whether it is for the Mike Macharias and Seven Seas of the world, or Safaricom, or Google, or IBM, or M-Kopa, or Intel—is actually one of the benefits of Nairobi. We have enough of those medium and large companies, and this is what sets us apart from Kampala and Kigali and Dar es Salaam. When you come out of university or even without university, you can get a job with Conrad Akunga or myself in our smaller companies. You can get a job with Mike Macharia at his company or with John Waibochi over at Virtual City or with any number of the smaller five-to-ten-person-size startups scattered across the city. There are a number of tech companies from small to large that are accessible to you, whereas they are not accessible in some of these other cities. The offtake of that is amazing. It means that there are more and more people who are being polished into seeing technology as a business opportunity. They develop an important and unique skill set. This does

not necessarily happen in other places, simply because others do not have the critical mass of companies to even hire them.

Reflecting upon the past years, can you point out one of the biggest “Aha!” moments that you have had?

I think it is different for each stage when you are part of growing an ecosystem. I have been here for five and half years now. There are different things that happen throughout that time, and there are different things that matter, depending on the stage that we were in. The first “Aha!” moment was that this little idea of having a physical space would be good for the community. The “Aha!” moment was, “Holy crap, we’re oversubscribed by 2,000 people and, yeah, it worked.” The insight was this—that, yes, actual face time with people is important, even for technologists!

I had a conversation with Eric Schmidt of Google on his visit a couple years back. We were sitting downstairs grabbing lunch at Pete’s, and I mentioned the numbers we were seeing and the success rates of those companies being around 10 to 15 % for their first year. He responded that in Silicon Valley, the numbers are much, much higher, but the success rates are even lower—meaning that we should expect to put out many more companies if we want to see a few succeed at a very large level. This was the “Aha!” moment tied to the need to generate more start-ups. It is a numbers game. So how do we help get more things started?

We understand many will fail and that is fine. But the more we get out there, the better. It is like if you want the real, sort of bigger investors to come off the sidelines and jump into the system for more start-ups to scale, then we need at least one of them to exit at maybe USD20 million in order to prove to people that there is something here. That is what the ecosystem is figuring out right now.

For the iHub, the “Aha!” moment came as we realized that we did not have to charge our members if we come up with a service model that allows us to charge for other services, such as consulting. That is why we built the iHub Research arm, the UX Lab, and iHub Consulting. These

new departments allowed the iHub to be 85 % self-sustaining, generating its own revenue and still fulfill its mission of catalyzing the tech community in Nairobi.

I have realized over time that as you are figuring things out, it is important to be open to the idea that you really are experimenting and improvising a lot of the time. And if things do not work, you stop them. And if they do work, double down on them, and hopefully, it turns into another “Aha!” moment.

Thank you, Erik!



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3

The KINGS of Africa's Digital Economy

Eric M.K. Osiakwan

Introduction

The twentieth century saw the economic rise of Asia through the significant economic rise of the “Asian Tiger” countries (Kojima 2000; UNCTAD 1996).¹ But the twenty-first century has been dubbed the African century (Wikipedia 2016). Tech Crunch, renowned technology media company, recently published an article entitled “The Future Is African” (Nash 2015), which aptly described how Africa is unleashing innovation by combining mobile and web technology to lead the world in the twenty-first century.

The digital economy in Africa started in Cape Town, South Africa, in 1995 when Mark Shuttleworth built Thawte, a leading certificate authority, and sold it to Verisign when Vodacom championed prepaid airtime. The wave then moved to Ghana in 2001, when, together with Mark

¹ The Asian Tiger economies consist of Hong Kong, Singapore, South Korea, Taiwan, and Thailand.

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Chanzo Capital, Quatre Bornes, Mauritius

Davies and others, BusyInternet was built—a multipurpose tech hub through which I started the Ghana New Ventures Competition in partnership with the MIT \$50K Competition, bringing about www.smsgh.com. The tech wave is now moving through Kenya and has produced some of the country's and the continent's leading tech innovations—for example, Erik Hersman's iHub and Safaricom's M-PESA (made possible because of Vodacom's prepaid airtime). The wave is now making its way to Lagos, Nigeria, and Abidjan, Ivory Coast. In my view, the wave's route across and within these countries—namely, Kenya, Ivory Coast, Nigeria, Ghana, and South Africa (KINGS)—is worthy of exploration.

Like the Asian Tigers, these five countries lead the continent's technology innovation and will be referred to throughout the chapters as Africa's "KINGS," an acronym I coined² to label not only the fastest-growing economies on the continent but also the pillars of innovation and high-tech entrepreneurship. The KINGS, it will be shown, are the countries leading the development of the digital economy in Africa and setting the pace for the rest of the continent.

The World Economic Forum asked the question "Is Africa Leading the Innovation Revolution?" (Moosajee 2016); *Fortune* magazine also focused on "Why Africa May Be on the Verge of an Internet Boom" (Bright 2015); the *Wall Street Journal* suggested that Africa may very well be harboring the next Mark Zuckerberg (Johnson and Aboyeji 2015); and business news site Quartz Africa published "African Startups Are Defying the Global Tech Slowdown" (Kuo 2016). Buttressing the observations made in these articles, Quartz Africa also reported that the KINGS are receiving the most investments, adding that these countries have built and supported the ecosystems required to power start-ups. These innovative new companies then develop into the small- and medium-size enterprises that create jobs, pay taxes, and eventually create wealth in local economies.

The purpose of this chapter is to describe the key developments in digital innovation in the five KINGS countries, providing anecdotal evidence and proof to support the argument that their economies have the potential to develop Africa's unicorn businesses (i.e., companies with

²For more about the launch of the term, see the video of the author: <https://www.youtube.com/watch?v=vNURlCNUiil>

almost vertical growth). It will be shown that in the same manner that Asia produced Alibaba, the biggest tech company of the twentieth century, Africa is well on its way to producing the tech giants of the twenty-first century.

Symbolically, the label KINGS takes its inspiration from the concept of kingship in African culture. In the African traditional governance system, the king is the revered leader who sets exemplary standard for others to follow (Ayittey 1991). African kings were—and in some countries, still are—the highest authority, the leading light in our traditional establishment. Just like these kings, the KINGS leadership models offers good examples of growth and transformation to be emulated by the rest of the continent.

Africa Rising

The “Africa Rising” narrative is underpinned by an “Africa Tech Rising,” which was jump-started by the mobile revolution as Africa leapfrogged the world from a few landlines to massive mobile phone use in just a decade.

In 1998, there were fewer than four million mobile phones on the continent. By 2011, there were more than 500 million (Fox 2011). This exponential growth was led by private mobile companies that started from scratch, some in partnership with foreign operators. These enterprises have today built world-class mobile operators, such as South Africa's MTN, Kenya's Safaricom, Airtel Africa (which bought Celtel, a local company started by Sudanese billionaire Mo Ibrahim), Orange (which bought a number of local operators like Sonatel in Senegal, Sotelma in Mali, and others), Econet Wireless (started by Zimbabwe billionaire Strive Masiyiwa, who is still the chairman), Glo (started by Nigeria billionaire Mike Adenuga, also still the chairman), and many others. A report by Freshfields Bruckhaus Deringer (2014) revealed that investments in the telecom, media, and technology sector in Africa over the last decade earned 19 % annualized returns, higher than the Africa MSCI Index of 11 % and higher than revenue from the oil and gas sector at 6 %. This suggests that while most of the African growth story is

focused on natural resources, the telecom, media, and technology sector made more than double the return.

The title of the Freshfields Bruckhaus Deringer report (2014) was “Africa Is Poised for Tech Take-Off”—and aptly so, because mobile growth has laid the foundation for Africa’s tech renaissance, a point also underscored by the BBC in 2014 (Wall 2014). The arrival of submarine and terrestrial cables brought broadband to the masses and catalyzed the digital economy. Increasingly, Africa’s millennials and digital natives, instead of looking for jobs overseas or another way to vacate the continent, have caught on to the development of African mobile and web applications and are unleashing their creative juices and entrepreneurial prowess to disrupt traditional markets and address problem areas for both rich and poor customers.

Africa’s population is 70 % youth (18–35 years old) (Hinshaw 2015), a segment that is transforming itself into an asset class—asking less about who will help them and more about what problems they can solve and which businesses they can build, thus creating value through employment and taxes (Jackson 2015a). By leveraging the internet, this generation is developing programming and business skills—sometimes without any formal education—and, coupled with their need to survive, is expressing itself through innovative software and other product solutions. Economist George Ayittey calls these individuals the “Cheetah Generation” and argues that they could be Africa’s salvation.

In monetary terms, the mobile ecosystem contributed USD102 billion to the GDP of the Sub-Saharan Africa region in 2014, a figure projected to rise to USD160 billion by 2020 (GSMA 2015). More generally, McKinsey & Company reported (Manyika et al. 2013) that the internet will contribute USD300 billion to Africa’s GDP by 2025. This is significant because, according to the World Bank (2009), mobile and broadband have more impact in developing economies than in developed economies. While developed countries have been transformed by information, communications, and technology, the transformation in the developing world is often even deeper, benefitting not only the wealthy, but also middle- and lower-income citizens. According to McKinsey & Company, economic activities at the bottom-of-the-pyramid markets, brought about through technological innovations, are enabling many

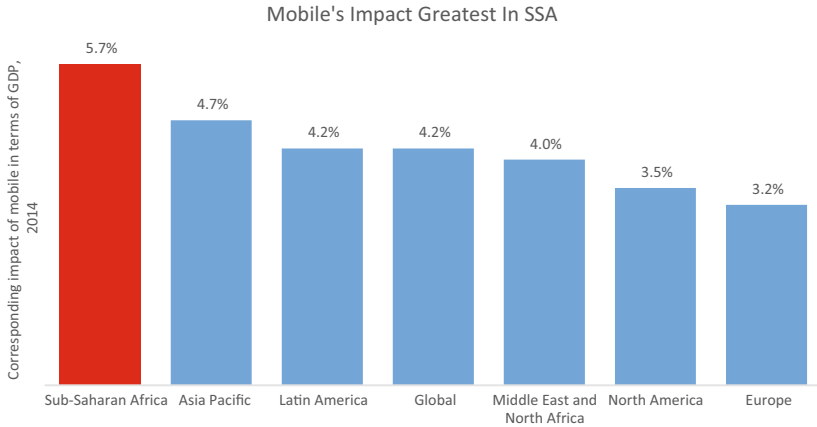


Fig. 3.1 Mobile phone impact by regions (Source: GSMA 2015)

poor people to join the emerging middle class (Manyika et al. 2013). The development of mobile money, for instance, has created significant financial inclusion for many (which was not the case earlier), as pioneered by Kenya's Safaricom with the M-PESA brand (Stahl 2015). Mobile phone services account for 5.7 % of the continent's GDP and are forecast to hit 8 % by 2020 (GSMA 2015) (Fig. 3.1).

Characteristics of the Kings

Digitally, the KINGS economies have led the rest of the African continent by laying a strong foundation through increased broadband penetration and development of pro-innovation public policies that facilitate innovation by digital natives and millennials. The *Harvard Business Review* included Kenya, Nigeria, and South Africa in its global list of the fastest-moving digital economies (Chakravorti et al. 2015).

Certain characteristics—economic growth, entrepreneurial ecosystems, vibrant telecoms, tech infrastructure, and supportive policies—distinguish the KINGS economies from others on the continent. The balance of this chapter explores how these unique features have enabled a thriving digital economy.

Economic Growth

The economies of the KINGS are vibrant, robust, and among the fastest growing on the continent. Ivory Coast, which suffered civil unrest after the 2010 elections, has stabilized and its economy is growing. According to the World Bank (2015a), the country is close to experiencing a double-digit economic growth rate (10.7 %, 8.7 %, and 9–10 % in 2012, 2013, and 2014, respectively). Additionally, Ivory Coast was ranked among the ten best reformers in 2014 and 2015 in the World Bank's *Doing Business* report.³

Kenya, like Ivory Coast, bounced back from the 2007–2008 post-election violence within two years. According to the World Bank (2015b), devolution was the biggest gain emanating from the new constitution promulgated in August 2010. The report said that the economy grew by 5.4 % in 2014, and the World Bank projected an economic growth of 6 % in 2015. Although Nigeria just overtook South Africa as the largest economy in Africa (The Economist 2014), Nigeria is growing at a rate of 5.4 % while Ghana's rate is 7.1 % for the same year.

This economic growth is underpinned by high mobile penetration rates (90 %) and widely available broadband. Lower smartphone and broadband prices have boosted penetration and access. The youth bulges in these countries mean that they have a critical mass of youthful people creatively leveraging the mobile web platform to create solutions for businesses and solve social problems, some of which may become global role models. Just as major tech giant Alibaba came from Asia in the twentieth century, it would not be too much of a surprise if the current century's next giant came from Africa (Jackson 2015b).

Entrepreneurial Ecosystems

The KINGS economies have multiple tech hubs, co-working spaces, incubators, and accelerators that serve as their centers of innovation, creativity, and entrepreneurship. The iHub in Kenya, Orange Fab in

³ For regular updates, check <http://www.doingbusiness.org/rankings>

Ivory Coast, Leadpath in Nigeria, Meltwater Entrepreneurial School of Technology in Ghana, and 88mph in South Africa are examples of spaces where millennials and digital natives work to unleash their innovations (Kelly 2014). These innovations are attracting investment to these countries as more investors are putting more into the creative industry. As these spaces gain momentum, the building of technology parks is next in line, led by the government, the private sector, or in some cases, public–private partnerships. Further, these countries have strong academic and research institutions, capable of producing the human resources required to fuel their digital economies.

Vibrant Telecoms

The information, communications, technology, and telecom sectors in these countries are very competitive. On average, each of them has at least three operators in the mobile sector, and their incumbent postal, telegraph, and telephone (PTT) firms have liberalized their own sector. According to Lancaster (2015), Telkom Kenya lost control of the telecom sector to Safaricom and gained competition from Airtel Kenya and Orange (which bought Telkom Kenya). Unfortunately, Yu (a brand of Essar Telecom and the fourth operator in the market) recently folded, partly because of market-dominant practices by Safaricom, which together with Airtel Kenya, agreed to split Yu's license, assets, and customers. Statistics on subscriber numbers reported by Kenya's Communications Authority in December 2014 indicated that Safaricom controlled 67.4 % of Kenya's telecoms market and that rivals Airtel and Orange controlled 22.6 % and 10 %, respectively (Business Daily 2015).

The first mobile virtual network operator (MVNO), called Equitel, was recently established in Kenya as a partnership between Equity Bank and Airtel (Tredger 2015). Equitel is expected to compete with Safaricom in the mobile money space. In Ivory Coast, Orange bought out the country's incumbent PTT, which had significantly lost the landline business but is the market leader after rebranding as Orange Ivory Coast with stiff competition from MTN, Moov (which is the Etisalat brand for Francophone West Africa), Comium, and Green SA.

Nigeria's mobile market is led by Glo, with stiff competition from MTN, Airtel, and Etisalat; other Code Division Multiple Access (CDMA) operators like Starcomm, Visafone, Multilinks and ZoomMobile are also active in the market. Ghana's incumbent PTT was bought by Vodafone to enter the market, but MTN is still the market leader, with other competitors being Airtel, Glo, and Tigo. Telkom South Africa, the incumbent PTT in South Africa, is still strong in the fixed-line business. Telkom South Africa has a mobile business called Telkom 8ta, but Vodacom is the market leader in the mobile space, with competition from MTN, Cell C, and MVNO Virgin Mobile.

Tech Infrastructure

The KINGS economies and their broadband experience are driven by a multiplicity of submarine cables. Kenya uses The East Africa Marine Systems (TEAMS) (2009), followed by SEACOM (2009), EASSy (2010), and LION2 (2012) submarine cables (Commonwealth Telecommunications Organisation 2012). The dramatic increase in international bandwidth not only ended Kenya's dependence on expensive satellite bandwidth, but the 90 % decrease in the cost of broadband access ensured that services have been made affordable for a large population, including those at the bottom of the pyramid (Lancaster 2015).

Ivory Coast has a number of cables—namely, the SAT3, WASC, and ACE. MainOne and GLO will be introduced soon. Nigeria and Ghana have SAT-3, WASC, Main One, ACE and GLO-1 submarine cables—while South Africa has SAT3, SEACOM, WASC and EASSy (Song 2015). The KINGS economies also have multiple terrestrial fiber networks connecting people to broadband through mobile networks. The Kenyan government has the National Optic Fiber Backbone Infrastructure (NOFBI), and the Kenya Power Company, together with the government, owns terrestrial fiber networks running on power pylons. Jamii Telecom, KDN, and Wananchi have their own local fiber networks. Competition among these local terrestrial fiber networks has significantly reduced the cost of broadband in Kenya.

In Ivory Coast, Orange and MTN are the main competitors. However, the launch of three additional operators between 2006 and 2008—Moov,

KoZ, and Oricel's Green Network—has accelerated market growth and pushed mobile penetration well above the African average (Lancaster 2015). Orange dominates the national fiber network, which it is using to hold back the market. The government is therefore in the process of building a competing fiber network under the auspices of the National Agency of Universal Service in Telecommunication/ICT (ANSUT). MTN has built some of its own local fiber to mitigate the actions of Orange.

Vodafone, on the other hand, inherited the national fiber network when it took over Ghana Telecom and has since been using it to hold back the market in Ghana, thus compelling MTN and Airtel Ghana to build their own local fiber networks. The government of Ghana recently launched the Eastern Corridor long-distance terrestrial fiber network connecting Ho in the South-East to Bolgatanga in the North-East and plans are underway to provide the same on the Western Corridor under an open access model so that all players can access the fiber infrastructure under similar terms and conditions. The national power company, GRIDCo, is about to commercialize its fiber network on its power pylons on the national grid. Google has also launched Project Link fiber in Ghana, which provides access on a wholesale basis to its fiber network, which covers Accra, Kumasi, and Takoradi, with plans to expand nationwide.

In Nigeria, Glo, MTN, Multilinks, and Airtel have extensive national fiber networks, and there are also specialized fiber networks such as Phase3 and Suburban Telecom. South Africa similarly has local specialized fiber operators like DFA and Fiberco, while Telkom and Vodacom also have their own fiber networks. These specialized fiber providers operate on an open-access model, which means they sell equally to all operators at the same price without discrimination, thanks to an absence of vested interests.

Supportive Policies

Finally, the KINGS economies have been able to develop their digital economies because of their pro-innovation public-policy agendas. When regulators do not put restrictions on mobile transactions, it spurs

innovation. In Kenya, for example, Safaricom launched M-PESA, the mobile money platform, with minimal restrictions from the country's Central Bank.

M-PESA subsequently filled an important gap for the large numbers of people without bank accounts by providing them with an electronic money-transfer option. Today, a farmer in a rural area is able to make electronic payments using mobile money. Of particular significance to this development is that mobile money is building an inclusive financial ecosystem that enables noncash transactions at the bottom of the pyramid. Mobile phones are indeed the primary means both to access information and to communicate for those at the bottom of the pyramid. In South Africa, the government allowed Vodacom to innovate by offering prepaid airtime, and this became the basis for the mobile money innovation in Kenya several years later.

All five countries have explicit government ICT policies and, in some cases, implementation plans. At the national level, they all also have experts who advise the presidents on ICT and telecom industry matters. They have further revised the mandates of their various government ministries and departments to include ICTs and have set up specialized government agencies that are responsible for implementing the policies.

Kenya has the Kenya ICT Authority (KICTA), Ivory Coast has La Société Nationale de Développement Informatique (SNDI), Nigeria has its National Information Technology Development Agency (NITDA), Ghana has its National Information Technology Agency (NITA), and South Africa has its National Information Technology Agency (SITA) to implement ICT policies. These countries have also enacted regulations that govern the smooth operation of the ICT sector and have established regulatory institutions, some of which are very independent. Kenya has the Communication Authority of Kenya (CAK), Ivory Coast has the Autorité de Régulation des Télécommunications/Tic de Côte d'Ivoire (ARTCI), Nigeria has the Nigeria Communications Commission (NCC), Ghana has its National Communications Authority (NCA), and South Africa has the Independent Communications Authority of South Africa (ICASA).

These regulatory institutions perform the function of enabling equity and fairness in the industry. ICASA and ARTCI are perceived to be least

Table 3.1 Profile of KINGS countries

Country	Population	GDP Growth (%)	Mobile Subscriber	Internet Subscriber
Kenya	44.35 M	5.7	32.2 M	16.2 M
Ivory Coast	20.32 M	8.7	17.9 M	5.6 M
Nigeria	173.6 M	5.4	133.2 M	70.3 M
Ghana	25.9 M	7.1	29.53 M	14.62 M
South Africa	52.98 M	1.9	59.5 M	21.73 M

Sources: WorldBank, ITU, Buddecom, Telegeography, Country Telecom Regulator websites

independent; CAK, NCC, and NCA are perceived to be more independent and do exert some nongovernmental control over their respective industries in the countries in which they operate. The development of sound institutions is fundamental to the growth of any democratic economy, and creating independent regulatory institutions builds investor confidence and makes for a level playing field.

As Table 3.1 shows, these unique attributes of the KINGS economies make them stand out from the other 54 countries on the African continent:

Profiles of the KINGS

Although the KINGS are drawn from a number of regions on the continent, West Africa has the greatest representation in the group. Ivory Coast, Nigeria, and Ghana (the ING of KINGS) have unique features that justify their inclusion in the group. The combined population of the three ING economies is 300 million, equivalent to that of the USA, and yet, they occupy just one-third of the US landmass. Further, the ING economies, representing both Anglophone and Francophone Africa, are closely knit and within a 45-minute flight from each other.

These groupings are strong and can facilitate an examination and understanding of Sub-Saharan Africa's various subregions. Kenya and Ivory Coast, for example, have proven that it is possible for countries to recover from election crises; Nigeria recently established its democratic credentials, having been able to successfully hand over power through the ballot; Ghana is recovering from various setbacks, such as the current

electric infrastructure and currency risk crises; and South Africa, though also suffering from electric infrastructure and currency risk crises, offers infrastructure of world-class standards with a technology ecosystem that is the most sophisticated of all the five countries. South Africa could be considered a “soft landing” for any international market player coming to Africa for the first time.

A more detailed focus on each country shows what makes them tech leaders.

Kenya

Kenya leads the KINGS because it is at the forefront in three critical areas:

1. An aggressive and conscious government program to develop a broadband infrastructure;
2. Two critical innovations—mobile money and a crowdsourcing platform; and
3. The development of a tech incubator and accelerator model for the continent, catalyzing the innovation agenda that has swept through Africa like wildfire.

In a clarion call to government, researchers, academia, and the private sector to make it a reality, President Uhuru Kenyatta declared that Kenya is a “start-up nation” (Government of Kenya 2015), and since making this statement, several events in Kenya confirmed it. In 2015, the country hosted its first ICT Innovation Forum as a catalyst to accelerate collaboration and growth in the ICT sector. In the same year, US President Barak Obama visited Kenya to open the Fifth Global Entrepreneurship Summit, which recognized Kenya as a center of tech entrepreneurship. Confirming the “Africa Tech Rising” narrative, Obama said, “I wanted to be here because Africa is on the move... young people are harnessing technology” (Euronews 2015).

In a clear message of Kenya’s commitment to ICT growth, President Kenyatta appointed two industry champions to key positions: Joe Mucheru as Cabinet ICT Secretary and Victor Kyalo as Principal

Secretary (Kenya Current 2015). Mucheru co-founded Wananchi Online (now Zuku) and was among the very first staff of Google Africa. Kyalo was instrumental in building up the KICTA and the Kenya Educational Network (KENET).

Microsoft chief executive officer (CEO) Satya Nadella followed up the Global Entrepreneurship Summit with the global launch of Windows 10 in Nanyuki, Kenya. When asked why he chose Kenya, he said that he wanted to listen and learn from the Kenyan innovators on the ground who are building amazing start-ups from the bottom up and are not big multinationals (Madowo 2015). These developments point to the fact that Africa in general, and Kenya in particular, is getting the attention of the world when it comes to entrepreneurship and high-tech business opportunities. Kenya made Africa proud by hosting the summit and the Windows 10 launch, which is being perceived as the turnaround operating system for the software giant (Gosier 2015).

Kenya also spearheaded the mobile money revolution through the introduction of M-PESA, which currently constitutes roughly 20 % of the country's transaction flow (McKay and Mazer 2014). Kenya also gave the world Ushahidi—a disaster-management platform based on crowdsourcing now used for monitoring disasters in countries around the world, from Haiti, Chile, and Pakistan to Congo, Philippines, Peru, Kenya, China, and Russia (Halliday 2010).

Kenya currently has one of the fastest internet connections on the continent because of an entrepreneurial government policy initiated in 2007 under the leadership of Professor Bitange Ndemo (former Permanent Secretary in the Ministry of Information and Communications). Professor Ndemo, with the support of Minister Mutahi Kagwe and President Mwai Kibaki, effectively navigated through bureaucracy and vested interests that stifled growth in Kenya's telecommunications sector. Their efforts paid off, and Kenya became the home of M-PESA, the world-famous mobile-money platform that enjoys staggering success in advancing financial inclusion as well as cutting down transaction time for Kenyans.

In addition to M-PESA, the Kenya government entered into a public-private partnership to build the first submarine cable, TEAMS, and a terrestrial fiber infrastructure, the NOFBI. These projects laid

the foundation for other submarine and terrestrial fiber networks to be built by private operators, resulting in a competitive environment that drove down the cost of broadband and increased connectivity speeds.

The convergence of the availability of broadband with the creative ingenuity of digital natives and millennials has resulted in new ventures applying high-tech solutions to real problems. Kopo Kopo's system, for example, allows merchants on its network to increase revenues, NikoHapa offers a customer loyalty reward system that uses QR issued codes, Weza Tele provides mobile solutions in commerce, and M-Farm connects farmers and buyers. Others ventures include MPrep, an e-learning platform; the PesaPal payment aggregation platform; Uhasib, a web and mobile cloud-based accounting system for accountants and small- and medium-size enterprises; Arifu, an SMS-based learning platform for individuals and corporates; Sprint Interactive, a digital agency with a unique storytelling approach; and Elimu, an award-winning, engaging, and fun interactive application for children learning and preparing for their exams in the Kenyan Primary School system (iHub Research 2013).

According to *Business Daily* (2015), Weza Tele recently sold to AFB for USD1.7 million—the first exit in the nascent tech industry in Kenya (Jackson 2015c). Most of these entrepreneurial activities take place on Ngong Road in Nairobi, which is likened to America's Silicon Valley.

To buttress the growth of a technology economy, the Kenyan government has set aside 5000 acres of land to set up Konza Techno City—a USD9.4 billion undertaking envisioned as a smart technology city where innovation, technology, knowledge, and research come together to create wealth (MIT Technology Review 2015).

An example of a next-generation company from Kenya is Cellulant, which Kenyan Ken Njoroge and Nigerian Bolaji Akinboro founded in 2002. The company has won wide recognition as a mobile financial services provider and is considered to be Kenya's biggest export to the rest of Africa. Jenkins writes that the *Financial Times* recognizes Cellulant's provision of a mobile payment system across 10 countries, including Kenya, Zambia, Botswana and Gambia, with plans to expand to another 13 countries in the next 15 months (Jenkins 2015).

There are other new-generation Kenyan innovative companies like Mike Macharia's Seven Seas Technologies, a leading provider of

integrated business and technology solutions; John Waibochi's Virtual City, a leading provider of innovative mobility solutions that simplify lives; Segeni Ngethe's Mama Mikes, an online shopping platform for Africans in the diaspora; and Craft Silicon, a financial solution provider of software for banks, microfinance, mobile, and switch solution in the global market (Adar 2015).

Ivory Coast (Côte d'Ivoire)

Ivory Coast, the second country in the KINGS economies, has mobile penetration of 90 %, with the creative economy beginning to emerge in places like Plateau and Cocody. The government put together a huge investment forum in 2014 as part of its plans to showcase the country and attract investment. A well-patronized event, it resulted in Entrepreneurial Solutions Partners putting together the first national business plan competition, which rewarded 10 start-up businesses with cash investments and the opportunity to engage with investors at the forum as well as develop their businesses.

The African Development Bank has moved its headquarters back to Abidjan after a temporary relocation to Tunisia attributed to the post-election violence. The institution apparently prefers Abidjan for its headquarters despite offers from other countries to host it—a move that provides a significant boost of the city's economy in terms of the financial transactions and the employment and trade activities generated.

SocialSpot is a leading Ivorian start-up focused on providing social services via a Wi-Fi mesh hotspot network in strategic locations in Abidjan and beyond. Its founder, Bacely Yorobi, is a leading light of the next generation of entrepreneurs. La Régionale is another interesting start-up, co-founded by Christophe Kaiser with the mission of delivering premium news content via SMS alerts directly to mobile handsets. Eric Kacou of Entrepreneurial Solutions Partners and Franck Berthod of Focus Group are seen as local champions of the start-up ecosystem in Ivory Coast because of their leadership in the start-up activities in Abidjan. The former organized the national business plan competition, provides consulting to start-ups; the later organized the first Global Entrepreneur Week in 2015, and has recently set up ADN Accelerator in the Plateau

business district for tech start-ups. The accelerator plans to start a six-month cohort program in which select entrepreneurs are groomed to create start-ups with funding from a proposed national angel network.

Orange, the leading mobile operator in the country, has set up Orange Fab, an incubator and accelerator for nurturing start-ups that currently serves as the nerve center for the local start-up ecosystem. It houses start-ups such as Sportif 225, an online platform that provides content and events for sports; Syceliman, an IT company specialized in development (web and software), computer systems, and networks; Smartsell, a point-of-sale management system; and ICT4D, an e-agriculture start-up. These start-ups are effectively disrupting existing markets in the local economy.

Seedstars World hosted its first start-up pitch competition in Ivory Coast in August 2015. Of the ten start-ups that pitched, Airshop, a duty-free preordering app, won the prize to represent Ivory Coast at a global pitch competition in Switzerland, proving that though the start-up ecosystem in Ivory Coast is relatively new, it has the potential to produce globally competitive businesses. The government plans to build a technology park along the coast in Grand Bassam, 30 minutes outside Abidjan, as part of a new urbanization plan.

Simplex Anoh's Digital Afrique Telecom is an example of a next-generation business from Ivory Coast. It provides mobile value-added services and has a presence in 27 African countries where agreements have been signed with 40 mobile operators to provide premium-rated short codes for SMS/IVR/USSD services. The company also has a content distribution platform and is able to carry out loyalty or campaign management services on behalf of its numerous clients, which are predominantly in Francophone countries in the West, Central, Eastern, and Southern regions of the continent. The company's current consolidated revenue is about USD3 million from the various countries it operates in.

Nigeria

Nigeria sits symbolically in the middle of the KINGS group of economies because it holds the key to how fast Africa will rise in the twenty-first century. Nigeria is one of the MINT (Mexico, Indonesia, Nigeria, and Turkey)

countries identified by Jim O'Neill of Goldman Sachs (who also created the term BRICS, referring to Brazil, Russia, India, China, and South Africa) as the next global economic giants. After rebasing its gross domestic product (GDP), Nigeria recently overtook South Africa as the largest economy in Africa and followed that with its first democratic alternation of power.

Nigeria's start-up ecosystem is dominated by e-commerce ventures and is recognized as the e-commerce capital of Africa, with start-ups such as Sim Shagaya's Konga, Jumia (which raised USD150 million to expand into other African markets), Chris and Tope Folayan's Mall for Africa (which raked in USD17 million in sales in 2014), and Raphael Afaedor's Supermart (specializing in grocery deliveries and more). Jason Njoku built iROKOTv, a successful platform for video-on-demand content from Nigeria's Nollywood, and has attracted huge investments that have enabled him and his business partner, Bastian Gotter, to launch Spark—a company building and incubating other start-ups. Spark is enabling the next generation of start-ups like Hotels.ng, which recently raised USD1.2 million from Omidyar and EchoVC partners after being seeded with USD250,000 by Spark three years ago. Olumide Soyombo and Kazeem Tewogbade built Bluechip Technologies, a business intelligence company, from scratch and are now using the proceeds to seed the next generation of entrepreneurs through their accelerator and seed fund called Leadpath.

Considered Nigeria's Silicon Valley, the start-up ecosystem built in Yaba, a suburb of Lagos, is home to a number of educational institutions like the University of Lagos, Queen's College, and Yaba Institute of Technology. CC Hub, IdeaHub, Leadpath, and Passion Incubator are some of the many co-working spaces, incubators, and accelerators located in the city. Yaba is also home to many tech companies (Akwagiyiram 2015), such as Paga, Jobberman, Easy Taxi, and others. The Lagos Angel Network is rising to the challenge of feeding the ecosystem with capital and has so far invested in two start-ups. Like Kenya, the Nigerian government is constructing an idyllic campus called Technology Village outside the capital, Abuja, 400 miles north of Lagos.

Jason Njoku's iROKOTv is an example of a next-generation company and has been described as the Netflix of Africa (Iwuoha 2016). The company purchases the rights to Nigerian films and distributes them online. Its subscription platforms stream music and movies in 178 countries.

According to Jason, he started the company to satisfy his own desire to be able to find online the Nigerian movies available on DVDs on the streets of Lagos. Having grown up in the UK, he figured that if he could get these movies online as Netflix had done, people would subscribe to watch or buy them. iROKOTv has since built a global audience, especially among Nigerians in the diaspora and other Africans who prefer to access their content via web-enabled devices. Not too long after its launch, the company secured USD8 million from investors to scale up the platform to target a global audience. Major American music and film outlets now use iROKOTv to distribute their digital content in emerging markets.

Interswitch is another next-generation business from Nigeria. It is in line to become Africa's first public tech unicorn, with announcements to list on both the London and Lagos stock exchanges (Bright 2016).

Ghana

Ghana's reputation as a safe destination for investment attracted Mark Davies in 2001 to set up BusyInternet, a multipurpose tech hub that started incubating start-ups. Hosted at BusyInternet, I started the Ghana New Ventures Competition that begot SMSGH—the leading value-added service provider that made USD5 million in revenue last year. SMSGH celebrated its tenth anniversary in 2015 with the opening of its own ultramodern office built without external investment or debt.

In 2008, the Meltwater Entrepreneurial School of Technology was set up as a two-year software training school, which then accepted students' ideas in its incubator program. Meltwater Entrepreneurial School of Technology has so far invested USD15 million in more than 20 early-stage companies, some of which are Retail Tower; Dropifi, a customer support widget by the first Ghanaian start-up to be accepted into the 500 start-ups accelerator in San Francisco; Nandimobile, a business directory service; Leti Arts, a games developer focusing on African characters; ClaimSync, an electronic medical claims processing company (which was acquired by Genkey, a biometric solutions providers); and Saya Mobile, a mobile street messaging platform that was acquired by Kirusa of the United States (Nshehe 2014).

The start-up ecosystem is not only building up in East Legon (where Meltwater Entrepreneurial School of Technology is located alongside two other incubators, Mobile Web Ghana and ServLed), but also in Osu and Labone, where co-working spaces Impact Hub Accra and iSpace, respectively, are located. These incubators and co-working spaces constitute the nerve center for the start-up ecosystem in Ghana.

mPedigree and Sproxil are leading Ghanaian start-ups that have gone global with technology that allows one to authenticate medications and other materials via SMS. Farmerline and Esoko have similarly gone global with mobile web technology that allows farmers to communicate among themselves in their local dialect, get weather updates, access markets directly, and negotiate prices for their produce. Ghana's SMSGH has expanded into three African markets and is increasingly global (Venture Burn 2015).

The government's effort to channel capital into the ecosystem resulted in the establishment of the Venture Capital Trust Fund, a fund of funds managed by third-party fund managers, and recently started the Ghana Angel Investor Network to enable early-stage investments. The government plans to build a technology park in the free-zones enclave in the port city of Tema to enable business process outsourcing and provide for additional development of technology companies. In addition, there is the Ghana Cyber City initiative, a private sector-led effort to build Ghana's Silicon Valley, which would be located in East Legon, nestled between the University of Ghana and the Ghana Institute of Management and Public Administration close to where the current start-up ecosystem is developing.

SMSGH is a model of a next-generation company with an interesting story. It was started by Alex Bram and Ernest Apenteng, childhood friends who attended the Kwame Nkrumah University of Science and Technology in Kumasi. The university was built by Ghana's founding father, President Kwame Nkrumah, to advance the cause of science and technology education. Like most Ghanaian families, Alex's and Ernest's parents expected them to complete their university education and get white-collar jobs. However, in their penultimate long university vacation, they decided to enter the Ghana New Venture Competition instead of going to London to earn some money from a part-time job.

The Ghana New Venture Competition program—according to Gregg Zachary (1997), author of *Endless Frontier: Vannevar Bush, Engineer of*

the American Century—was a revolutionary movement to activate the entrepreneurial spirit of the Ghanaian youth. In the afternoons of the three-month-long program, the program brought in successful Ghanaian entrepreneurs to tell the participants their life stories and how they made it on their entrepreneurial journey. According to Alex, it was during one of these sessions that he decided to become an entrepreneur.

After college, he partnered with his friends Ernest and Leslie Gyimah to start Urban Hive, which later became SMSGH, a mobile value-added service provider that focuses on communication, content, and commerce. The company has been growing year on year for the last ten years, earning USD5 million in revenue in 2014. SMSGH is a role model in many ways and proves that although the entrepreneurial environment is tough, it is possible to break through and build a great business from nothing, with no investments or debt. The company is a market leader with a great execution team of 42 employees and an exceptional chief technology officer in the person of Kwadwo Sienti, who joined later. The company now has expansion offices in Kenya for East Africa, Cameroon for Central Africa, and Nigeria for the greater West African market. The company's next 10-year plan is to become Africa's most useful mobile applications company by blending communication, content, and commerce into a mobile-cloud platform that works for 200,000 businesses, serving 250 million people across the continent by 2025.

Ghana has other innovative next-generation companies such as Rancard Solutions, a multinational mobile telecom software and advertising business; DreamOval, a data science enterprise software and cloud services company; and Farmerline, a platform that empowers small-scale farmers with innovative mobile technology and information services.

South Africa

South Africa is the only African representative among the BRICS economies that are deemed to represent the world's emerging markets and act as a counterweight to the G8 and G20 economies. South Africa has long been a leading light in showcasing political stability and the diversity of the African continent. The country successfully hosted Africa's first World Cup, which helped change the global perception of the continent,

and it has been leading the innovation space with the introduction of prepaid airtime by Vodacom.

Before that, Mark Shuttleworth built Thawte in 1995 and sold it to Verisign in 1999 for more than half a billion dollars, opening the way for others to establish themselves from his investment vehicle. Fundamo, a mobile money financial services platform, which was partly owned by HBD (Mark Shuttleworth's investment vehicle), was acquired by Visa for USD110 million in 2011, and in that same year, Twango was acquired by Groupon for an undisclosed amount.

Earlier in 2015, Garmin, the satellite navigation multinational, bought iKubu, a backtracker bicycle radar technology company, and in May, Automattic, the parent company of WordPress, acquired Woothemes, a WordPress plug-in, for USD30 million. These acquisitions made South Africa the country with the most acquisitions among the KINGS' economies and confirm South Africa's leadership in building global technology companies.

Cape Town has been dominant in tech innovation, both in Stellenbosch and now in Woodstock, an old industrial estate that recently emerged as South Africa's Silicon Valley. Johannesburg has been experiencing its own regeneration and is inching into the tech innovation space with locations in the Maboneng Precinct and 44 Stanley. The Innovation Hub in Pretoria is the government's innovation cluster, which houses all kinds of innovation activities, from water technology to any form of high tech.

Section 12J of the Income Tax Act of South Africa allows investors to write off 100 % of their investment capital against their taxable income in the year in which they make an early-stage investment. The policy has resulted in the formation of a venture capital fund called Grovest that is investing in early-stage companies using the tax write-off as an incentive for its investors.

Invenfin, AngelHub Ventures, 4Di Capital, Team Africa Ventures, Silver Tree Capital, and Knife Capital are some of the other funds that have been seeding early-stage tech companies. They target start-ups in incubators, accelerators, and hubs such as JoziHub and Seed Engine (in Johannesburg) and Bandwidth Barn and 88mph (in Cape Town).

Naspers is a model of a successful next-generation South African company. With a market capitalization of more than USD66 billion, Naspers is regarded as the largest company in Africa. It recently became the biggest publicly traded company by market value in Africa through the sale of bonds to fund emerging market internet acquisitions. It has been making

global acquisitions as consumers make the switch to mobile and smart devices for activities such as shopping and banking. Naspers already has an impressive portfolio that cuts across internet media, television, internet services, and the print media with companies such as OLX, Flipkart, Allegro, Ibibo, SuperSport, MultiChoice, MWEB, and Media24.

Industry Events

In addition to the policies, acquisitions, and partnerships that have accelerated Africa's tech innovation, industry events have also contributed in catalyzing the continent's digital economy.

Angel Fair Africa brings selected start-ups to pitch to investors. It was launched in South Africa in 2013, and the second event was held in Nigeria the following year. In the 2015 Ghana event, two deals were announced on the spot for the first time. The event took place after the Africa Technology Summit, with active participation from Silicon Valley and European investors that follow Africa tech.

Demo Africa is another start-up industry event that serves as a launch pad for start-ups in Africa. It is the African version of Demo, the annual US event. Demo Africa has helped launch a number of African start-ups since it began in 2012 in Nairobi. The event was moved to Lagos after two successful events in the East African city. The event is a flagship of the LIONS@FRICA partnership led by the US State Department.

Pivot East is East Africa's premier mobile start-ups pitching competition, held annually since 2011 and led by the mLab consortium of East Africa. The event brings selected start-ups to pitch to an audience, including investors. Currently in its fifth year, the event has produced a significant number of start-ups in the region.

Seedstars World is a global start-up competition out of Switzerland that takes place in emerging markets with the focus of enabling entrepreneurs through providing investment dollars to the best start-ups to build their business. Last year's event had a major focus on Africa, with events in Cairo, Gaborone, Algiers, Dakar, Dar Es Salaam, Luanda, Nairobi, Kampala, Kigali, Accra, Lagos, Maputo, Gaborone, Cape Town, and Abidjan.

Conclusion and Recommendations

It is clear from my case studies of the KINGS economies that Africa is the twenty-first century home of tech innovation. Innovations in these countries have the capacity to add immense value to their respective economies through job creation, taxes, and creating efficiencies in the economy.

Other African countries should follow suit and try to position themselves to capture the innovation wave by considering the following recommendations:

1. Build strong local infrastructure to enable broadband availability and accessibility. Governments and the private sector need to invest in submarine and land-based fiber networks and wireless last-mile connectivity to bring mobile and broadband to the masses.
2. Create an enabling environment for strong competition in the telecom and technology ecosystem. Regulators need to take the lead in creating a level playing field that allows for equity and fairness in the marketplace, and this must be backed by policies that discourage incumbency and market-dominant practices.
3. Build independent regulatory institutions and match them with the requisite public policy agencies. Governments, through acts of parliament, must build regulatory institutions that are independent and under the supervision of parliament or some bipartisan national institution.
4. Use a pro-innovation public policy agenda that empowers each country's digitally inclined natives and millennials to lead the charge. Governments should place technology innovation and creativity at the center of their economic development agenda and foster innovation policies that allow the youth to lead the national agenda.
5. Ensure that there is a community of practice among the key stakeholders (government, academia, researcher, the private sectors, and civil society). Innovation thrives best when there is a coalition of actors who work together while playing their individual roles effectively. Governments must champion this strategy as they lead from behind.

Final Remarks

Steve Case, co-founder of AOL and now chairman of Revolution LLC, and his wife Jean Case, CEO of the Case Foundation, recently visited three of the KINGS economies — Kenya, Ghana, and Nigeria. Impressed by the entrepreneurial ecosystems they saw, Steve said, “The most exciting thing I’ve seen is great entrepreneurs...they really have great ideas. Some of them are going to be great businesses that change the world and create a lot of value and create a lot of jobs. It has been encouraging” (Ventures Africa 2015).

For her part, Jean added, “You know I have also tried to underscore that the other area that is very impressive here is the degree of participation by women in the entrepreneurial sector. Everywhere we’ve gone, we’ve seen amazingly talented strong women really bringing it and building some really great new enterprises” (Egbedi 2015).

Eghosa Omoigui, managing partner of EchoVC, said, “Our ideal entrepreneur has a Nigerian hustle, a Ghanaian integrity, and a Kenyan smoothness” (Baird 2015). Allow me to add Ivorian persistence and South African diversity as additional ingredients for making a start-up successful.

The KINGS countries are therefore an embodiment of smoothness, persistence, hustle, integrity, and diversity. And Africa—led by the KINGS—is truly on the move.

References

- Adar, V. (2015). How local tech firm is rewriting the rules of service delivery. *Nairobi Business Monthly*. Available at: <http://www.nairobibusinessmonthly.com/technology/how-local-tech-firm-is-rewriting-the-rules-of-service-delivery/>. Accessed 12 Feb 2016.
- Akwagyiram, A. (2015). Nigeria tech enclave springs up in Lagos suburb. *Reuters*. Available at: <http://www.reuters.com/article/nigeria-technology-yaba-idUSL5N1012KT20150727>. Accessed 12 Feb 2016.
- Ayittey, G. B. (1991). *Indigenous African institutions*. New York: Transnational Publishers Inc.

- Baird, R. (2015). African solutions shaping the world: Investor insights from Nigeria. *Venture Capital for Africa* Accessed 12 Feb 2016. Available at: <https://vc4a.com/blog/2015/08/03/african-solutions-shaping-the-world-investor-insights-from-nigeria/>
- Bright, J. (2016). Nigerian fintech company interswitch could become Africa's first public startup unicorn. *Tech Crunch* Accessed 12 Feb 2016. Available at: <http://techcrunch.com/2016/01/28/nigerian-fintech-company-interswitch-could-become-africas-first-public-startup-unicorn/>
- Bright, J. (2015). Why Africa may be on the verge of an Internet boom. *Fortune* Accessed 12 Feb 2016. Available at: <http://fortune.com/2015/02/16/nigeria-internet-startups/>
- Business Daily (2015). Safaricom's net profit soars 38pc to record Sh32bn. *Businessdailyafrica.com*. Available at: <http://www.businessdailyafrica.com/Corporate-News/Safaricom-net-profit-soars-to-record-Sh32bn/-/539550/2708580/-/audf5w/-/index.html>. Accessed 12 Feb 2016.
- Chakravorti, B., Tunnard, C., & Chaturvedi, R. S. (2015). Where the digital economy is moving the fastest. *Harvard Business Review* Accessed 12 Feb 2016. Available at: <https://hbr.org/2015/02/where-the-digital-economy-is-moving-the-fastest>
- Commonwealth Telecommunications Organisation. (2012). *The socio-economic impact of broadband in sub-Saharan Africa: The satellite advantage*. Available at: http://www.cto.int/media/research/projects/Socio-Economic_Impact_of_Broadband_The_Satellite_Advantage.pdf. Accessed 12 Feb 2016.
- Economist (2014). Africa's new number one. *The Economist* Accessed 12 Feb 2016. Available at: <http://www.economist.com/news/leaders/21600685-nigerias-suddenly-supersized-economy-indeed-wonder-so-are-its-still-huge>
- Egbedi, H. (2015). There's a very special spirit that's alive in Nigerians. –Jean Case, *Ventures Africa*. Available at: <http://venturesafrica.com/theres-a-very-special-spirit-thats-alive-in-nigerians-jean-case/>. Accessed 12 Feb 2016.
- Euronews (2015). Africa is on the move, says Obama in Kenya. *Euronews* Accessed 12 Feb 2016. Available at: <http://www.euronews.com/2015/07/25/africa-is-on-the-move-says-obama-in-kenya/>
- Fox, K. (2011). Africa's mobile economic revolution. *The Guardian* Accessed 12 Feb 2016. Available at: <http://www.theguardian.com/technology/2011/jul/24/mobile-phones-africa-microfinance-farming>
- Freshfields Bruckhaus Deringer (FBD). (2014). Africa poised for tech take-off as continent's leading TMT companies outperform other sectors over past decade. *FBD*. Available at: http://www.freshfields.com/en/news/Africa_TMT_companies_outperform/?LangId=2057. Accessed 12 Feb 2016.

- Government of Kenya (GoK). (2015). *Speech by His Excellency Hon. Uhuru Kenyatta, C.G.H., President and Commander In Chief of the defence forces of the Republic of Kenya during the official opening of the 6th global entrepreneurship summit, U.N. Headquarters, Gigiri, 25th July, 2015*. Available at: <http://www.president.go.ke/2015/07/25/speech-by-his-excellency-hon-uhuru-kenyatta-c-g-h-president-and-commander-in-chief-of-the-defence-forces-of-the-republic-of-kenya-during-the-official-opening-of-the-6th-global-entrepreneurship-sum/>. Accessed 12 Feb 2016.
- Gosier, J. (2015). Windows 10: Revenge of Microsoft? *CNN News*. Available at: <http://edition.cnn.com/2015/08/04/opinions/gosier-microsoft-windows-10/>. Accessed 12 Feb 2016.
- GSMA (2015). *The mobile economy: Sub-Saharan Africa 2015*. London: GSMA Available at: <https://gsmaintelligence.com/research/?file=721eb3d4b80a36451202d0473b3c4a63&download>. Accessed 12 Feb 2016
- Halliday, J. (2010). Ushahidi launches simplified crisis-mapping service. *The Guardian*. Available at: <http://www.theguardian.com/technology/2010/aug/11/ushahidi-crowdmap-crisis-mapping>. Accessed 12 Feb 2016.
- Hinshaw, D. (2015). For a growing Africa hope mingles with a fear of the future. *Wall Street Journal* Accessed 12 Feb 2016. Available at: <http://www.wsj.com/articles/for-a-growing-africa-hope-mingles-with-fear-of-the-future-1448632865>
- iHub Research (2013). *iHub Research in 2013* Accessed 12 Feb 2016. Available at: <http://www.ihub.co.ke/blogs/12201>
- Iwuoha, J. P. (2016). How these 10 super successful African entrepreneurs raised money to start their businesses. *Smallstarter*. Available at: <http://www.smallstarter.com/get-inspired/10-super-success-african-entrepreneurs-and-how-they-raised-money-to-start-their-businesses/>. Accessed 12 Feb 2016.
- Jackson, T. (2015a). African millennials have caught the entrepreneurs bug. *DisruptAfrica.com*. Available here: <http://disrupt-africa.com/2015/12/african-millennials-have-caught-entrepreneurship-bug/>. Accessed 12 Feb 2016.
- Jackson, T. (2015b). Move over Asia, it's Africa's time now. *DisruptAfrica.com*. Available at: <http://disrupt-africa.com/2015/11/move-over-asia-its-africas-time-now/>. Accessed 12 Feb 2016.
- Jackson, T. (2015c). Kenya's Weza Tele acquired by AFB for \$1.7m. *DisruptAfrica.com*. Available at: <http://disrupt-africa.com/2015/05/kenyas-weza-tele-acquired-by-afb-for-1-7m/>. Accessed 12 Feb 2016.
- Jenkins, S. (2015). Mobile technology widens its reach in Africa. *The Wall Street Journal* Accessed 12 Feb 2016. Available at: <http://www.ft.com/cms/s/0/902d416a-169e-11e5-b07f-00144feabdc0.html#axzz3zwwnZvYj>

- Johnson, J., & Aboyeji, I. (2015). Is Africa hiding the next Mark Zuckerberg? The future of tech talent. *The Wall Street Journal*. Available at: <http://www.wsj.com/articles/is-africa-hiding-the-next-mark-zuckerberg-the-future-of-tech-talent-1449242360>. Accessed 12 Feb 2016.
- Kelly, T. (2014). Tech hubs across Africa: Which will be the legacy makers. *World Bank Blog Information and Communication for Development*. Available at: <http://blogs.worldbank.org/ic4d/tech-hubs-across-africa-which-will-be-legacy-makers>. Accessed 12 Feb 2016.
- Kenya Current. (2015). Full list of reshuffled cabinet: Victor Kyalo is the new PS for ICT Ministry and Joe Mucheru the CS. *Kenya Current*. Available at: <http://www.kenyacurrent.com/read/full-list-of-reshuffled-cabinet-victor-kyalo-is-the-new-ps-for-ict-ministry-and-joe-mucheru-the-cs>. Accessed 12 Feb 2016.
- Kojima, K. (2000). The “flying geese” model of Asian economic development: origin, theoretical extensions, and regional policy implications. *Journal of Asian Economics*, 11(2000), 375–401.
- Kuo, L. (2016). African startups are defying the global tech slowdown. *Quartz Africa*. Available at: <http://qz.com/592119/african-startups-are-defying-the-global-tech-slowdown/>. Accessed 12 Feb 2016.
- Lancaster, H. (2015). Kenya — Telecoms, mobile and broadband — Market insights. *Budde* Accessed 12 Feb 2016. Available at: <http://www.budde.com.au/Research/Kenya-Telecoms-Mobile-and-Broadband-Market-Insights.html#sthash.AikYR90C.dpuf>
- Manyika, J., Cabral, A., Moodley, L., Moraje, S., Amankwah, S. F., Chui, M., et al. (2013). Lions go digital: The Internet's transformative potential in Africa. *McKinsey Global Institute* Accessed 12 Feb 2016. Available at: http://www.mckinsey.com/insights/high_tech_telecoms_internet/lions_go_digital_the_internets_transformative_potential_in_africa
- McKay, C., & Mazer, R. (2014). 10 myths about M-PESA: 2014 update. *CGAP* Accessed 12 Feb 2016. Available at: <http://www.cgap.org/blog/10-myths-about-m-pesa-2014-update>
- MIT Technology Review (2015). *Funding innovation report*. Boston: MIT Available at: <https://www.technologyreview.com/business-report/funding-innovation/download/?redirectTo=%2Fs%2F543406%2Fkenya-tries-to-build-its-silicon-valley%2F#/join/>. Accessed 12 Feb 2016
- Moosajee, N. (2016). Is Africa leading the innovation revolution. *World Economic Forum (WEF) Davos 2016 Blog*. Available at: <http://www.weforum.org/agenda/2016/01/is-africa-leading-the-innovation-revolution>. Accessed 12 Feb 2016.

- Madowo, L. (2015). Nadella: Why I chose Kenya for Windows 10 global launch. *Business Daily* Accessed 12 Feb 2016. Available at: <http://www.businessdailyafrica.com/Opinion-and-Analysis/Why-I-chose-Kenya-for-Windows-10-global-launch/-/539548/2814404/-/c3j8st/-/index.html>
- Nash, B. (2015). The future is African. *Tech Crunch* Accessed 12 Feb 2016. Available at: <http://techcrunch.com/2015/09/05/the-future-is-african/>
- Nshehe, M. (2014). U.S. company acquires african mobile messaging startup Saya. *Forbes*. Available at: <http://www.forbes.com/sites/mfonobongnsehe/2014/08/20/u-s-company-acquires-african-mobile-messaging-startup-saya/#7a5f94dd6358>. Accessed 12 Feb 2016.
- Song, S. (2015). *Africa Telecoms infrastructure in 2014* Accessed 11 Feb 2016. Available at: <https://manypossibilities.net/2015/01/africa-telecoms-infrastructure-in-2014/>
- Stahl, L. (2015). The future of money. *CBS News 60 Minutes*. Available at: <http://www.cbsnews.com/news/future-of-money-kenya-m-pesa-60-minutes/>. Accessed 12 Feb 2016.
- Tredger, C. (2015). Equitel leverages Effortel platform technology. *IT Web* Accessed 12 Feb 2016. Available at: <http://www.itwebafrica.com/mobile/309-kenya/234942-equitel-leverages-effortel-platform-technology#sthash.nrDnsVQV.dpuf>
- United Nations Conference on Trade and Development (UNCTAD) (1996). *World investment report 1996: Investment, trade and international policy arrangements*. New York: United Nations Available at: http://unctad.org/en/Docs/wir1996_en.pdf. Accessed 12 Feb 2016
- Venture Burn (2015). How Ghanaian startups are making an impact on the global stage. *Venturn Burn* Accessed 12 Feb 2016. Available at: <http://venture-burn.com/2015/07/how-ghanian-startups-are-becoming-globally-relevant-on-the-world-stage/>
- Ventures Africa (2015). True Grit: America Online (Aol) founder Steve Case talks Africa and entrepreneurship. *Ventures Africa* Accessed 12 Feb 2016. Available at: <http://venturesafrica.com/true-grit-america-online-aol-founder-steve-case-talks-africa-and-entrepreneurship/>
- Wall, M. (2014). Africa's mobile boom powers innovation economy. *BBC news* Accessed 12 Feb 2016. Available at: <http://www.bbc.com/news/business-28061813>
- Wikipedia.org. (2016). African Century. *Wikipedia.org*. Available at: https://en.wikipedia.org/wiki/African_centuryinigeria/. Accessed 12 Feb 2016.

- World Bank (WB) (2009). *Information and communications for development 2009: Extending reach and increasing impact*. Accessed 12 Feb 2016. Available at: <https://issuu.com/world.bank.publications/docs/9780821376058>
- World Bank (WB) (2015a). *Cote d'Ivoire*. Accessed 12 Feb 2016. Available at: <http://www.worldbank.org/en/country/cotedivoire>
- World Bank (WB). (2015b). *Kenya*. Available at: <http://www.worldbank.org/en/country/kenya/overview>. Accessed 12 Feb 2016.
- Zachary, G. P. (1997). *Endless frontier Vannevar Bush, engineer of the American Century*. Cambridge: The MIT Press.

Conversation #3

Changing the Game: Building Mindsets of Hope and Possibilities in Africa's Future Leaders — One Game at a Time

Anne Githuku-Shongwe of Afroes



Anne Githuku-Shongwe was recently appointed the UN Women Representative in South Africa for multiple countries in the region. At heart, Anne is a social entrepreneur, a digital innovator, and has been a thought leader and pioneer on the future of digital learning and digital work for Africa's youth. She founded Afroes in 2010 to create innovative ways to help equip African youth for more promising futures. She and

Afroes have received multiple awards, including the prestigious Schwab Foundation World Economic Forum Social Entrepreneur of the Year 2013 Award and the National Award: Order of the Grand Warrior from the President of Kenya. Other awards include the PEACEApp award of the United Nations (UN), Meffys Award in London, and Netexplo Award in Paris. Before starting Afroes, she was an international development professional for 20 years, including 15 years with the United Nations Development Programme on the African continent and with management consulting firms in the USA.

What is the story behind Afroes?

Afroes (the name comes from a play on “African heroes and heroines”) was inspired by conversations with my own children. I worried that they were not being exposed to any positive African media content and that their ideas and aspirations for Africa were being influenced by the Western media’s pervasively negative messages about the continent. I got tired of complaining about it and decided to do something to change that.

My vision was to revolutionize social skills learning in Africa through edutainment platforms that would embed values and shape new mindsets of hope and possibility in the youth market across the continent. Watching my own children playing computer games gave me the inspiration I needed. I realized that kids were captivated by computer games and had the opportunity to learn complex skills in a fun yet subtle way—and I knew that there had to be a way to harness computer games to inspire the change to African children that I desired.

The business challenge for Afroes was recognizing that to reach mass numbers of children in Africa, mobile phones were the only viable medium to deliver computer games en masse. Today, with reach of over 450,000 users, Afroes has created a series of mobile games designed to shape new choices and stimulate challenging conversations for children and young people in Africa.

Our Moraba is an award-winning mobile game addressing difficult questions about gender-based violence and challenging the user to

contemplate what she or he believes about sexual relations and sexual violence. The game provides valuable information to the user, empowering them to make informed choices. Another powerful game, Haki: Chaguo Ni Lako (“Justice: The Choice is Yours”) was designed to inform, inspire, and empower Kenyan youth, helping them make considered choices as they went to the polls in 2013.

Afroes has developed a design approach that engages young mobile-game users in the co-creation of the mobile application, with social enterprise partners including the Nelson Mandela Children’s Fund and Child Rights partner organizations; UN Women and Gender-Based Violence stakeholders; the Tuvuke Initiative for a Peaceful, Inclusive, and Just Society; the Ford Foundation, as well as the Rockefeller Foundation, Microsoft, Intel, Nokia, and Vodacom.

What is the underlying motivator, the driver behind your life trajectory and the various projects you are engaged in?

I have always been driven by the belief in an Africa of great promise as defined by Africans and not dictated by the West. In all my years working in the development and multi-lateral sector, I noticed that we were stuck! We focused obliviously on copying the Western or even Eastern models without recognizing that we were actually selling out our continent’s destiny.

One of the real turning points for me was a moment as we (United Nations Development Programme colleagues and African governments) were working with colleagues from the government of Singapore. One of them, a woman from the government of Singapore, turned to us as we were debating what lessons to take back to Africa from our trip, and she asks candidly, “Why are you Africans always so willing to give up your destiny for others to define it for you?” And she was right. For too long, this had been the play in Africa. I sat there and felt a combination of insult and paralysis. I felt challenged, and then I realized that yes, she was right. That is the core of it all. The public servants from my delegation who were very senior and smart were really only interested in a quick, simple fix that would somehow bypass the 40 years of Lee Kuan Yew’s work that had resulted in today’s Singapore. It bothered me

that these smart public servants never once asked about the transformational investments in the mindsets of Singaporeans that had begun when they were six years old. So deeply embedded was the mindset of possibility, excellence, and patriotism that every Singaporean from street sweeper to cabinet minister spoke the same language and understood the vision of the nation. I have hardly seen this anywhere else in the world.

I mean, Singapore was no different from us in the 60s! They did not develop suddenly and dramatically. No! They went through struggles similar to ours in Africa so that in the 60s, for example, they had high levels of corruption in the public sector. Under the astute leadership of Lee Kuan Yew, they made a dramatic and transformational decision that Singapore would never be great unless they started by investing in a new generation that would emerge with the right values and mindsets to shape a different future. The results that we see today are the result of 40 to 50 years of investment in the right mindsets and values that have shaped their nation.

I am dreaming of a future when youth of my village will not run in hope at the sight of a Land Cruiser with a foreign agency logo on the car door—only to turn away dejected by yet another broken promise of their finally being saved by the Land Cruiser guy. Instead, I have dreamed that the youth of my village will be so invested in ensuring that they not only define and shape their own destiny but also will build their own Land Cruisers! But I knew this was not going to be easy, given that the mindsets were already distorted, and therefore there was urgent need to invest boldly in those young ones who were not yet a lost cause.

That triggered my thinking, and I embarked on asking one important question: How do we begin to invest in the mindsets of young Africans? How do we create mindsets that are built on the foundations of hope, possibility, and integrity? And how do we do this en masse? Afroes was my response to this, given that mobile today is the most powerful educational platform on our African continent.

Where do you think that mindset is coming from?

This is a complex set of theories that we cannot do justice to here. However, there are two that I feel are inarguable and that, to me, have really shaped our mindsets. One is what I would call a “village chief” mental model. The village chief mental model is built on a convoluted mesh of cultures that took the African traditional leader and superimposed the poll tax administrator from colonial administrations. This resulted in a perverted leadership model that vested all power in the hands of a chief who at a whim could determine the fate or fortune of his “subjects” and direct the resource flow as he chose. It is a model that I believe we have never been able to break out of. It reveres authority and promotes strong patron–client relationships that determine the flow of resources and one’s economic or political destiny. We see these patterns perpetuated in the way we choose our political leaders and how our leaders conduct themselves once in office.

The “development savior” mindset in all its forms—whether external or internal—has also perverted the mindsets of many in our countries who have given up their power to investments that have often highly distorted our political and economic landscape. One of the greatest ills of the development savior has been its perverse intentions and external value system. Rather than invest in the core agenda of a nation, it is mostly designed to serve external agendas that create islands of pilots and projects—some even excellent at times. But rarely does it invest in building the mindsets and value system of the potential leaders of the future in any meaningful way that could result in real long-term nation building. One of its biggest problems, just to mention an example, is its absurd impatience, its short-term goal orientation, and the fact that the objective, even if well intended, is ultimately defined by the aid giver. I worked for the UN previously and have since returned to lead the work of UN Women in Southern Africa. The UN is less about aid. The UN is more about normative principles signed by member states, working alongside a government and enabling governments to implement these normative standards. In practice, however, the less developed a country is, the more the UN and development partners are tempted to define, almost take

over, the role of its government. At the end of the day, the mindsets that have been shaped by the development industry include dependency and distorted priorities. It reminds me of this famous adage: He who pays the piper, calls the tune.

What is your approach to changing that?

During my work with united nations development programme (UNDP), we worked with a team that invested in mental models as the catalytic capacity required for public service and development. We learned so much from our partnership with the Singaporeans, particularly how they owned their own vision and agenda. They would never allow another government to influence how they shape their own policy. Never! Their mindsets were steeped in excellence, integrity, possibility, and growth.

In Kenya, and I dare say in many of our African countries, our mindsets are our weakest link! Mindsets of “scarcity” rather than abundance; mindsets of “eat now” rather than invest and preserve our future; and mindsets of “homogeneity” that perpetuate inequality across gender, ethnicity, and class—mindsets that hold us back from our destiny. The sad truth is that these mindsets have been transferred to our youth, who argue that their choices and posturings are in line with their survival! In Kenya, people talk about the hustle. It is always my hustle. It can be read positively: “I am hustling to do my thing,” or I am just struggling and surviving. It frustrates me when I see someone who cannot see the massive opportunities in front of them. Many public servants epitomize this mindset and were just marking time, just surviving. It is about the paycheck, never about the citizens. Too few exhibit the heart of public service. Service, for me, is another aspect of the mindset that is very important.

For us, the core of who we are as Africans—and we demonstrate it when the chips are down—is that we are an engaged collective. When the chips are down, somehow in Kenya, we are able to bring it up. When there was drought four to five years ago and the Kenyans4Kenya initiative came through, now, that was incredible! The way people responded when the Westgate shopping mall attack happened, where the very Somalis who were being implicated were out there feeding each other. That is the

core of what we have to go for. And I fear that because of the impact of the media, this notion of the collective is getting rapidly eroded.

How do you build the mindset that has a collective response rather than an individual one at its core? It starts by looking for assets where you are. It starts with the insight that we ourselves are our own resource. We have lost some of that. The thinking was that our assets and resources come from somewhere else. So as a logical consequence, I will have my own asset and resource, you will have your own asset and resource, and we will end up not sharing any of that.

Can we invest in a generation that will emerge with some of these values embedded in them? You have to think about this as a 30-year journey so that a new generation comes to fruition that can make the real transformation happen. I searched for a platform that could deliver these values in a simple, covert, and fun way. It was here that I got motivated by my own son, who was playing computer games for hours on end. As we argued about his “addiction” to games, I had the opportunity to observe him play—“Come see what I’m doing!” That is when I recognized that there was a bigger picture to games and the power that it brings along. I started doing research and found out that there was a global network called GamesforChange. This network filled me with confidence to go out and build Afroes—using games as a tool to deliver complex but important messages to our youth.

Now I know it is much tougher than I thought. The process of investing and figuring out how to build games, how to make them work well enough, and how to penetrate existing structures is much harder than imagined.

What are some of the difficulties when it comes to profoundly affecting and shaping mindsets?

I thought the school system would be the natural partner with Afroes, but despite their expression of excitement, the Ministries of Education were really not very open to change. In my experience, schools are very traditional and very conservative, and so change is slow. The school that we work with is the African Leadership Academy, which invests heavily in mindset

change. In their model, the academy invests two to three years in an individual. That is obviously the best model! However, I truly believe that there is a place for mass pop culture-based learning built on simple mobile phones. I am now concerned with how we can create these kinds of experiences for every African child, even if it is just for a few days, so they can start seeing the real possibilities rather than the problems. The idea was to create that content and place it in the hands of young people who individually or as a group would learn new values and skills via this mobile platform.

How do you reach youth? And why does gaming have such importance?

First, gaming is a platform. It is not the end. If we want to have any legitimacy in what we do, then we need to talk with the youth on their own terms. At Afroes, we spend a lot of time doing facilitated conversations with young people. We use the games to enter into a conversation. Play a game on gender-based violence, and then all of a sudden, it gives you an inroad to really start having conversations about things like “So how do you feel about gender-based violence? Where are you on this issue? What is your value system? How do you feel about relationships between you and young women? Do you value women? How do you value yourself as a woman?” And you start having conversations that you would never been able to have. For example, in one of our games, we have focused a lot on young peoples’ understanding of rape, gender-based violence, and the abuse of young women and men. We realized that young men in particular abuse young women without realizing it. They think that this is just how relationships work, because this is what their role models taught them.

We started a campaign for 12 months. Young people who played the game created conversations and shared comments on their own experience. One young man pointed out in the comments section, “I did not know until I played this game that I am a rapist.” He said, every time a young girl said “No,” he thought that what she actually meant was “Yes,” because that is what his socialization had taught him. For him, a “No” simply called for more persuasion from him, and he believed that crying was part of the “game” between men and women. This man was suddenly shocked to learn with our game that girls who say “No” mean “No.” It spurred a whole lot of new thoughts in him, and he realized that

he lost his girlfriend because of the way he treated her. It was incredible to see the realization process and the way his mind opened. This is a beginning, but it is an example that shows the power of games in shifting mindsets.

How can the minds of Africans be affected at scale?

For scale, we have to go through the public school system. The president talked about ethics and corruption classes in school. That is exactly what will make the difference. The tools we use can be manifold. However, we have to confront ourselves with the behavior change in a communal context. What does a new behavior look like collectively, not individually? Circles of dialogue that leverage technology, inside schools and outside of schools, can become a fruitful way to bring about a mindset shift at scale. Not all of us have the privilege of attending a college or academy for two years. If we use the opportunities of mobile learning and gamification and embed them in the public school system, then we can imagine a new way. We need a large cohort of leaders, particularly young and women leaders, equipped with new mindsets of possibility, abundance and hope—who can get us even sooner to Kenya’s vision 2030.

Having said all this, especially in the eight years since I left the UN, remarkable developments have taken place. What is striking is that the African narrative has changed dramatically for the better, with many young ones who have had global and African exposure plus a new breed of heads of state and business leaders defining a new, hope-filled, and African-led agenda. We need to continue that journey.

Thank you, Anne!



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Part II

Uncovering Unique Market Opportunities

4

Addressing Voids: How Digital Start-ups in Kenya Create Market Infrastructure

Marissa Drouillard

Introduction

The current chapter will introduce market-enabling digital platforms¹—that is, technology companies, particularly start-ups, that are specialized intermediaries providing the necessary information and facilitation for buyers and sellers to do business—as a new lens and frame of reference. The lens will first be applied to several successful technology companies founded in the Northern Hemisphere to show how the framework explains the significance and impact of particular start-ups on the marketplace, including making the underlying mechanics of “disruption” more evident. The lens is then applied to technology start-ups in Southern Hemisphere markets, specifically in Kenya, to illustrate how the same

¹ The term is a fusion of “market enablers” from Khanna and Palepu (2010) and various definitions of “platform” as adapted from and expanded by Evans (2009), Brynjolfsson et al. (2006), Bakos (1998), Eisenmann et al. (2006), Baldwin and Woodard (2008), and Rochet and Tirole (2003).

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fundamentals hold true in developing economies. Although ideally, every country would have business-enabling structures and institutions, (e.g., credit bureaus, payment processing systems, and supply chains), unfortunately many developing economies fall short. By building cutting-edge technology companies that create the digital market infrastructure necessary for smooth functioning of markets, emerging market start-ups can create competitive advantages and help enable new waves of entrepreneurial activity and market dynamism.

My understanding of the Kenyan digital entrepreneurship ecosystem is grounded in a study I led in 2013 on behalf of the GSMA Mobile for Development organization and several other development organizations (Drouillard et al. 2014). The study, published in 2014 by GSMA, told the story of the challenges Kenya's digital entrepreneurs face and encouraged stakeholders to increase their collaboration efforts. The overarching questions were: (1) Who are the principal stakeholders in the ecosystem and what are their interests? (2) What is unique and interesting about the emerging population of digital entrepreneurs in Kenya? And (3), What particular challenges do entrepreneurs face in developing and scaling their ventures? Though the study introduced some of the fundamental market infrastructure challenges (especially payment mechanisms), they were not discussed at length. The current chapter picks up this discussion and focuses on the nascent market-oriented dynamics of emerging markets, with an emphasis on Kenya. Core market infrastructure concepts will be introduced and then applied to digital services markets to create the notion of a market-enabling digital platform. Finally, the chapter will conclude with a discussion of why digital platforms have value and significance.

Market Voids

Kenya is like other emerging markets in that it has persistent challenges that hinder entrepreneurship and economic growth. Frequent financial crises, unreliable quality, and insufficient local talent are often cited as some of the headaches. Khanna and Palepu (2010), however, see such features of emerging markets as "symptoms of underlying market structures that share common, important and persistent differences from those in

developed economies.” The investigators defined the concept of “institutional voids” as missing or ineffective market structures and intermediaries that are the source of higher transaction costs and operating challenges in emerging markets.

Before delving further into Palepu and Khanna’s framework describing the types of essential market intermediaries, it will be useful to examine several recent studies that also categorized and quantified business environment voids. From them, we can get an initial sense of the common threads of infrastructure that are necessary to do business in emerging digital economies and how others have been thinking about the importance of market intermediaries—as well as how Kenya benchmarks in these areas regionally and globally.

The World Bank’s *Doing Business* report (2015) is an annual report on the state of health of various economies, based on detailed diagnostics of their underlying and embedded characteristics, such as regulatory systems, the efficacy of the bureaucracy, and the nature of business governance. The report is used by policymakers and businesses to catalyze debate and improve reform. Kenya’s overall ease of doing business ranking (1–189, with higher numbers worse) was 108th. The country ranked higher than 100th across all factors except “Getting credit,” where it ranks 28th. In spite of a thriving entrepreneurial culture, the country was 151st for ease of starting a business, particularly because of the costs (percent of income per capital) of starting a business and the number of procedures. Indeed, these rankings were not surprising, given Kenya’s classification as a lower-middle-income country (i.e., having annual gross national income per capita of \$1046–\$4125) (The World Bank 2015).

The World Economic Forum’s annual Global Competitiveness report (2014) is an analysis of the institutions, policies, and factors that determine the level of productivity of a country and of the country’s rates of return and growth. It is an attempt at explaining why some countries are more prosperous than others, prompting discussions at annual gatherings of policymakers, particularly when a country moves significantly up or down in the rankings. The report breaks down determinants of competitiveness into 12 pillars, including institutions, infrastructure, and macroeconomic environment. Kenya ranks 99th out of 140 countries indexed, with an overall score of 3.9 (on a 1–7 scale, with higher numbers

better). On business sophistication and innovation factors, Kenya ranked relatively high (42nd out of 140). On basic requirements (institutions, infrastructure, macroeconomic environment, health, and primary education), however, it ranked poorly (116th out of 140). The low scores on basic requirement factors were significant, given that infrastructure and institutions are cornerstones for markets to function.

Boston Consulting Group's eFriction report looked at how certain factors inhibit consumers and businesses from fully participating in the Internet economy, thereby constraining economic activity (Zwillenberg et al. 2014). The report was significant in that it attempted to define the factors driving economic growth caused by having a more digital economy. The four categories of voids discussed in the report were: (1) infrastructure-related, limiting basic Internet access; (2) "industry" sources (e.g., workforce ICT skills, trade barriers, access to capital, and the strength of intellectual property protection), affecting the ability of companies to maintain an Internet presence and engage in online transactions; (3) "individual" sources, constraining consumer Internet activity; and (4) information-related voids affecting the general availability of, and access to, online content—have some overlap with the framing used by Palepu and Khanna. Countries were scored on a 0–100 scale, using indicators selected for each of the four categories. Higher scores denoted higher levels of eFriction; an overall score and ranking were also calculated (better rankings aligned with lower scores). Across the four areas, Kenya ranked 64th in Infrastructure, 50th in Industry, 48th in Individual, and 33rd in Information, ranking the country 57th overall (of 65 countries profiled) and in the highest quintile of countries analyzed. It is interesting to consider Kenya's much higher ranking in Information versus its lower rankings in other areas (which, given the findings in the previous studies, are not surprising). What appeared to be driving this was the level of open encyclopedia pages in home languages, number of micro-messages made in home languages, and freedom on the Net.

Finally, the Global Entrepreneurship Index (GEI) report looks at the entrepreneurial ecosystem of a country, combining individual data with institutional components (Acs et al. 2015). The GEI is made up of three sub-indexes (Attitudes, Abilities, and Aspirations), each composed of several pillars. Kenya ranks 86th out of 130 countries studied by the index, and 5th out of 29 countries in Sub-Saharan Africa. Its

areas of best performance were Competition, Opportunity Perception, and Internationalization; the areas of worst performance were Process Innovation, Technology Absorption, and Risk Capital. Indeed, the poor-performing areas reflect the fact that fundamental intermediaries in capital markets and basic modern infrastructure necessary for product markets are still developing in Kenya. Moreover, it is not surprising that Opportunity Perception was high, given that there are currently many voids across a number of sectors.

Market Enablers

There are some accepted categories, or types, of market enablers that can fill the voids outlined above. In Khanna and Palepu's book *Winning in Emerging Markets* (2010), the authors listed several basic market-enabling institutions required for any market (capital, products, labor, etc.) to function²:

- **Credibility enhancers** are institutions that independently certify qualifications or claims made by suppliers or consumers. Examples include auditors, who certify that a business has adequately reflected its state of affairs in accounting documents, and Kenya Bureau of Standards marks of standardization and excellence, which certifies that a product meets specific criteria.
- **Information analyzers and advisors** are institutions that collect or analyze information about suppliers or consumers. Examples include credit rating bureaus, which provide information to finance institutions and others about business or consumer credit-worthiness, and market research organizations, which review products and provide decision-making guidance.
- **Aggregators and distributors**, probably the most fundamental type of market institution, work to match supply and demand. Examples include banks, which aggregate supplies of money (e.g., savings

²Khanna and Palepu (2010) introduced six institutions in the book—the four identified here in addition to regulation and adjudication. However, given that the latter two are government- and parastatal-led, rather than private-sector led, they are not discussed in this chapter.

accounts) and make money available for consumers who need cash, and mass retailers such as Game, which aggregates many different consumer products and sells them to customers through its chain of stores.³

- **Transaction facilitators** are institutions that make it possible for exchanges to take place, typically money for information, goods, or services. Examples include stock exchanges, credit card issuers such as VISA or MasterCard, and mobile money wallets such as M-PESA.

Market enablers are readily available in most advanced economies. Auditors, for example, enhance the credibility of companies seeking finance by certifying the companies' solvency. Enterprises can turn to management consultants or technology product reviews when evaluating a new human resources system. And various credit card issuers and payment-gateway infrastructures exist to transact seamlessly with customers. The existence of market enablers also improves the prospects for new entrants entering the marketplace by reducing barriers (such as information, distribution channel, geographical, and other barriers). In this regard, the international grocer Whole Foods has helped both new companies and new products reach scale on the back of its reputation. Through its regional program, the organization regularly reviews potential new products, trialing them in stores and regions and sometimes helping small producers expand their operations (Whole Foods Market 2016). Likewise, payment-processing company PayPal has enabled any business (or individual) to transact or collect payments on eBay without having to handle cash or be present in the same room as the buyer.

In emerging markets, however, market enablers are nascent—fewer organizations play enabling roles, specific types of market functions are not present, and in some markets, organizations are present but ineffective in their role as an enabler (e.g., a government institution that registers businesses using a process that takes multiple months). These challenges are what Palepu and Khanna referred to as “voids,” and because such gaps exist, businesses and consumers experience information asymmetries as well as uncertainty, resulting in a higher cost of doing business. To

³Game is the flagship store for South African Massmart, now majority-owned by US giant Wal-Mart.

illustrate the point, compare the process for obtaining financial services as a small business or start-up. In the UK, after completing an application online and submitting paperwork with a signature and proof of address, HSBC (a leading personal and business retail bank) creates an account and issues a business credit card. By contrast, many of the start-ups interviewed for my Kenya study (Drouillard et al. 2014) faced challenges accessing any kind of financing, particularly from banks. Indeed, stringent requirements (cited by 31 % of respondents) and high interest rates (8 %) were reactions by banks to information asymmetries—for example, if creditworthiness is uncertain or costly to obtain, then the banks must charge more and demand more significant collateral, such as property titles.

Special Type of Market Enabler: A Digital Platform

There is significant variation in what gets called a “digital platform”—from software (e.g., Microsoft Windows, Amazon, and Uber) to business archetypes (e.g., software as a service and advertising networks). Some of the key aspects of digital platform businesses that academics have discussed include highly efficient matching and large ecosystems of complementary products and services.⁴

Indeed, digital platforms are special types of market enablers, and there are characteristics common to large-scale and often-disruptive digital businesses that distinguish them from other technology start-ups:

First, digital platforms tend to enable a two-sided marketplace. A two-sided (or multiple-sided) market refers to two (or more) distinct user groups that transact through the market. Importantly, the value for people in one group is dependent on the number of people in the other group. The more developers are creating apps on iOS for the Apple App Store, for example, the more attractive iPhones are for consumers. And the more merchants accept American Express, the more valuable

⁴The definitions of “platform” were adapted from Evans (2009), Brynjolfsson et al. (2006), Bakos (1998), Eisenmann et al. (2006), Baldwin and Woodard (2008), and Rochet and Tirole (2003).

AmEx cards are for consumers.⁵ Furthermore, their operating models both depend on and benefit from network effects, in which the value of the company increases with the size of the user base (both suppliers and consumers). For example, as more drivers onboarded on Uber's platform, wait times decreased for customers, making the service more valuable—and as more customers shifted to Uber for rides, profit-making opportunities for Uber drivers increased. Moreover, digital solutions also have a comparative advantage in scaling networks, because once core network infrastructure and software have been deployed, there is typically a very low marginal or incremental cost for adding another user.

Second, digital platforms tend to enable digital marketplaces by providing multiple functions, and digital marketplaces enable exchanges for physical or digital goods (e.g., eBay and most of Amazon). All digital markets are great at connecting otherwise hard-to-coordinate buyer–seller relationships and enabling search and discovery, allowing a much broader range and diversity of participation by buyers and sellers and thus of transactions (e.g., the long tail).

Third, digital platforms tend to offer an improved, more seamless service to the customer than incumbents or competitors, typically by combining multiple market-enabling functions. Uber, for example, matches customers with ride providers and collects payment through its mobile app, and AirBnB makes it easy for customers to search for and book stays in other people's houses by showing possible units that are available for the desired stay period while sharing reviews by other guests and collecting payment.

Fourth, in addition to providing a better value proposition for customers, digital platforms tend to create ripple effects in supplier ecosystems. Amazon in the UK, for example, engages many local companies to provide expedited last-mile delivery to customers. Having now built the coordination processes and technology necessary to manage such deliveries, the more that Amazon is able to stimulate online purchases, the greater the opportunity for the local delivery companies. Uber cars, similarly, must meet certain quality standards (e.g., cleanliness and model year), which increase business for, for example, car washes.

⁵It is important to note that, although these examples are all two-sided markets, they are not all platforms.

Finally, digital platforms may eventually become “software platforms,” enabling further ecosystem innovation. A software platform usually refers to a core technology that can be extended in innovative new ways by external parties. The platform owner typically controls it (either through the user interface or the application program interface [API]) but relies on external parties to innovate, adding value to the entire ecosystem around the software platform. Examples include Google Android, Sony PlayStation, and Force.com.

In the current chapter, I refer to this unique class of digital technology ventures as market-enabling digital platforms—entrepreneurs’ response either to voids or to opportunities to improve the current system. Indeed, across all markets and entire economies, market-enabling digital platforms are replacing traditional analogues (e.g., Uber displacing taxis or Amazon disrupting Barnes & Noble—indeed, this is one form of industry disruption) or creating new infrastructure where voids existed previously. The sections that follow will describe several examples of digital platforms in Northern Hemisphere economies and in Kenya, discussing the characteristics that make them market enabling.

Market-Enabling Digital Platforms in Northern Hemisphere Economies

When digital platforms disrupt the status quo in an advanced market, they capitalize on the fact that what was considered well-functioning was not, in fact, market clearing⁶: incumbents were limited by capacity, geography, or territory, among other factors. An example is how AirBnB disrupted the traditional hotel industry by making it easier for people who wanted to rent out their house or room to do so and by making it easier for those who were interested to search for and book stays. Digital platforms also have the effect of redistributing the power and control that incumbents had in the marketplace. Even in so-called well-functioning markets, a certain amount of information asymmetry or inefficiency allowed some stakeholders to profit, sometimes at the expense of consumers. When digital technology solutions disrupt existing markets, the

⁶Market clearing means that there is no leftover supply or demand.

centers of power that were reinforced by information asymmetries shift to platform owners, who now provide the information that incumbents withheld, capturing value often in a very different way.

Consider the real estate market as an example. In advanced economies, real estate agents, property assessors, escrow finance institutions, and others facilitate a property transaction. When real estate agents controlled access to information about the marketplace—the properties that were available for sale, how much a property might sell for, and so on—home seekers were at their mercy, and the agents enjoyed significant transaction fees. The Internet disrupted the real estate market by introducing independent real estate listing services, such as Craigslist, where sellers could self-promote property for sale or rent and home seekers could declare interest in a particular market. Although Craigslist does not explicitly match buyers to sellers, its ability to aggregate supply and demand partially replaced the need to find listings via a real estate agent. Other real estate listing services, such as Trulia⁷ and Zillow,⁸ provide additional information that was not easily available for independent buyers and sellers before, such as when the property was last sold, comparisons across the neighborhood, crime statistics and incidents, and dates of open houses. But they also develop and protect a new set of data about their users and users' behavior online as well as information about mortgages and other third parties that the site directs users to. These data become the new information asymmetry, creating competitive advantages.

There are many other examples of market-enabling digital platform businesses (that were once start-ups) in advanced economies that have disrupted markets for products or services. Table 4.1 below shows several success stories, describing the two- or multi-sided markets involved (e.g., consumers, publishers, and specialized service providers), the market-enabling functions of the business model (e.g., credibility enhancer, information analyzer and advisor, aggregator and distributor, or transactions facilitator), how the business addressed deficiencies in the marketplace (e.g., transaction friction and relevance to customers), and the analogue that was disrupted (bricks-and-mortar stores, paper catalogs, etc.). The

⁷ See www.trulia.com for additional information.

⁸ See www.zillow.com for additional information.

Table 4.1 How digital platforms function as market enablers in the Northern Hemisphere

Digital business example	Multi-sided markets involved	Market-enabling functions	Market challenges (beyond ease of using digital and increasingly mobile Internet technology)	Legacy market-enablers disrupted
Yelp	<ul style="list-style-type: none"> • Consumer-facing services-oriented businesses (restaurants, salons, bars) • Consumers 	<ul style="list-style-type: none"> • Credibility enhancer: Yelp uses crowdsourcing to provide 3rd party reviews • Information analyzers and advisors: Yelp provides a directory of service providers, organizing by geography within a city, price for service, rating, and so on. 	<ul style="list-style-type: none"> • Geography: Restaurant ratings guides existed (e.g., Zagat) but number of cities were limited • Relevance: Reviews done by “professionals” based on one-time visits; variety of businesses not being reviewed (tattoo parlors, barbershops, etc.) • Incentives: Ability for businesses to market their ability to provide “good service” 	<ul style="list-style-type: none"> • Yellow Pages • Zagat

(continued)

Table 4.1 (continued)

<p>Digital business example</p>	<p>Multi-sided markets involved</p>	<p>Market-enabling functions</p>	<p>Market challenges (beyond ease of using digital and increasingly mobile Internet technology)</p>	<p>Legacy market-enablers disrupted</p>
<p>eBay / PayPal</p>	<ul style="list-style-type: none"> • Individuals or small businesses selling second hand or custom-made goods • Consumers 	<ul style="list-style-type: none"> • Credibility enhancers: Seller ratings and feedback; eBay money-back guarantee; top-rated sellers • Information analyzers and advisors: Seller dashboard; listing analytics; refine search results • Aggregators and distributors: eBay product categories; eBay for registered businesses (eBay shops); “digital” fulfillment (e.g., reselling of event tickets) • Transaction facilitators: PayPal; credit card processing by PayPal; eBay marketplace for private sellers; online auctions 	<ul style="list-style-type: none"> • Geography: Capacity and information constrains buying and selling goods on a “global” marketplace • Relevance: Difficulty finding secondhand goods that meet criteria • Trust: Ability of customers to trust seller’s claims about the product and follow through with transaction • Transaction friction: Ability to pay with a credit card 	<ul style="list-style-type: none"> • Swap meets • Estate sales • Auctions • Niche marketplaces such as Auto Trader • Cashier checks and personal checks

Table 4.1 (continued)

Digital business example	Multi-sided markets involved	Market-enabling functions	Market challenges (beyond ease of using digital and increasingly mobile Internet technology)	Legacy market-enablers disrupted
Amazon	<ul style="list-style-type: none"> • Small retailers • Manufacturers (e.g., Samsung) • Media publishers • Consumers • Last-mile distributors 	<ul style="list-style-type: none"> • Credibility enhancers: Customer reviews; Amazon seller ratings; Amazon return policy • Information analyzers and advisors: Refine search results; targeted advertising • Aggregators and distributors: Amazon product hierarchy linking multiple sellers to a specific product; Amazon fulfillment; Amazon local and Global; “Buy used” linked to same product hierarchy as new product • Transaction facilitators: Amazon payments with stored credit card information 	<ul style="list-style-type: none"> • Relevance: Difficulty finding obscure titles in bookstores • Geography: Lost sales (for retailers, manufacturers, and publishers) because of difficulties distributing or misunderstanding demand; lack of brick-and-mortar stores in consumer’s vicinity • Transaction friction: Reduce time to complete transaction, including goods delivery 	<ul style="list-style-type: none"> • Brick-and-mortar bookstores • Competing e-Commerce stores • Catalog sales

Table 4.1 (continued)

Digital business example	Multi-sided markets involved	Market-enabling functions	Market challenges (beyond ease of using digital and increasingly mobile Internet technology)	Legacy market-enablers disrupted
Uber	<ul style="list-style-type: none"> • Independent transportation providers • Unionized taxis (in some locations) • Consumers seeking rides 	<ul style="list-style-type: none"> • Credibility enhancers: Riders and drivers rated; driver certifications • Information analyzers and advisors: estimated ride prices and pickup times; demand-pricing engine optimizing revenues for Uber and drivers • Aggregators and distributors: Uber pool for riders; aggregating disparate independent transport providers; last-mile distribution or courier services • Transaction facilitators: Stored credit card information and mobile app; payment processing for drivers 	<ul style="list-style-type: none"> • Capacity: Number of transportation providers; ability of transportation providers to meet demand • Pricing models: Previous models did not account for price sensitivity (based on quality of service or demand) • Trust: Difficult for casual drivers to enter marketplace purely on own reputation • Transaction friction: Having to carry cash 	<ul style="list-style-type: none"> • Taxi companies not integrated with Uber • Public transportation • Personal cars

examples were identified from a list of “unicorn start-ups” (i.e., start-ups with a valuation of USD1 billion or greater).⁹

One such example is Yelp, which provides online directories of service providers together with crowdsourced reviews. Although reviews and guides did exist for high-end restaurants (e.g., Zagat), for example, the vast majority of other service providers were lauded or lamented via word of mouth. Yelp solved the challenge of geography, because any restaurant anywhere could be added to the directory and reviewed; the challenge of relevance, because the reviews are written by everyday people and include a wide variety of businesses that people use, such as barbershops and salons; and finally, the challenge of incentives, giving service businesses the ability to market their ability to “provide good service.” In this respect, Yelp functions as a credibility enhancer (via the crowdsourced reviews) and an information analyzer and advisor (through its directories, which have filtering functionality to aid decision-making).

eBay is a digital platform that fills all of the market-enabling functions. It has credibility enhancers that help sellers with positive feedback and large volumes of transactions to sell out. eBay’s money-back guarantee also enhances the credibility of merchants selling through the platform, especially because some portion of the goods sold are used. Many tools are provided that help analyze information for both buyers and sellers. Buyers are able to refine search results and locate very specific items or a range of items that meet their criteria. Sellers benefit from dashboards and analytics to help increase sales. eBay is also an aggregator and distributor, innovating with standard product categories to help customers look at products across a number of “stores,” and a digital fulfillment service (in, e.g., the reselling and distribution of event tickets). As a transaction facilitator, eBay’s credit card processing capability (through PayPal) enables the consummation of transactions, and its online auctions provide a unique way for private sellers to unload items when they are not sure of the value.

Similarly, Amazon also fills all of the market-enabling functions in similar ways. As a credibility enhancer, Amazon shares customer reviews and seller ratings and offers a flexible return policy. As an information analyzer and advisor, its search and refine capabilities are similar to eBay’s.

⁹ See www.cbinsights.com/research-unicorn-companies for a complete list of unicorn start-ups.

However, Amazon also has targeted advertising capabilities, which means it is mining and extracting value from information about customer searches and purchases. Its core feature is the ability to find anything online—aggregating and distributing products that effectively enable a global marketplace. Finally, Amazon's stored credit card information and one-click checkout facilitate transactions by making it easy for Amazon shoppers to make purchases at any time.

More recent unicorn Uber also fills all of the market-enabling functions of a digital platform. Both riders and drivers are rated through the App, enhancing the credibility of people who are otherwise strangers. The company also has several information analyzer and advisor features for its network of riders and drivers: Its demand pricing engine uses information about demand and supply to optimize revenue for Uber and its drivers. In addition, the estimated price of rides and length of journeys is now integrated into Google Maps route queries in some cities. Its key feature is being an aggregator and distributor, matching independent transport providers with customers seeking rides; it also aggregates disparate riders into pools for carpooling and lower fares for each individual. Finally, the company facilitates transactions by billing riders via stored credit card details and paying drivers on a weekly basis.

Market-Enabling Digital Platforms Emerging in Kenya

Digital platform businesses emerging in Kenya share the same characteristics as successful ventures in Northern Hemisphere economies, but the role that they play varies. In more advanced economies, the companies mentioned earlier achieved success by *replacing* incumbents with their own platforms. In Kenya, the business environment is still nascent, and as revealed by the reports discussed above, infrastructure is a challenging area. However, with fewer incumbents, there are also more opportunities for new players. Several start-ups that have achieved some success have done so by *creating* digital infrastructure where none had existed previously (or where it was so ill-equipped that it might as well have been nonexistent).

One such example is Cellulant,¹⁰ a transactions facilitator, aggregator, and distributor, that was founded in 2004 by Ken Njoroge¹¹ after he realized that mobile payment infrastructure was lacking in Kenya and that it was affecting his music downloads business. The company focused first on connecting banks, and eventually, mobile operators, enabling customers to pay directly for goods or services via their mobile phones. As Ken said during an interview in 2013, “We became very efficient at laying pipes” (Drouillard et al. 2014). Cellulant currently provides digital financial services in ten countries in Africa (Kenya, Tanzania, South Africa, Ghana, Rwanda, Botswana, Zambia, Ethiopia, and Mozambique). Ken now sees his business as a connector of digital wallets (whether mobile operators, banks, or independent entities) and marketplaces, enabling interoperability and payments among various banks and mobile operators—making Cellulant one of the broadest transaction facilitators in Kenya.

Cellulant’s model shares some of the same characteristics that were highlighted in successful Northern Hemisphere digital ventures. The financial transactions marketplace that Cellulant’s technology enables is multisided, connecting merchants or businesses with digital currency issuers (banks and mobile operators) and consumer wallets. Network effects enhance Cellulant’s offering in that the more connections Cellulant has with merchants and businesses, the more valuable the company is to digital money issuers, and vice versa. There were core infrastructure challenges, in that banking infrastructure and systems in Kenya were not prepared for mobile commerce, especially in 2004. Even after M-PESA launched, integration between mobile operators and banks and businesses still needed to happen. Cellulant built technology to manage reconciliations and aggregate financial transactions, particularly transfers and payments, functioning as an aggregator and distributor in the marketplace for mobile financial transactions. As systems matured, Cellulant’s technology facilitated transactions between consumers and businesses by making it possible and seamless to use a mobile device to pay bills and perform banking tasks. As an early pioneer in architecting and building a mobile financial ecosystem in Africa, Cellulant’s solution has certainly had an impact.

¹⁰ See www.cellulant.com for additional information.

¹¹ See “Conversation with Ken Njoroge: How to Be a Rebel and Build a Business at the Same Time” in this book for additional information.

Table 4.2 How digital platforms function as market enablers in Kenya

Digital business example	Multi-sided markets involved	Market-enabling functions	Market challenges (beyond ease of using digital and increasingly mobile internet technology)
Cellulant	<ul style="list-style-type: none"> • Consumers • Businesses collecting payments • Banks • Mobile money operators 	<ul style="list-style-type: none"> • Aggregator and distributor: Cellulant manages reconciliations and aggregates financial transactions, particularly transfers and payments • Transactions facilitator: Cellulant is the most connected one-stop mobile payments and digital commerce service for businesses, mobile network operators, financial institutions, and their consumers • Credibility enhancers: Crowdsourced restaurant reviews • Information analyzers and advisors: filtering by city, area, and cuisine • Aggregators and distributors: Aggregating a large number of diverse restaurants across multiple cities and countries • Transactions facilitator: Ability to make a booking at many restaurants 	<ul style="list-style-type: none"> • Core infrastructure: Core banking infrastructure and systems were unprepared to integrate with mobile wallets and mobile money transactions, which themselves were disruptive technologies • Transaction friction: Ability to pay bills with mobile money or bank using mobile devices (e.g., move money between wallets, transfer money) • Discovery and search: Ability to find information about new or established restaurants—most restaurants not online • Incentives: Ability for restaurants to market their ability to provide “good dining experience” • Transaction friction: Having to phone and wait on hold to make a booking
EatOut	<ul style="list-style-type: none"> • Consumers • Restaurants 	<ul style="list-style-type: none"> • Transactions facilitator: Ability to make a booking at many restaurants 	<ul style="list-style-type: none"> • Discovery and search: Ability to find information about new or established restaurants—most restaurants not online • Incentives: Ability for restaurants to market their ability to provide “good dining experience” • Transaction friction: Having to phone and wait on hold to make a booking

Weza Tele

- FMCG distributors
 - FMCG manufacturers
 - Retailers
- Information analyzers and advisors: Algorithms analyzing transaction history and demand patterns; information about retailers and distributors that could benefit third parties
 - Aggregators and distributors: Aggregating informal marketplace participants (distributors and retailers)
 - Transaction facilitators: Mobile-based ordering application
- Risk assessment: Ability to use transaction data to assess creditworthiness, de-risking trade finance
 - Transaction friction: Reduce time and effort required to place and process orders, given there was no incumbent digital solution optimized for informal marketplace

Sendy

- Motorcycle delivery drivers
 - Consumers
 - Businesses
- Credibility enhancers: Rated drivers; transparent pricing; transparent package tracking and monitoring
 - Aggregators and distributors: Aggregates many different independent motorcycle delivery drivers
 - Transaction facilitators: Enables cashless transactions using M-PESA or a credit card; API to enable integration with other applications in order to request and manage package delivery
- Trust: Affiliation with Sendy increases reputation for individual boda-boda drivers
 - Transaction friction: Mostly reduced via API, which allows delivery to be integrated into e-commerce sites

Table 4.2 (continued)

<p>Digital business example</p>	<p>Multi-sided markets involved</p>	<p>Market-enabling functions</p>	<p>Market challenges (beyond ease of using digital and increasingly mobile Internet technology)</p>
<p>Kuhustle</p>	<ul style="list-style-type: none"> • Job posters • Freelancers 	<ul style="list-style-type: none"> • Credibility enhancers: Network is exclusive to previous participants; rating systems for developers; some level of project management • Aggregators and distributors: Aggregating disparate freelancers onto one platform • Transaction facilitators: Escrow payments system supporting PesaPal (which supports M-PESA, Airtel money, Visa, and MasterCard) 	<ul style="list-style-type: none"> • Search and discovery: Ease of finding qualified freelancers • Trust: Confidence that freelancer will perform the job to satisfaction • Transaction friction: Ability to pay freelancer who may be in different location
<p>Duma Works</p>	<ul style="list-style-type: none"> • Employers • Job seekers 	<ul style="list-style-type: none"> • Credibility enhancers: Screening process for candidates • Information analyzers and advisors: Information about talent pool, churn in the job market, etc., which could benefit third parties • Aggregators and distributors: Aggregating talent and demand and providing a matching service 	<ul style="list-style-type: none"> • Capacity: Challenging to find quality candidates in a very large pool of applicants — system reduces time to hire • Relevance: Professional human resources experts to assist in matching candidates to job descriptions

The company's integration products are enabling further innovation, such as mobile banking products for farmers linked to integration and analytics provided by the company (TechMoran 2015).

There are, in fact, many start-ups developing market-enabling digital platforms in Kenya. Brief profiles for several that have attracted investment and attention follow below, with an explanation of how they function as platforms in Table 4.2.

EatOut¹²: Restaurant Review and Booking Platform

EatOut, founded in 2010 by Mikul Shah¹³, provides a directory with crowdsourced reviews of local restaurants in addition to a booking engine. The idea for the start-up stemmed from Mikul's observation of the gap in the marketplace for comprehensive restaurant information in Nairobi. EatOut helps restaurants ranging from tiny neighborhood cafés to top tables to engage with diners, and it helps diners find their next meal. The company is solving the challenge of discovery and search by making it easy for diners to hear about new or established restaurants. In fact, most restaurants in Kenya, even in Nairobi, are not online. EatOut enables them to have an online presence and be discoverable. Its crowdsourced reviews enhance the credibility of restaurants and create incentives for good service. For a select number of restaurants, bookings can be made online, reducing the transaction friction of having to wait on hold to speak with a host. EatOut is backed by Netherlands-based venture capital fund Africa Media Ventures Fund and has plans to scale across Africa.

Weza Tele¹⁴: Digitizing Supply Chains

Weza Tele was co-founded by Hilda Moraa after a university internship revealed an opportunity to improve the fast-moving consumer goods (FMCG) supply chain system in Kenya. There are many small retail shops and kiosks in Kenya that sell FMCG products, such as Coca-Cola, water,

¹² See eatout.co.ke for additional information

¹³ See "Conversation with Mikul Shah and Ritesh Doshi: The Hustling Entrepreneur on Trial" in this book for additional information.

¹⁴ See wezatele.com for additional information.

and shampoo. Because the informal supply chain is not yet digitized (i.e., retailers do not have electronic point-of-sale systems or computers and technology to keep stock and place orders electronically), store owners end up wasting valuable time standing in lines at distributors. Furthermore, a lack of digital recordkeeping makes it difficult for shops to prove creditworthiness. Building an easy-to-use ordering platform using basic mobile technology, Weza Tele was able to increase visibility to demand patterns for retailers and relieve pain points for distributors (Moraa 2015). By analyzing transaction histories, Weza Tele was able to provide summary information to retailers about the performance of their distributors. Weza Tele was acquired by AFB, a financial services institution that uses data to understand customer behavior and provide unsecured credit digitally.

Sendy¹⁵: Optimizing Pick-up and Delivery

Sendy, founded in 2014 by Alloys Meshak, is an Uber-style motorbike delivery service that lets customers book, track, and pay for deliveries directly from mobile phones. The platform aggregates and distributes demand for deliveries by matching requests from customers with the company's network of crowdsourced delivery couriers, who also leverage the company's enhanced location and route planning intelligence (Wakoba 2015). As noted by the company's COO Maliaka Judd, "We are not a courier business. Everyone thinks we are... but actually we are a marketplace for courier providers. Anyone who wants to do deliveries and passes our vetting process can 'sell' through our platform. Whether you're on foot, ride a bicycle or a motorbike, drive a van or a pickup, manage a fleet of vehicles, or fly a plane... if you want to sell your services through Sendy — we're happy to have you! We're not trying to rebuild the existing vehicle/courier infrastructure. We're trying to optimize and aggregate it to make it more transparent and efficient" (White 2015). Sendy is an example of a company in the e-commerce ecosystem, because online shops such as Jumia and OLX depend on distribution and last-mile delivery service providers.

¹⁵ See api.sendy.co.ke for additional information

Kuhustle¹⁶: Job Matching for Freelancers

Kuhustle brings together several interesting platform functions, including being a transactions facilitator through its freelance job listing and bidding and escrow payments system and enhancing the credibility of bidders and job posters by making the network exclusive. Everyone who joins Kuhustle gets three invitations to share with other people; if the invited person posts jobs or delivers work, then a percentage of the value of the job is given as a bonus. Kuhustle boasts over 2000 freelancers on its network and over kenyan shillings (KES) 1,000,000 in jobs.

Duma Works¹⁷: SMS-Based Talent Matching

Duma Works connects growing companies to talent via an SMS-based job-matching platform that ensures quality through a screening process. The platform is enabling the marketplace for talent by enhancing credibility through its screening process and by aggregating talent and matching it with demand for skilled resources from various businesses. Founded in 2012 by Arielle Sandor and Christine Blauvelt, Duma Works was the winner in the Enterprise category at 2015 Pivot East. The company currently has over 22,000 job candidates and 200 employers registered on the system, and has matched over 5000 jobs, with an average time-to-hire of 10 days.

Conclusion and Recommendations: The Impact of Market-Enabling Digital Platforms

Although there are impact investors and donors who actively invest in and otherwise support start-ups in developing-world markets, many questions have been raised about the theory of change behind these activities. Although there are many possible ways that start-ups contribute to economic development, we have aimed this chapter to shed light on how digital platforms create and enhance market infrastructure and

¹⁶ See www.kuhustle.com for further information.

¹⁷ See www.dumaworks.com for further information.

intermediaries. The examples from both the Northern Hemisphere and Kenya have shown that this framework is applicable to emerging markets and has considerable power as a paradigm for evaluating start-ups with potential to have significant impact.

Particularly powerful digital platforms not only solve a direct problem, or fill a void, but also, by doing so, help to develop the overall market ecosystem so that other products and services can also flourish. A great example of this is how Cellulant is enabling an ecosystem of financial services products for businesses and consumers through the services it provides as a transactions facilitator and aggregator. This includes not only banks and other institutions leveraging Cellulant's capabilities to build mobile banking applications but also unlikely innovations such as eWallets for farmers in Nigeria. Additionally, Sendy's Uber-like delivery marketplace is making e-commerce in Kenya tangible and even streamlined through its API, which can request and track deliveries.

Digital platforms having similar ecosystem-enabling effects are also emerging in other Sub-Saharan African countries. For example, Where Is My Transport¹⁸ is a South African start-up that is optimizing the transportation system in major emerging-market metros. Its market-enabling functions include being an aggregator and distributor of public and private transportation services and analyzing information for private transport providers and transport authorities. It has created a marketplace for informal and diverse transportation providers, such as taxis and municipal bus systems, and for public transport riders. Its solution is already enabling Cape Town's myCiTi bus service to optimize routes and improve bus stops through more intelligent information about riders' desired beginning and end points. Another example, expressPay,¹⁹ is one of many Ghanaian start-ups working to improve the payments ecosystem. The national payments system in Ghana is still very nascent, and interoperability challenges make it difficult for merchants to adopt digital payments. expressPay aggregates various methods of payment (mobile money, credit cards, and debit cards) and facilitates transactions through its smartphone app and technology-and-productivity solution. Other

¹⁸ See www.wheremytransport.co.za/ for further information.

¹⁹ See www.expresspaygh.com/index.php for further information.

start-ups can then leverage expressPay in their own solutions, whether they are e-commerce marketplaces or tablet-based point-of-sale systems for small retailers.

In summary, the potential for digital start-ups in emerging markets to enable marketplaces for financial services, products, capital, and so on, and even for entire ecosystems is extraordinary. In Kenya, there are still opportunities to reduce transaction costs in digital payments, possibly through bitcoin and blockchain solutions. Furthermore, trade finance and credit for small businesses in informal markets are still major areas of opportunity. Companies that can develop algorithms to assess creditworthiness based on alternative information, such as mobile phone top-ups, can play a significant role as information analyzers and advisors. Digital identity solutions, perhaps enabled via blockchain, could increase the credibility of local job candidates in a global marketplace for talent as well as reduce the costs and corruption in providing government services. Finally, resolving voids in aggregation and distribution, especially in agriculture supply chains, will have a significant impact on market functioning and attractiveness and offer benefits for the economy as a whole.

References

- Acs, Z., Szerb, L., & Autio, E. (2015). *Global entrepreneurship index 2015*. Washington, DC: The Global Entrepreneurship and Development Institute.
- Bakos, Y. (1998). The emerging role of electronic marketplaces on the Internet. *Communications of the ACM*, 41(8), 35–42.
- Baldwin, C., & Woodard, C. (2008). The architecture of platforms: A unified view. *Harvard Business School*, HBS working paper number: 09–034, 10 October.
- Brynjolfsson, E., Hu, Y., & Smith, M. (2006). From Niches to Riches: Anatomy of the Long Tail. *MIT Sloan Management Review*, 47(4), 67–71.
- Drouillard, M., Taverner, D., Williamson, C., & Harris, M. (2014). *Digital entrepreneurship in Kenya*. London: GSMA.
- Eisenmann, T., Parker, G., & Van Alstyne, M. (2006). Strategies for two-sided markets. *Harvard Business Review*, 84(10), 92–101.
- Evans, D. (2009). How catalysts ignite: The economics of platform-based start-ups. In A. Gawer (Ed.), *Platforms, markets and innovation*. Cheltenham: Edward Elgar.

- Khanna, T., & Palepu, K. (2010). *Winning in emerging markets*. Harvard: Harvard Business Press.
- Moraa, Hilda. 2015. *A Kenyan Startup Journey: My 10 Key Lessons*.
- Rochet, J.-C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European Economic Association*, 1(4), 990–1029.
- TechMoran. (2015). Cellulant using mobile wallets to empower farmers across Africa. *Afk Insider*. <http://afkinsider.com/107707/cellulant-using-mobile-wallets-to-empower-farmers-across-africa/>. Accessed 15 Jan 2016.
- The World Bank. (2015). *Doing business 2016: Measuring regulatory quality and efficiency*. Washington, DC: The World Bank.
- Wakoba, S. (2015). Kenya's Senty creating a network of couriers to open up business in Nairobi. *TechMoran*. <http://techmoran.com/kenyas-senty-maps-4m-data-points-open-nairobi-business/#sthash.WvqfpW7q.dpbs>. Accessed 15 Jan 2016.
- White, B. (2015). On-demand package delivery, Senty closes deal with Safaricom Spark Venture Fund. *VC4Africa*. <https://vc4africa.biz/blog/2015/12/22/on-demand-package-delivery-senty-closes-deal-with-safaricom-spark-venture-fund/>. Accessed 15 Jan 2016.
- Whole Foods Market. (2016). Information for potential suppliers. *Whole Foods Market*. <http://www.wholefoodsmarket.com/company-info/information-potential-suppliers>. Accessed 15 Jan 2016.
- World Economic Forum. (2014). *The global competitiveness report 2015–2016: Full data edition*. Geneva: World Economic Forum.
- Zwillenberg, P., Field, D., & Dean, D. (2014). *The connected world: Greasing the wheels of the Internet economy*. Boston: Boston Consulting Group.

Conversation #4

Finding the Right Problem to Solve

Timbo Drayson of OkHi



***Timbo Drayson** is co-founder and chief executive officer (CEO) of OkHi, a start-up based in Nairobi whose mission is to enable the four billion people in the world without a physical address to “Be included.” Born in the UK, he studied engineering at the University of Oxford before starting at Google, where he spent more than six years working in marketing and product management in London and San Francisco. He built the YouTube apps on your mobile phone, marketed the first Android phone, and has seven US patents to his name. Outside of work, Timbo wastes his time fixing up his VW camper van or doing some form of exercise to keep his mind sane.*

What is the story behind OkHi?

Well, I was supposed to be moving to San Francisco for a dream job at YouTube but decided to take a three-month sabbatical before I sold my soul to Silicon Valley. I did a tech tour of Sub-Saharan Africa and was inspired by all the start-ups I met that were impacting the world through their profitable businesses. Realizing it was now or never, I left Google in mid-2013 to move to Kenya to have a better chance at solving a bigger problem.

I chose Kenya because it just felt right. I loved my time in Nairobi because of the amazing people I met, the lack of language barrier, the exciting tech community, and ultimately because I felt I could live a happy and integrated life as an expatriate.

As for how OkHi started, an important learning from my previous start-up was that it is not the idea that counts, it is the underlying problem that you need to focus on. I therefore purposely arrived in Kenya with no business ideas but spent three months trying to find the right problem to solve. I settled on the lack of physical address system in Kenya and beyond.

Did you explore the problem all on your own or did you look for co-founders?

During my three months of research, I spent all day meeting new people and was always looking for co-founders who could complement my skill set and provide local Kenyan insights into the business. It was at an event called Startup Weekend that I met Wes Chege and Evans Mutai, and soon after I was introduced to Navraj Ghataura by a common friend in the tech community (thanks, Adam!). We were all interested in the problem of physical addressing, and so, we started working together in early 2014 to validate how big the problem was and whether businesses would pay for a solution.

Since then we have had Henry Ingham, Punit Shah, Dennis Mutugi, and Mugethi Gitau join the team, all from very different backgrounds and experience, but all passionate about our mission to make the four billion people in the world without an address “Be included.”

You mentioned that you are all passionate about OkHi’s mission. What do you have in mind when you refer to a mission?

I am sure there are many definitions out there, but for me, a mission-driven business is one that focuses on solving a big problem. My previous start-up is a good example of what happens when you focus too much on a solution, and not the problem or mission. We had this idea for a service that could pool money from a group of friends to enable them to buy a better gift for a mutual friend. We were really obsessed with the idea and spent every hour outside of our day jobs working on it. After 18 months of tireless work we launched, but no one came. We tried to make it work, but we were so demotivated that we had to shut down the business.

My main learning was that our business was far too focused on the idea. This meant that when the idea didn’t work, we had no reason to continue running the business. If, however, we focused on the underlying problem, even if the initial idea didn’t work, the problem would still be there and so too would the reason to continue running the business.

That is the point of being a mission-driven company: The underlying problem remains unchanged and constantly keeps the team challenged and motivated to find the *right* solution.

How did you find out just how big the problem is that OkHi seeks to solve? And how did you turn that into a mission statement?

So there are two parts to this. One is, how did I settle on the right problem? And two is, how did we come up with our mission statement to “Be included”?

During my research phase, I chose the logistics and supply chain space as my broad problem area because I saw that its inefficiencies were having such a detrimental impact on the economy and anyone living in Kenya. I spent three months interviewing 120 people and observed a number of businesses in order to find the right problem to solve. I observed van drivers taking crazy routes and motorbike riders having to follow crazy directions like “Turn left where the goats used to graze.” It was after all these insights that I realized that the lack of a physical address system was

one of the most fundamental reasons for the inefficient logistics and supply chain industry.

There were two further insights that told me this was the right problem to solve. First, during an interview with a Red Cross ambulance driver, she told me that she was so lost trying to find someone's house that when she arrived it was too late, and the person was already dead. This made me realize that the problem of physical addressing was so much bigger than just the logistics and supply chain industry. The second insight was from a United Nation (UN) spokesman, who said there were four billion people in the world without a physical address today and that this number would double to eight billion by 2050. That was when I realized quite how big this problem is for the world and that finding the right solution for it would be a mission that I wanted to dedicate the next decade or more of my life to.

The last step was to turn the problem into a single mission statement that inspired not only the team but also anyone who touched OkHi, from friends to journalists, family members to prospective employees. It actually took us 18 months to come up with our current statement. At our first off-site retreat, we spent time trying to answer why OkHi needs to exist and why it is so important to solve the physical addressing problem. We settled on an initial statement that was to "physically connect the world with a global address system." Over time, though, it became clear that the statement was not inspiring enough, or emotional enough, so recently, we worked hard to revise it to something more human and aspirational. And that is what our mission statement is today, to "Be included." What do we mean by that? Well when someone gains a physical address, their life changes; they can now get access to emergency and finance services that they could not otherwise get access to. They are now part of society. They are now included.

As a side note, it often feels like certain elements of a company need to be 100 % right from day zero, such as the mission statement and values. A big learning from building OkHi is that it is much better to make a quick decision that is 80 % right than to worry about the last 20 % and potentially never make the decision at all.

If the mission is the kernel of your venture, how do you select new team members? Let us imagine you selected me: What do you think I would find surprising in my first week on the job?

It is funny—I do not think our hiring process is all that conventional. But judging by the caliber of the team, it seems to be working. As an example, I have not seen the CV for a single one of the seven OkHi team members. I do not even know how old everyone is!

Our hiring process is based on three principles. First, we hire for aptitude, not experience. Someone’s aptitude is their natural ability to do something—it is in their DNA. This is much more important in a fast-changing start-up where responsibilities often change than someone who can only do one thing very well because that is all they have known for five years.

However, aptitude is very hard to test in an interview. So we test it through our second principle, which is to trial the candidate before making an offer. This is designed to be a two-way benefit—as much for the candidate to work out if OkHi is right for them as it is for us to test their aptitude and ability to exceed the expectations of their role.

The last principle is that we hire for cultural fit, meaning that we test a candidate on how well they align with our company values. This is often a deal breaker for me. For example, if a candidate does not align with our company value to “Grow together”—which means they need to be motivated to give and take feedback—then it does not matter how high their aptitude is, working at OkHi is not going to work out for us and, more importantly, for them.

To answer your other questions: In your first week, you would not find anything surprising, because you would have already spent enough time working at OkHi during your trial! And what makes OkHi special is definitely the team. They are the foundation of the company. It is incredible the power that comes from bringing a group of people together who are all aligned on the same company mission and values.

You and your team are strong advocates for the lean start-up mentality. Why is that?

“Find a problem, not a solution”—which I have already mentioned—is actually part of the lean start-up mentality. I think it really resonated with all of the co-founding team because we had all run companies before and had all made similar mistakes. These mistakes could be attributed to the fact that we made wrong assumptions. We assumed that our thoughts or ideas were right—until we were proven wrong. This is really the fundamental principle of the lean start-up: You are wrong until proven right.

When you are starting a business, you are trying to get to a point of success with the minimal cost possible, whether that cost is financial, your time, or otherwise. The Lean Start-up’s mantra is that you do this through an iterative loop of Build, Measure, and Learn. You build something quickly that can test your assumptions, which is called the minimum viable product, or MVP. You then measure the success of this MVP in a qualitative or quantitative way, learning from what worked and what did not. And then you restart the loop again.

I wish I had known about the Lean Start-up during my previous start-up, because it was only after 12 months of engineering that we learned our users did not understand our homepage. If we had put paper screenshots (“Build”) in front of our target users (“Measure”), then we would have realized that no one understood our homepage in 2 weeks rather than 12 months (“Learn”). Though to be honest, the theory is the easy part. The hard part is putting the theory into practice, because there are so many open questions you need to answer. For example: Do we build one product or three different ones? What design fidelity should we build the product to? And, How many users do we need for the results to be statistically significant?

These questions highlight the many potential pitfalls of implementing a Lean Start-up, and the frustrating thing is that there is no right answer. Each company is so unique that you need to work out the right recipe yourself. Ironically, my best advice is to use the Build, Measure,

Learn principles of the Lean Start-up to implement it successfully. In every work sprint, we define the process of how we are going to work (“Build”). Then after the sprint, the whole team reviews how it went (“Measure”). And then, we discuss why some things worked and some did not (“Learn”). If you do this enough times, you will generate a process for running the Lean Start-up principles that is optimized to your business, team, and culture.

An entrepreneur is often seen as the individual hero that develops innovative solutions for long-lasting problems. How much is the entrepreneur really that lonesome fighter as opposed to a function of a wider community effort?

From both working at Google and running OkHi, I have come to realize that every successful business is like an iceberg. I think everyone is guilty of seeing a company that has been successful with just a simple idea and thinks, “Why didn’t I think of that?” or even worse “Wait, I had that idea — they stole my idea.” But as someone who knows nothing about that business, all you can see is the tip of the iceberg above the water, the working solution. As soon as you start understanding more about the business, you realize there is so much more to it than you originally thought. Whether it is that they made a big pivot one year into the business (Twitter), had to fire one of the early co-founders (Facebook), or ran out of money and had to sell cereal boxes to make ends meet (Airbnb), every business has so much more to it below the surface.

So what I am saying is that it is never just the CEO or co-founders that make the business, it is the whole ecosystem around the business, from the employees to the partners, from the investors to the customers. Especially in the technology sector, the wider community is a hugely important factor to the success of the business, and it is often overlooked because it is one of the parts of the iceberg that remains under the water.

While I was at Google, I spent two years leading Google’s developer outreach efforts across Europe, Middle East, and Africa and gained a unique perspective on seeing what was a small technology community in London in 2008 turn, in just five years, into one of the largest tech

ecosystems in the world. There is no way the successful companies coming out of London today could have done so back in 2008, because there was not the capital, the mentors, or employees to make it happen. There just was not the ecosystem, or community.

For me, the biggest thing I see missing in Kenya is the lack of this kind of community. There is an amazing buzz here, but as entrepreneurs (and I include myself here), we do not do a good enough job of sharing, learning, and generally making the most of each other. We also lack the experience in Kenya of tech entrepreneurs who have built successful businesses multiple times. It is these people who are the ideal mentors, with vital advice for those of us who are inexperienced founders.

So it is up to us founders to actively make this change, to run and host local events ourselves, and forge relationships with more advanced ecosystems like Silicon Valley. It is happening—and will happen. It is just up to us as entrepreneurs how much fuel we want to put into the local tech ecosystem fire. I think we need a lot more!

Let us imagine you could start OkHi all over again. What would you change?

This is a tough one. There are so many things! I suppose thinking through the timeline of OkHi, I would say the following:

First, I would find a co-founder who could run the operations of the business. There is a lot of company infrastructure to build as a start-up, especially in Kenya, where you cannot yet buy solutions off the shelf to set up your payroll, benefits package, or stock option plan. It takes time to get it right, especially because I was doing this in a new country. Operations is also not a strength of mine, so I spent a lot of time doing it when it would have been better for me to focus on other areas of the business.

Second, I would solidify the values of the company early on. As a team we have spent time talking about our values, doing exercises to understand what our personal values and therefore our company values

should be. But it took me almost two years to clearly define a set of values, because I put so much onus on them that I was scared of not getting them 100 % right. This was actually where I learned the importance of making a decision, even if it is only 80 % right. Now we have a set of five company values that the whole team is proud of (you can find them on our website), and they have really helped me, and the team test culture alignment in interviews, make decisions internally, and know how to act when talking to potential customers. They have become our internal compass.

The third would be to complement raising smart money with just money. Smart money is investment in your business that adds value beyond the money itself—things like mentorship, for example. Our first round of financing took over five months to close because I would not accept money from an investor unless it was smart money. In hindsight though, there should have been a balance.

The last thing I would have done differently would be to leverage mentors and investors more. It is very hard when you are in the weeds of running a business and trying to plow through the next wall ahead to take a step back and gain the perspective you need to steer the ship in the right direction. This is the support that great mentors and investors can provide—support that I need more of and support that I need to do a better job of getting.

Thanks, Timbo!



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5

Reimagine What You Already Know: Toward New Solutions to Longstanding Problems

Jay Larson and Michael Munger

Introduction

Knowledge and technology can combine to change societies dramatically, opening opportunities that were previously unthinkable. But creating the right combinations and providing access require a particular blend of planning and luck; such points in time are rare and should not be missed. We are at such a historic point in Africa right now, where information and communications technologies (ICTs) have brought forth impressive innovations that have developed new solutions for longstanding problems. These developments have moved some to issue bold statements in which Africa should skip industrialism entirely and leap directly into the information era (Barlow 1998). A few years ago, this sentiment might have seemed far-fetched, but now new futures can be imagined that might just show that “the rise of 3D printing could do for Africa what semicon-

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ductors did for Taiwan in the 1960s” (Juma 2014). In fact, the statement highlights once more how a previously agrarian society—Taiwan—went from being a producer of mushrooms and shrimp to a leader in creating new value with technology. Juma outlines a powerful phenomenon called leapfrogging—the significant jump from one step in an economy’s evolution to another, skipping a few steps in between. ICT is doing exactly that for Africa right now.

In Kenya, this is especially true in the case of the homegrown M-PESA, a mobile money transfer platform that has radically reduced transaction costs of capital exchange. In a remarkably short period of time, people in developing nations, who until recently lacked access to formal financial services, now have ways to connect to the global grid of financial flows and clearing of transactions. Instead of painstakingly developing a traditional banking sector—with decades of wasted human lives and opportunities—the introduction of mobile technology unexpectedly brought a completely new solution to a generation of people hungry for the chance to participate in the global economy *right now*. But the solution did not stop at facilitating transfers and transactions; on the contrary, the reduction in what economists call “transactions costs” kicked off an entirely new industry, developing new ways to enable mobile money to disrupt industries and business models. In times when the minds of state officials, industry experts and business owners are preoccupied by other pressing challenges, ingenious new ways to solve longstanding problems can set off a domino effect that changes society and the economy at large in ways that allow an entire country to leapfrog the traditional barriers that vex development.

Education, arguably the backbone for innovation and economic development, is ripe for leapfrogging. Although innovators are seeking new ways to educate the next generation, the difficulties of delivering adequate educational services to those without the means to afford expensive private schools remains a crucial problem. Even though the physical classroom with a standardized curriculum and textbooks has worked for many, it may well not be the timeliest response for the next generation of students. Without adequate access to both foundational and specialized knowledge, many will remain held back from the potential that the future has to offer. In turn, inequality will be on the rise and most likely exclude rather than empower many Africans. As African economies become the

narrator of homemade stories on economic success and development, new educational solutions need to ensure that the broader public will be able to latch on to the opportunities made available by rapid growth.

Because the education sector relies on traditional learning models and has only slowly opened up to the power of modern technology, we need an approach that *reimagines* education from the ground up. In other words, the whole learning experience, including the physical “place” of learning, needs to be up for new solutions. Once people take education out of the four walls of the traditional classroom into homes, libraries, internet cafés, and other places (Collins and Halverson 2009), a completely new learning experience is imaginable—one that innovators need to harness now in order to *transform* the way in which education is delivered in Africa. The “digital” setting will not face the same constraints as old models, and students will decide what, where, and when to learn. We need these digital models to start reimagining education in Africa.

In this chapter, we build a case for such an approach in the education sector. We start by introducing the sharing economy, recent advances in the open source movement, and the power of the internet, all of which provide key tools to put leapfrogging into action. Ultimately, the idea is that by carefully combining insights of different advances in technology and business-model innovation, new opportunities will be uncovered that allow a reimagination of the traditional, resource-intensive classroom model. We will reimagine several elements in the education sector, including school management, the classroom, the learning experience, and certification.

These elements are just a short list of the many innovations that, when brought together, start to fundamentally change education as we know it. We will use the insights gained from education to delve further into other industries—namely, logistics, finance, and health, in order to sketch out new innovations that reimagine products and services. The chapter will equip the reader with a specific analytic tool that can be and should be applied to other industries. We argue that the future for Africa resides in unleashing ideas and reconceptualizing solutions for longstanding problems rather than imitating outdated strategies from other contexts. In the next section, we take a step back and look at “the fundamentals,” that is, at the underlying conditions and economic forces that have created a context in which a reimagining will be fruitful.

The Fundamentals

Reimagining Ownership: The Sharing Economy

The self-storage industry in the USA has nearly 50,000 facilities, with more than 15 billion cubic feet of space (Clark 2014) cluttered with ... stuff. Americans and Europeans are storing bicycles, mattresses, and old televisions in facilities that may be more solidly constructed than many human habitations in developing nations.

But even in “more developed” nations, this abundance of stuff does not make sense. People do not fundamentally want physical things, which wear out and take up space. What they want is the *stream of services* that tools, clothes, and other physical things provide over time. People prefer owning things, ranging from tools to houses, rather than renting things because owning appears to secure services more reliably and at lower transaction costs than renting. But this preference for owning is not real. And it could change quickly if entrepreneurs can figure out a way to sell reductions in transactions costs. In a claim that looks prescient five years later, Suellentrop (2010) wrote, “We woke up in a Rentership Society, and it’s starting to look permanent. And you know what? Thank goodness. Ownership, it turns out, is for suckers.”

If you own something, you have to pay the *average* cost of using it, because no one can share it, and you have to pay for what it cost to create that thing. But why not just pay the *marginal* cost, rather than the *average* cost? If I already own a flat, I am already paying for utilities and making mortgage payments. But what if I am not always there, or if I have an extra room I almost never use except for storing junk? I would be willing—maybe even happy—to offer someone else my place to stay at the cost of having to clean it afterward, plus whatever extra I can get to pay toward my rent. I am willing to offer rides in my car at the cost of gas, my time, and wear and tear on the vehicle.

The reason we do not see more sharing is “transactions costs.” There are some people who have an extra room, and others who need a place to stay in a strange city. What is missing (Munger 2015) is: (1) information about identity and location, (2) a way of making payment that both parties can trust, and (3) a way of outsourcing trust on performance of the terms of the contract.

The usual answer to sharing a living space is “hotels,” because they provide all three of these needs. But hotels are expensive because they have to cover their average costs: all of their expenses are involved in the business of selling rooms by the night. That is not true of apartments or homes where people live, because those other expenses are being paid already. That is better for the buyer also, of course, as long as the three needs listed above can be satisfied reliably. The company called Airbnb figured this out, and sells a product based precisely those three needs. They do not rent out space: they sell access to renters to people who have space and access to space for people who want to rent. That means that the existing stock of “stuff” can be used far more efficiently. As transactions costs fall, which means as entrepreneurs find new ways to “sell” transactions-cost reductions, the status of much of what we now own will change. All of us will rent more and own less. Some of us may specialize in being “sellers” in these new rental markets for things we do own. But still, overall each of us will have actual possession of far, far less stuff at any given time.

Reimagining Production: The Open Source Movement

An implication of this change—the change from selling new stuff to selling better access to stuff that already exists but is underutilized—is that more and more things will be “open source.” To understand what “open source” means and how we should think about it for education materials requires a look at some background.

Ironically, investigating the history of open source illustrates some of the problems and paradoxes at work. One of the ur-texts of open-source history is Philip Elmer-Dewitt’s article, “Computers: Software Is for Sharing,” published by *Time* magazine on July 30, 1984. If you can get access to it, you will see that the article describes the problem of splitting software from the physical electronic platform for which it was created. The reason we say “if you can get access” is that this article about free availability is behind a paywall at the *Time* website.

There may be good reasons for that. *Time* is providing a service to make the article available, and the author may still want the copyright to be enforced. In many cases, people write stuff to get paid. But how is

that kind of “stuff” different from the stuff piled up in garages and storage units? How can we make better use of all *that* kind of stuff, the kind that is made up of information?

The notion of open source is generally associated with software, but for a very long time, people in a variety of fields have recognized the underlying problem: information wants to be free.¹ “Free” might mean *libre*, or exempt from restrictions, meaning that there are no restrictions on publication or dissemination. But “free” also has the literal meaning of *gratis*, being available without charge, and available for use, reuse, and modification in contexts quite different from its creation or original use.²

Open-source software is freely available (including source code, not just compiled programs), freely reproducible, freely editable, and technology neutral.³ DiBona et al. (1999) pointed out the analogy between software and information, using the narrative of the “discovery” of the double-helix structure of DNA. The passage is worth quoting at length:

The quest for the secret of DNA became a fierce competition between, among others, Watson and Crick’s lab in Cambridge, and Pauling’s lab at Cal Tech... The story here centers on Max Delbruck, a mutual friend who traveled between Cambridge and Cal Tech. While sympathetic to Watson and Crick’s desire to keep the discovery secret until all results could be confirmed, Delbruck’s allegiance ultimately was to science itself. In this passage, Watson describes how he learned that Pauling had heard the news:

¹This phrase, or the sentiment it embodies, is ancient, as Clarke (1999) shows. But the modern use in the context of software and widely disseminated information is usually dated to 1984, when Stewart Brand [creator of the *Whole Earth Catalog*] told Steve Wozniak [of Apple Computer]: “It seems like there’s a couple of interesting paradoxes that we’re working here On the one hand information wants to be expensive, because it’s so valuable. The right information in the right place just changes your life. On the other hand, information wants to be free, because the cost of getting it out is getting lower and lower all the time. So you have these two fighting against each other.

WOZNIAK: Information should be free but your time should not.

BRAND: But then, at what point of amplification is your time being so well rewarded that it’s getting strange or so under-rewarded that it’s strange? There’s problems there with the market.

Quoted in Brand and Herron (1985).

²See Clarke (1999) for more on the distinction.

³The full requirements to qualify as “open source” are more extensive, and more technical. See Open Source Initiative (n.d.).

Linus Pauling first heard about the double helix from Max Delbrück. At the bottom of the letter that broke the news of the complementary chains, I had asked that he not tell Linus. I was still slightly afraid something would go wrong and did not want Pauling to think about hydrogen-bonded base pairs until we had a few more days to digest our position. My request, however, was ignored.... Delbrück hated any form of secrecy in scientific matters and did not want to keep Pauling in suspense any longer.

Clearly the need for secrecy made Watson uncomfortable. One of the poignant themes that runs throughout the book is Watson's acknowledgment that competition kept parties from disclosing all they knew, and that the progress of science may have been delayed, if ever so slightly, by that secrecy. Science, after all, is ultimately an Open Source enterprise... [U]ltimately the process of discovery must be served by sharing information: enabling other scientists to go forward where one cannot; pollinating the ideas of others so that something new may grow that otherwise would not have been born.

There is a further analogy, one that is clear to anyone who works in education or who has tried to become educated: the fact that information is available does not mean that students have learned it. But the more expensive information is—in either the sense of not being *libre* or not being *gratis*—the harder it is to learn.

The problem is clear, but seemingly intractable. Society wants, and in fact needs, for individuals to have reasons to discover new information and to create new software. We have to cover the average costs of this valuable service. Once that new information is discovered and once that software is written, that information “wants” to be priced at marginal cost. In the case of data, source code, or ideas, the notion of any positive price is difficult to sustain. The cost of dissemination is a few keystrokes, an internet connection, and space to store the digital content.

For these reasons, the roles of collection, curation, and organization have become central to the development of new platforms for education and means of disseminating information. In economic parlance, these are “middlemen.” The role of the middleman has always been ambiguous: crucial, yet destructive, seen sometimes as valuable and sometimes as an obstruction to progress. We turn aside for a moment to consider the role of middlemen as entrepreneurs and revolutionaries.

The Middleman and the Information Revolution in Education

Joseph Schumpeter (1942) famously described entrepreneurs as destructive: “Entrepreneurs are innovators who use a process of shattering the status quo of the existing products and services, to set up new products, new services.” This is something more than arbitrage or making money by buying low and selling high. Rather than simply “correcting” errors in the price system and causing the convergence of prices of a single existing commodity, entrepreneurs imagine alternative futures, new products, and possible ways of organizing production.

It is difficult to overstate the importance of this distinction. An entrepreneur does not (just) take advantage of errors (i.e., differences) in prices. An entrepreneur is alert to entirely new possibilities, to products and innovations that consumers may well not even be aware that they could have, much less want. Steve Jobs, of Apple Computer, famously observed that entrepreneurs could not rely on static conceptions of “demand”: “You can’t just ask customers what they want and then try to give that to them. By the time you get it built, they’ll want something new.” (Burlingham 1989).

A decade later, Jobs went further: “But in the end, for something this complicated, it’s really hard to design products by focus groups. A lot of times, people don’t know what they want until you show it to them.” (Reinhardt 1998). This echoes Henry Ford’s famous, though perhaps apocryphal, claim that: “If I had asked [consumers] what they wanted, they would have said, ‘Faster horses!’” (Vlaskovits and Ford 2011).

For our purposes, this notion of entrepreneurship is crucially linked to the changes in the forms and availability of information. Traditional models of education are likely to be destroyed entirely and replaced, rather than changed at the margins. But this transformation can only take place if the information being passed on can be both free, and yet, conveyed in ways that compensate both creators and educators—which brings us to the middleman.

We tend not to like middlemen. They seem parasitic, buying products and then reselling them without improvement. If middlemen make profits, surely they do not earn them. And in fact, “eliminate the middleman”

is the maxim of many simplistic schemes for increasing profit or reducing costs. Why do middlemen exist?

The answer is that middlemen make possible transactions that otherwise could not take place. Transportation, information, assurance of quality through brand name, financial clearing services—all of these are means of making possible transactions that otherwise would be blocked by transactions costs. An example makes this clear. Suppose that A is willing to rent widget W for any price over USD40 per day. B wants to use W for a day and will pay any price less than USD75. In principle, there is a bargaining space where any rental offer greater than USD40 and less than USD75 makes both parties better off. And in a social sense, W “should” be used by B, because he values it more than A.

But A may not know where or even who B is, and it is expensive to go looking. They may be physically distant, meaning that there are transport costs. The medium of exchange may be cumbersome, requiring costs to clear the transaction if it takes place. And they do not trust each other: say W is valuable and A is not sure B would not break it. These costs could easily be USD50 or more. Assume the transactions costs are split evenly, USD25 each. That means that A will require a payment of at least USD65 to sell W, and B will pay at most USD50. There is now no price where the transaction can take place. And because of this, A and B may not even imagine the idea of renting widgets. No one has ever made an effort to set up a widget rental company, and no effort has been devoted to developing institutions for reducing the transactions cost.

To succeed, a middleman has to reduce three key transactions costs: (1) provide information about options and prices in a way that is searchable, sortable, and immediate; (2) outsource trust to assure safety and quality in a way that requires no investigation or effort by the users, and (3) consummate the transaction in a way that is reliable, immediate, and does not require negotiation or enforcement on the part of the users.

It is tempting to think that the reason that Uber, a mobile ride hail company, has succeeded is that it avoids the costs of complying with the regulations, taxes, and restrictions that affect taxis. And that may be part of the story. But if you call an Uber driver, she appears almost immediately; you do not have to wait or wave at taxis that do not stop. That driver comes looking for you using the software and GPS features

in your phone. Further, you can see the name and license information of the driver and you know the company has the driver's personal and financial information. You do not need to give the driver directions, because you have already provided your destination to the software, which the driver can then use to navigate while you think about something else. And the driver is paid, and tipped, without you having to touch your wallet. Finally, you get to rate the driver and the ride, and Uber pays for background checks. Drivers whose ratings drop below a threshold, which varies by location, are fired.

Thus, it is important to recognize that the changes we are observing are not simply driven by passive, exogenous changes in transactions costs. Ronald Coase (1937) was rather scornful of the notion that transactions costs were a definable, measurable variable that should be seen as driving economic change. The key factor is the innovation in software platforms that reduce the costs of the entire transaction to the point where that activity is now profitable for the entrepreneur and beneficial for the consumer. The transaction is paid for within the software itself, and both you and the renter (who may just be a private citizen who happened to have a drill) will rate each other. Services like this already exist in many cities for high-quality bicycles, luggage, clothing, and appliances. As transactions costs are reduced by software platforms, enormous value is created for consumers and entrepreneurs grow rich.

The question is how, or maybe if, this model can be adapted to education. The challenges are daunting, and the potential for "success" carries with it the likelihood of massive disruptions in existing means of delivering information. Let us see why.

Reimagining Education

Traditional Education

The importance of developing one's mind has been appreciated for millennia, but only recently has the chance to learn in a structured manner been afforded to the masses. Alexander the Great is reputed to have said, "I am indebted to my father for living, but to my teacher for living well."

(Vries 2014). Alexander's teacher was, of course, the legendary philosopher, Aristotle. So Alexander was also indebted to his kingly father for having the resources to be able to afford such a teacher.

But Aristotle has been “teacher” to millions of other people, long after Alexander had also become a legend. In the years between the Greek philosophers and the invention of the printing press, Aristotle's works were kept alive by armies of scribes, hired by the Library of Alexandria in Egypt to copy and preserve any written works passed through the port. After that library's destruction, other institutions, most notably the Islamic House of Wisdom in Persia, carried on the great tradition of preserving knowledge (Al-Khalili 2011). That tradition, working its way through medieval scribes in European monasteries, was eventually brought to America by the scientist-businessman-diplomat Benjamin Franklin (Korty 1965). It scaled up with the fortunes of industrialists-turned-philanthropists, like Dale Carnegie. Thus, for nearly a century, a large percentage of Americans have been able to take for granted free or low-cost access to a wide variety of books and related services (Harris 1999). The same does not hold true for much of the world.

We may not think of books as technology, but they are. Even paper is a software technology: the English word is derived from the word “papyrus.” We often forget how remarkable it is that technology enables us to copy books and move them through time and space so easily. In the ancient libraries in Egypt and Persia, each work had to be copied by hand by an educated scribe. Written works were thus valuable and rare. In Europe, the majority of such efforts centered around copying bibles onto expensive vellum in candle-lit basements of churches and monasteries, which incidentally ran a large number of schools (Harris 1999).

When Guttenberg's printing press started production in Germany around 1440, it quickly transformed the position of the Catholic Church by making the Bible available to the masses without the control and interpretation of the clergy (Eisenstein 1979). When, in 1517, Martin Luther nailed his “Ninety-Five Theses” (condemning many practices of the church, such as selling indulgences) to the ornate main door of the Schlosskirche in Wittenberg, his challenge was written, not spoken; the handwritten manuscript was printed and then spread rapidly through Europe. Thus, with the aid of some wealthy friends and the technology

of printed paper, one man helped spark the Protestant reformation (Eisenstein 1979).

The printing press was also a revolutionary instrument in the development of science, as well as a revelation. The printing of treatises and journals allowed ideas to be developed at length and understood and debated by people distant in space, and even time, from the writer. As intellectual communities grew, it became possible to settle disputes about competing theories by dramatically increasing the number of minds focused on a problem. It became possible to teach students about what was already known. Scholars no longer had to start over with every new generation; science became cumulative in education and incremental in research. Ideas could be spread through libraries, and new ideas could be accumulated through spreading networks of universities (Eisenstein 1979).

Still, education was mostly available to only the elite because the technology of printing and the use of vellum were still very expensive. The basic technology of producing books improved slightly in the eighteenth and nineteenth centuries, with production-line methods and improvements in the production of high-quality, low-cost paper, but books and paper were still expensive to produce, transport, or store, and all but the highest-quality bindings and paper degraded in just a few decades. The truly revolutionary change took place in the late twentieth and early twenty-first centuries. It was at this point that information, words, and educational material were divorced completely from having any physical medium. Digital information, once produced and stored on a magnetic or other medium, could be infinitely reproduced in ways that are very nearly costless, and transmitted around the globe in ways that are very nearly instantaneously. Though we cannot speak directly with Aristotle the way that Alexander the Great did, almost anyone can now instantly have access to Aristotle's works on a mobile phone, from practically anywhere on the globe. Aristotle has more readers—and a greater impact—today than anyone could have imagined during his lifetime or in the Middle Ages, when he had to be read in Greek or Latin from a handwritten manuscript. But more importantly, Aristotle can now be read, in almost any language, by anyone who has a screen and an internet connection.

Nonetheless, most schoolchildren do not read Aristotle. One aspect of such educational materials remains elite: priority. The level of education, and the breadth of knowledge, required to make the careful study of

Aristotle a core priority is beyond most communities. Fortunately, the same technological revolution that divorced information (sometimes called “content”) from medium works for the basics of algebra and grammar. What until now has required the expensive printing and shipment of fragile, heavy textbooks, which can wear out or become obsolete, can now be achieved through digital learning resources—often called open educational resources when they are truly free. Teachers, like scientists, can benefit from someone else’s work and teach students using materials other people have developed.

As a result, a new kind of modern learning experience is being born. And the consequence is that many things we imagine we know about education are being called into question. We can all imagine a classroom with a trained teacher standing at the front and silent students taking notes or working on exercises from a textbook. We all know that each school needs an army of administrators, from the principal on down, to make it run and keep the teachers in line. We all know that a highly skilled teacher with years of training needs to stand up front and maintain discipline so that the children can be molded. We also know that the learning is certified through a series of tests followed by the issuance of a paper diploma—turning years of mental toil into a series of numbers and letters (grades) with a brand name (the school’s name) and logo on the top.

The question is which, if any, of these features of education are essential for the future we now need to reimagine. Just as Airbnb has reimaged hotels, the Open Source movement has reimaged production and ownership of intellectual “property,” and the Internet has reimaged distribution, so, too, are groups and entrepreneurs attempting to reimagine education. Some are reimaging the classroom, others are reimaging school administration, others reimaging the learning experience itself, and still more are taking a fresh look at the certification process with new ways to document learner effort and achievement.

Technology-Driven Education

Traditional education has had many successes, and the way traditional education has been conducted is based on centuries of experience. But recent changes in capacities and a dramatic expansion of needs have

created a setting where reimagining may be fruitful. There are several technology-driven innovations that have been tried in a number of places, and there is great promise of success if change can be managed. The primary focus of our discussion will be on East Africa. We will consider the disruptive capacity of these innovations and their potential impact on the most marginalized communities. Hopefully, change-makers will be able to take and remix some of these ideas and help in bringing forth a new era of learning. The space is complex, but headway is being made.

Traditionally, classrooms are physical locations in which a single trained teacher and a larger number of students show up at the same time to produce what we call education. But over the past decade, Massive Open Online Courses (MOOCs) have been released online—either free or at a very low monetary cost—allowing learners with Internet access to see lectures from top universities. Unlike in a traditional classroom, learners watch videos online from a (possibly remote) location; take quizzes that can be automatically graded by software; and submit assignments, such as essays, which are often peer-graded. Learners receive certificates with the name of the MOOC provider (such as Coursera, EdX, Open2Study, or Udacity) as well as the university that the professor is affiliated with (such as Stanford, Harvard, or MIT). Though completing a MOOC does not normally confer university credit, many universities allow enrolled students to earn credit by taking online courses in lieu of traditional classes (Boven 2013).

These innovations have also moved into classrooms for younger learners in primary schools. Khan Academy, a nonprofit organization, developed a collection of free videos covering a wide range of subjects, like math and science, which were first released on YouTube (Khan 2013). Classrooms around the USA have been “flipped,” as students watch videos at home and then do work in class, where the teacher can help minimize the time the learners spend struggling (Berrett 2012).

These technology-enabled innovations have moved classrooms out of their traditional physical location and thus changed the learning experience for many. Despite these significant advances, data show that those who complete courses tend to be relatively highly educated, with university or Master’s degrees. For now, the people thriving in the new digital classrooms are the same people who already thrived in traditional classrooms (Ho et al. 2015).

But there are other possibilities. Here are three examples of organizations that have reimagined education.

Example 1. Bridge International Academies: Reimagining School Management

Traditionally, a “school” requires a bevy of costly administrators and support personnel to operate. Bridge International Academies is a Nairobi-based chain of low-cost primary schools. They are the fastest-growing chain of private schools in the world and have secured investment upward of USD100 million, including a high-profile investment of USD10 million from Facebook’s founder, Mark Zuckerberg (Stevis and Clark 2015).

As did industrial companies of the past, Bridge uses economies of scale and standardization to dramatically lower costs, to provide low-income families an alternative to government-run primary schools in Kenya and other parts of Africa. Like a highly efficient Amazon distribution center, Bridge uses software and data to monitor thousands of teachers in hundreds of schools. Lesson plans are centrally created in Boston by an elite team of top teachers and are distributed, using the Internet and mobile phone networks, to e-readers which teachers use to deliver scripted lessons (Rangan and Lee 2010). This standardization allows less-trained adults from the communities to become teachers and the software enables tracking of lots of data, such as how fast digital pages are turned on the e-readers and how students in various classes score on exercises. Bridge can also use A/B testing, a technique used widely by tech startups and digital marketing firms, to give a different lesson plan to different sets of teachers and see which has the greatest impact on students’ performance. Were Bridge to open up their curriculum, they could also have examples improved and kept up to date with crowd-sourced input, just as Wikipedia articles are improved and updated.

Using mobile money networks (such as M-PESA in Kenya) to pay teachers, staff, and suppliers alike minimizes administrative overhead at each school, decreases opportunities for administrative fraud, and presumably decreases the risk for a robbery incident. Maintaining control and standardizing the education experience across schools has allowed Bridge to make great headway in providing low-cost primary education at scale by reimagining how schools are administered and how teachers are monitored.

Example 2. Tunapanda Institute: Reimagining the Learning Experience and Teacher Training

Traditionally, learners listen to lectures from highly trained teachers who are much older than the students and far removed from their own learning experiences. Tunapanda Institute is now reimagining the learning experience and teacher training by empowering relatively inexperienced young people in East Africa to teach each other within the context of a flexible curriculum focused on technology, design, and business skills that help young people enter the workforce as professionals, become innovative teachers, and someday engage in entrepreneurship.

The nonprofit organization (in which both authors of this chapter are involved, as founding director and co-founder, respectively) operates a training facility in Kibera, a large Nairobi slum, for young adults (from 19 to 25 years old). The facility recruits and trains young people from the area and similar areas around Kenya, Tanzania, and Uganda. After three-month intensive training courses in technology, design, and business, most graduates find jobs, normally as teachers or working for technology companies.

A few graduates, however, are selected to remain as apprentice-teachers and train future cohorts while learning to take over the operation of the facility. The system works because the curriculum is designed to be practical and hands-on. Rather than working to pass tests and earn higher grades, learners work in teams to program video games, build educational websites, prototype Android apps, and present startup pitches. Each activity ends with a presentation that is attended by a larger team. Because learners derive intrinsic joy from the activities and also want to look good when presenting to the group, high levels of engagement can be maintained despite very few formal rules or a grading system. Past graduates who are working in industry also return to share the value they derived from what they learned at Tunapanda, validating the program.

The peer-to-peer learning experience, where some young people are teaching the classes to young people, and both students and teachers are judged primarily by their peers, creates a different learning experience that many say provides more value over a shorter period of time than other available learning avenues, including local universities. Because teaching and coaching are also viewed as learning activities, graduates of former classes want to be a part of teaching and coaching their favorite classes at

least one time after they have gone through the program—meaning there are 3 to 4 more experienced trainers and coaches working with a cohort of 25–28 first-time learners.

By reimagining the learning experience, young people are able to envisage a transformation in their future and become not just lifelong learners but also lifelong teachers.

Example 3. Mozilla Open Badges: Reimagining Certification

Traditionally, certificates are issued by the learning institution, with external testing authorities in some way validating the learning through testing. Examples include the Scholastic Aptitude Test SAT and Advanced Placement examinations in the USA, and the Kenya Certificate of Secondary Education (KCSE) examination in Kenya. These grades and exam scores are used as an important means of helping universities decide who to admit, helping governments decide who to fund, and helping employers decide who to hire.

Mozilla, the nonprofit entity most known for maintaining the open source web browser Mozilla Firefox, began an initiative to create an open badging system. Just as Uber uses a rating system to show the quality of drivers and passengers, Mozilla's Open Badges system could let others know about the quality of your work for more complex tasks. Mozilla manages "participating issuers," who are able to design and issue badges if users are able to demonstrate proficiency.

The importance of these badges being "open" cannot be understated, especially in the context of enabling people in less-developed countries to earn higher incomes. Currently, Uber's rating system is closed, that is, the experience ratings earned in the system by either a customer or a driver cannot be taken to, say, Easy Taxi (an Uber competitor) or Airbnb. As work evolves and people begin to piece together income-earning activities, rather than having a single "job," the ability to take one's rating system from platform to platform becomes highly valuable. Not only might these certification systems enable someone in an African slum to earn income doing digital work for someone living in Beverly Hills, the systems might also enable people to access credit markets and even gain access to a foreign country.

Although the execution quality of Mozilla Open Badges and other badging systems remains to be seen, the ability to connect educational

certificates directly to a portfolio could open a range of new paths into modern global professions.

Conclusion

The U.S. space agency, National Aeronautics and Space Administration (NASA), demonstrated the power of technology when it designed a needed tool, a ratchet wrench, on Earth and then sent the model to the International Space Station where it was 3-D printed and used. “In less than a week, the ratchet was designed, approved by safety and other NASA reviewers, and the file was sent to space where the printer made the wrench in four hours,” reported Niki Werkheiser, the space station 3-D printer program manager (Harbaugh 2014).

Humanity stands to gain a great deal by leveraging technology to create more inclusive economies and engage more people in solving both hyper-local and global problems. Although it took centuries to go from the invention of the printing press to making books widely accessible around the world at low cost, today, software can be written in Kenya and then downloaded anywhere else in the world within seconds. The same is true for textbooks, test banks, and videos of lectures or presentations: Space is no longer a barrier and time for transport is no longer the cost for the transmission of ideas and information.

But there are many other barriers, and costs, that have yet to be managed or surmounted. A MOOC is of little help to rural schools that lack electricity or an Internet connection. Learning to write code on paper is no substitute for writing and debugging actual programs on a computer. The widespread availability of digital tools and free or open learning resources does not mean that opportunity will spread to all of the ten billion humans expected to inhabit our planet by the end of the twenty-first century. UNICEF (2014) predicted that by the middle of this century, 40 % of the planet’s children will be in Africa—a prediction that highlights the urgency of using successful leapfrogging education solutions in the region.

One computer can “teach” another simply by transferring code, instructions, and content files, copying identical information repeatedly. Human education does not work that way—information in the brains of children

and young adults is acquired by learning from a teacher, not downloading. But the technology of teaching is not fixed; the tradition of a teacher, managed by administrators, in a physical building, dealing with students who are seeking a well-defined terminal degree in a set curriculum and whose learning is verified by standardized tests, is changing. For the less-developed world to develop further, it will be necessary to leapfrog over the gradual development of physical facilities and infrastructure (such as reliable electrification and Internet connections) and skip ahead to a more decentralized environment where almost everything is open source.

Poor people are not lazy; uneducated people are not dumb. The world is full of humans who would like to take part in creating value and solving problems, but just have not had access to the type of learning experiences that develop such skills. The shortage of teachers, the chronic problem of many regions, might be solved by giving students access to lectures from the greatest teachers in other countries, using digital preservation and transmission, or by enabling students to teach each other using software designed partly by previous students who understand local conditions.

Although there is no unique magical combination of imported foreign and dedicated local materials that make up a successful ICT, the solution does lie in some such combination. The reimagining of production, distribution models, financial services, and systems of education by innovators and entrepreneurs can help create a much more prosperous and inclusive future. But that future is not guaranteed—it still needs to be created.

References

- Al-Khalili, J. (2011). *The house of wisdom: How Arabic science saved ancient knowledge and gave us the Renaissance*. New York: Penguin Press.
- Barlow, J. P. (1998). Africa rising: Everything you know about Africa is wrong. *Wired*. http://www.wired.com/wired/archive/6.01/barlow.html?topic=investing_ipos&topic_set=neweconomy. Accessed 2 Feb 2016.
- Berrett, D. (2012). How ‘flipping’ the classroom can improve the traditional lecture. *The Chronicle of Higher Education*. <http://chronicle.com/article/How-Flipping-the-Classroom/130857/>. Accessed 2 Feb 2016.

- Boven, D. T. (2013). The next game changer: The historical antecedents of the MOOC movement in education. *eLearning Papers*, 33, 1–7.
- Brand, S., & Herron, M. (1985). ‘Keep designing’: How the information economy is being created and shaped by the hacker ethic. *Whole Earth Review*, 49, 47–48.
- Burlingham, B. (1989). The entrepreneur of the decade: An interview with Steven Jobs, Inc.’s entrepreneur of the decade. *Inc. Magazine*. <http://www.inc.com/magazine/19890401/5602.html>. Accessed 18 Feb 2016.
- Clark, P. (2014). Hoarder nation: America’s self-storage industry is booming. *Bloomberg News*. <http://www.bloomberg.com/bw/articles/2014-12-01/cyber-monday-gifts-final-resting-place-self-storage>. Accessed 18 Feb 2016.
- Clarke, R. (1999). Information wants to be free...Roger Clark.com. <http://www.rogerclarke.com/II/IWtbF.html>. Accessed 16 Feb 2016.
- Coase, R. H. (1937). The nature of the firm. *Economica*, 4(16), 386–405.
- Collins, A., & Halverson, R. (2009). *Rethinking education in the age of technology: The digital revolution and schooling in America*. New York: Teachers’ College Press.
- DiBona, C., Ockman, S., & Stone, M. (1999). Introduction. In C. DiBona, S. Ockman, & M. Stone (Eds.), *Open sources: Voices from the open source revolution* (1 ed.). O’Reilly Media. <http://www.oreilly.com/openbook/open-sources/book/intro.html>. Accessed 18 Feb 2016.
- Elmer-Dewitt, P. (1984). Computers: Software is for sharing. *Time*. <http://content.time.com/time/magazine/article/0,9171,926733,00.html>. Accessed 18 Feb 2016.
- Eisenstein, E. (1979). *The printing press as an agent of change: Volumes 1 and 2*. Cambridge: Cambridge University Press.
- Harbaugh, J. (2014). Space station 3-D printer builds ratchet wrench to complete first phase of operations. *NASA*. http://www.nasa.gov/mission_pages/station/research/news/3Dratchet_wrench. Accessed 18 Feb 2016.
- Harris, M. H. (1999). *History of libraries of the Western World* (4 ed.). Lanham: Scarecrow Press.
- Ho, A. D., Chuang, I., Reich, J., Coleman, C. A., Whitehill, J., Northcutt, C. G., Williams, J. J., Hansen, J. D., Lopez, G., & Petersen, R. (2015). HarvardX and MITx: Two years of open online courses fall 2012–Summer 2014. SSRN: <http://ssrn.com/abstract=2586847> or <http://dx.doi.org/10.2139/ssrn.2586847>. Accessed 19 Feb 2015.
- Juma, C. (2014). It will take more than natural resources for Africa to rise. *Aljazeera*. <http://www.aljazeera.com/indepth/opinion/2014/10/it-will-take-more-than-natural-r-20141018972385759.html>. Accessed 19 Feb 2016.
- Khan, S. (2013). *The one world schoolhouse: Education reimaged*. New York: Grand Central Publishers.

- Korty, M. B. (1965). Benjamin Franklin and eighteenth-century American libraries. *Transactions of the American Philosophical Society*, 55(9), 1–83.
- Munger, M.C. (2015). “Tomorrow 3.0: The Sharing Economy and You.” EA: Economic Affairs. Spring, pp. 14–17. http://www.iea.org.uk/sites/default/files/EA%20SPRING%202016_ALL_for%20web.pdf
- Open Source Initiative. (n.d.). The open source definition (annotated) (version 1.9). <https://opensource.org/osd-annotated>. Accessed 19 Feb 2015.
- Rangan, V. K., & Lee, K. (2010). Bridge international academies: A school in a box. *Harvard Business School*. N9-511-064. <http://www.bridgeinternationalacademies.com/wp-content/uploads/2013/01/2010-Harvard-Business-School.pdf>. Accessed 19 Feb 2015.
- Reinhardt, A. (1998). Steve jobs: There’s sanity returning. *Business Week*. <http://www.businessweek.com/1998/21/b3579165.htm>. Accessed 18 Feb 2016.
- Schumpeter, J. (1942). *Capitalism, socialism, and democracy* (3 ed.). New York: Harper.
- Stavis, M., & Clark, S. (2015). Zuckerberg-backed startup seeks to shake up African education bridge aims to provide cheap, internet-based education in Africa. *Wall Street Journal*. <http://www.wsj.com/articles/startup-aims-to-provide-a-bridge-to-education-1426275737>. Accessed 18 Feb 2016.
- Suellentrop, C. (2010). Abandon ownership! Join the rentership society. *Wired*. http://www.wired.com/2010/11/st_essay_ownership/. Accessed 19 Feb 2015.
- UNICEF. (2014). Generation 2030/Africa. New York: UNICEF Division of Data, Research, and Policy. http://www.unicef.org/publications/index_74751.html. Accessed 19 Feb 2015.
- Vlaskovits, P., & Ford, H. (2011). Innovation, and that ‘Faster Horse’ quote. *Harvard Business Review*. <https://hbr.org/2011/08/henry-ford-never-said-the-fast>. Accessed 19 Feb 2015.
- Vries, M. F. R. (2014). *Mindful leadership coaching: Journeys into the interior*. Basingstoke: Palgrave-MacMillan.

Conversation #5

To Keep Disrupting, You Have to Listen Closely to What the Client Wants

Elizabeth Rossiello of BitPesa



***Elizabeth Rossiello** is the founder and chief executive officer (CEO) of BitPesa, a Pan-African digital payment platform that uses bitcoin for settlement with its international partners, enabling low-cost international payments and transfers. Before founding BitPesa, she was the deputy director of Planet Rating's East and Southern African office, conducting microfinance institutional ratings and analysis across the region. She started her career at Credit Suisse in New York, London, and Zurich, and worked at Goldman Sachs and the German Bundestag as a Robert Bosch Fellow. She is an alumna of Columbia University's School of International and Public Affairs. She speaks four languages and has two children. Elizabeth is a native New Yorker but has lived in Kenya for the last seven years.*

What is the story behind BitPesa?

We began BitPesa with a focus on developing a remittance product that reduced the average cost of sending money to Kenya from 12 % to 3 %. We wanted to replace traditional money transfer services by having senders purchase bitcoin in their origin country via an exchange and selling it in their destination country to us. Our first corridor of focus was the UK, specifically working with the Kenyan diaspora, who we believed sent home regular remittances to support household expenses for their families and friends.

What we learned, however, while we were doing our focus groups and talking to customers, was that many in the diaspora were actually sending money to themselves. We started to question the term “remittances” and wondered how much of the USD1.4 billion sent to Kenya was for families and friends and how much was for small and “home” business operations and investments. Many in the diaspora whom we spoke with were sending money from abroad to their own accounts in Kenya. They would then use this money to invest, pay salaries, or buy supplies for businesses they ran semi-remotely.

A lot of our early customers were young businessmen, between the ages of 18 and 35, who understood how the technology can be used to run more efficient businesses. They were tech savvy and really excited about a new, digital way to send or collect payments. Our customers could not use credit cards for their purposes, and mobile money was not working internationally for them. Before BitPesa, these customers would often have to use middlemen, fixers, *hawala* (traditional informal broker networks), or expensive bank transfers to run their businesses.

We create liquidity in markets where there was previously low liquidity or only liquidity if you used informal cash payments. We buy or sell African currencies at a better price and quicker settlement than local banks can offer. Now businesses working in or across Kenya, Tanzania, Uganda, Nigeria and the DRC can easily make or receive global payments from their African currency banks and mobile money accounts. BitPesa accepts local bank transfers in local currencies and pays our bitcoin to global brokers to settle in foreign bank accounts in foreign currency. Bitcoin is used only between the brokers,

removing any volatility from the end-user experience. Payments start and end with local bank transfers.

What other user cases did you identify?

The initial product was started without necessarily a user-centered design. It imposed a use case on the customer, suggesting that there was a personal or social connection for payments. Our latest iteration introduced more business and trading features to support our users' buying and selling bitcoin for commercial uses. We also offer bulk payments, bank transfers, and quicker trading times. We marketed these features as "BitPesa for Business." Before using BitPesa, these businesses told us, they had to deal with many counterparties, both banks abroad and in Kenya, as well as mobile money providers. They either went through multiple aggregators or spent time and money building custom integrations. They experienced forex (foreign-exchange-market) losses associated with long settlement times and were forced to hire more staff and oversight to facilitate international and domestic steps of the payment process. By using BitPesa, they have a one-step option of sending international payments into local African currency accounts; either in one country or across several countries.

How easy was it to establish a new and disruptive technology in the market?

It is hard to be one of the first adopters of a new technology. There are few people to compare notes with and share the task of educating regulators and potential partners. When we started BitPesa, I continually heard the message that "Kenya was not ready for bitcoin." This surprised me, especially because I heard it from members of the ICT community and innovation teams at local banks. Kenya is famous worldwide as an innovator in digital payments. But in the end, we saw super-fast uptake of the product in focus groups.

To stay motivated and on track, we used a customer-centric approach. Even if a potential partner did not believe the market was ready, we listened to our customers in product sessions and demos. We looked at our growing transaction volume rather than the opinion of managers in traditional financial institutions.

How did you find out what your future customers really wanted?

In early 2014, we started to organize meet-ups at the iHub in Nairobi. These were casual meetings over samosas and beers, where we talked about bitcoin and BitPesa. We held demos and traded between friends. The first meet-up was with five people who already knew about bitcoin. The next meet-up was with 20 people, and then, the next was with 40. In a few months, we had a long contact list. At our kick-off party during the World Cup, we had 170 people and we had only a skeletal product. But all of these people were really excited about it!

Simultaneously, we had team members in London meeting regularly with community leaders in the diaspora community. We held market research sessions, teach-ins, and demonstrations. We were ever-present in the community through agents and brand ambassadors. We had a large funnel of information from our contact with potential customers. I saw what the customers wanted—I mean, real people who wanted to use it from day one. So even if someone said, “Oh, they’ll never like it” or “That doesn’t make any sense” or “You don’t know the market,” I would then go back to the focus group and people would tell me the opposite. So I would just listen to the customers rather than the talking heads and partners.

What is the future for digital assets?

I believe that money transfer operators and telcos, companies like MoneyGram and Safaricom, will use decentralized payment systems and adopt technology like bitcoin in the next five to ten years. All of the major banks, payment companies, and FinTech companies are filing patents, making investments, and developing products. Billions of dollars are being spent on exploring the use of this technology. Those products will enter the market in the next few years and leave all the other companies behind that refused to take the time to understand the technology.

People are not going to send physical cash when they can send digital cash. A bank in Zambia and a bank in Hong Kong need to communicate in the same way. You cannot expect that a local mobile payments company, like Zoona in Zambia, will have spent the time and money to integrate

with a digital e-money network based in Hong Kong. All of these local companies need one uniform rail to link into and act as a decentralized ledger. I do not think that the global payment infrastructure should be owned by a single company, like Mastercard or Vodacom, but rather, use decentralized ledger technology to be robust, secure, and unbiased.

How much could you rely on investments from Kenya to finance BitPesa's operation?

I would love to have had local investors invest the whole amount, but I have not found that much financing available for FinTech (financial technology) start-ups. I would love to have not traveled so much away from my family and my business to find investors. There are very few early-tech investors in the region. We have just received financing from a few Nigerian investors, which is exciting because their expertise is essential to our growth across West Africa.

What do you think is the missing puzzle piece to get more Kenyan or African investors on-board?

Well, there is currently a lot of opportunity in relatively familiar investment options, like real estate. So why would an investor go into an unfamiliar, and seemingly higher-risk, area like tech? Why would they want to invest in a “very first of its kind” business? We still need to see more buyouts and M&A activity in the sector—some successful exists. I think those exits will act as data points for Kenyan and African investors to realize that FinTech is a viable investment opportunity.

You are one of the few tech companies with a female executive team. Was that a coincidence or a deliberate decision?

I hired people that were talented and experienced and that I was convinced would work hard to build something new. In Kenya, you often find tech start-ups with groups of friends from high school. I did not go to high school here, so my first hire was a fellow financial services consultant, Charlene Chen, with whom I had worked on a few projects over the years. Similarly, our second hire was forex trader Amy Ludlum, who had a stellar finance background at a major global bank but was highly motivated to work for a start-up. Once we had three women leading the team,

we became a magnet for other talented female professionals who knew there would be nothing standing in their way for career advancement. We now have a 50/50 gender split and work hard to create an exciting and rewarding environment for our team.

We have tried to build a company that is fair, open, and welcoming. We do work very hard and expect all our team to perform at a high level. However, we reward our employees for their work and dedication.

What excites you about Kenya's tech scene?

It is interesting to be in Kenya at this particular time. I mean, there are a lot of hardworking people who are very entrepreneurial and starting these amazing businesses. I feel honored to be part of it. I think the banks have a hard time keeping up with all this innovation. There is just so much innovation coming out of this ecosystem. People are almost like, "What do I focus on next? An e-ledger or new digital money or something else?" I, however, wish there would just be way more support out there for entrepreneurs by other entrepreneurs. There are private clubs for the very wealthy, but nothing where techpreneurs get together regularly. We are a diverse group of women and men from all sectors living across a sprawling metropolis. We connect a lot over WhatsApp in a few techpreneur groups and are just now starting to organize events and meet-ups for founders across sectors. We are all really busy building our business. As our companies mature and our incomes rise, we can then start investing in the next wave. This is the next evolution! I think it is going to be even more exciting once the founders grow up and now are able to invest. It is an exciting time to see this graduation.

What was your biggest "Aha!" moment during your time with BitPesa?

It came when we started to sell bitcoins. We struggled to project our first few months of sales numbers, because the product was so new to the region. We had an intern at the time who encouraged us to start selling bitcoin instead of just buying it as part of our first remittance flow. He told us his friends were interested in buying bitcoin and he had been trading informally. We started selling bitcoin, and our volume growth went through the roof! We asked ourselves, "Why didn't we do this four

months ago?” That was definitely an “Aha!” moment. It reminded me that I needed to keep my ear to the ground and listen to what the market wants—rather listening to what my bigger, financial institution partners think the market wants. To keep disrupting, you have to listen closely to what the client wants!

Thank you, Elizabeth!



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6

I-Entrepreneurship: Changing Lives Through Technology

Carmen Merab Wamukoya and Amolo Ng'weno

Introduction

In today's highly competitive environment, new technologies and ventures have transformed the way we do business. Social enterprises have gained increasing prominence as key players in developing innovative solutions to societal challenges. From a conceptual standpoint, the ideas that drive them bring new approaches to challenges once viewed as insurmountable, and the services they provide can serve as the tools and enablers of the change desired, be it in employment, economic empowerment, and so on. However, social enterprises struggle to remain relevant in a rapidly changing business environment where innovation has become fundamental to their survival and success. Social enterprises therefore require

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ICT innovators who can transform ideas into tangible opportunities that produce real results.

This chapter examines the business model of a social enterprise in the ICT sector that uses impact sourcing as a tool for creating employment opportunities. The title “I-Entrepreneurship: Changing Lives through Technology” reflects the chapter’s thematic focus on entrepreneurship, and in particular, its examination of entrepreneurship with an impact—hence the term *i-entrepreneurship*. The case study of Digital Divide Data (DDD) Kenya, a social enterprise that provides outsourcing services to clients, serves as a strong example.

The first section provides an overview of social entrepreneurship and impact sourcing. The second section examines the state of unemployment in Kenya and the role of social entrepreneurship and impact sourcing in employment creation. The third section focuses on the business case of DDD Kenya. The chapter closes with a discussion of the challenges and successes experienced by DDD Kenya and a number of recommendations for the country’s ICT sector.

The Concept of Social Entrepreneurship

Social entrepreneurship is at the root of organizations pursuing sustainable and profitable methods of creating social impact. It is a label that merges the excitement of having a social purpose with the model of using innovation and business structures to solve social problems. The phenomenon, which involves combining resources in new ways to create social value, is increasingly popular, gaining attention from both academia and practice (Kupolokun 2014). Although the term “social entrepreneurship” and its current meaning are relatively new, the phenomenon as a practice is not. Both government aid agencies and private foundations have, over many years, supported initiatives, introduced programs, and implemented interventions to attempt to assist impoverished and marginalized groups around the world in innovative ways (Noruzi et al. 2010).

Zahra et al. (2009) posited that social entrepreneurship encompasses the activities and processes necessary to discover, define, and exploit opportunities to enhance social wealth by creating new ventures or

managing existing organizations in an innovative manner. The idea of enhancing social wealth is what sets social entrepreneurs apart from other types of entrepreneurs, such as those using a for-profit model, whose principal goal is to make profits. At the same time, this definition sets apart social entrepreneurs from not-for-profit ventures and non-governmental organizations. Social entrepreneurs, according to Dees (1998), identify an opportunity to satisfy an unmet need that the existing public and non-public welfare institutions will not or cannot provide. Dees added that for social entrepreneurs, the social mission is explicit and central and that any wealth generated is merely a means to a social end. Austin et al. (2006), similarly, stated that for-profit entrepreneurship has the purpose of maximizing profits and that social entrepreneurship's main objective is to generate and maximize social value.

Social enterprises, therefore, are firms that do business for a social purpose. They link innovation and entrepreneurship with social purpose and seek to be financially sustainable by generating revenue from business activities. Simply defined, social enterprises are organizations seeking business solutions to social problems.

Defining Impact Sourcing

Impact sourcing emerged from the business-process-outsourcing (BPO) sector, the contracting of specific business processes or operations to a third party. Also known as socially responsible outsourcing, impact sourcing arose as a result of social entrepreneurs in the BPO sector developing an innovative employment model that used technology to hire disadvantaged youth in developing countries. It is the practice of employing people with limited opportunities at the base of the bureaucratic pyramid in BPO centers to provide high-quality, information-based services to domestic and international clients (The Monitor Group 2011). The base of the pyramid is thus made up of individuals from among the 4 billion people earning annual per capita incomes of less than \$1500 (Prahalad and Hart 2002).

DDD Kenya was one of the early implementers of the social impact model, offering employment in Kenya's BPO industry to people from low-income families.

Statement of the Problem

Over 25 percent of the current world's population consists of young people between the ages of 10 and 24 (UNFPA 2014). In Kenya, youth aged 15–34 years constitute 35 percent of the total population (Institute of Economic Affairs 2010) and face a daily struggle in finding work in the context of particularly high unemployment rates (KIPPRA 2013). The bulk of employment opportunity lies in the informal sector, where job stability, reliable income, and career growth prospects are deficient. It is therefore imperative that interventions are put in place to reduce the stark level of youth unemployment in the country.

Fortunately, technological advances are opening new frontiers to tackle the problem of youth unemployment, with ICT emerging as a key sector. Kenya's ICT sector has seen one of the fastest and largest expansions of this sector on the continent, with far-reaching social and economic impacts, such as the creation of digital employment opportunities.

Some of this digital work is carried out through impact sourcing (as defined above). In order to help the huge numbers of disadvantaged youth in the country, social entrepreneurs and their ideas are needed to create social wealth for society across the age spectrum. It is on this concept that DDD Kenya was founded.

This chapter explores DDD Kenya in detail to bring out not only the company's potential, but also the potential for similar social enterprises to create sustainable, formal employment for the innovative but disadvantaged youth of Kenya. It is against this backdrop that social enterprises are seen as potential sources of employment.

DDD Kenya

DDD Kenya is a social enterprise that generates employment for low-income, disadvantaged youth by using impact sourcing, professional training, and higher education to give the youth practical, hands-on knowledge in the business and ICT field. DDD Kenya was founded in 2011 as an impact sourcing service provider, with one of us, Amolo Ng'weno, as its first managing director.

Vision and Mission

The company's vision is of "a world in which youth develop themselves through education and employment." It is based on four core values—a high-performing organization, a positively motivated workforce, people empowerment, and a collaborative environment. Its mission is to "create better futures for disadvantaged youth in developing countries through employment in our financially sustainable business" (Digital Divide Data 2015a). The idea behind the company was to create an organization that would bring outsourcing services to Africa that simultaneously provided employment opportunities for low-income disadvantaged youth and opportunities to participate in the global economy.

Services

DDD Kenya offers a range of content-processing services, including digitization, tagging, data entry, records management, Web research, transcription, digital marketing, and e-book conversion to clients both locally and internationally.

Business Model

DDD Kenya's business model starts by identifying and recruiting young people from poor and low-income families, mostly from urban slums. The young people selected are recent high school graduates who have achieved good enough grades to enrol at a university but are unable to pursue higher education because of financial constraints. DDD Kenya also recruits people with disabilities, especially those with hearing impairment. These young people go through a rigorous selection process to test their skills. The testing includes computer skills, language skills, speed and accuracy in typing, and math and logic assessments. Home evaluations are also conducted to ensure that the young people are from low-income families.

After successfully passing all of the assessments, the young people undergo training in computer skills for three to six months. Selected

trainees who pass the training are employed by the company to work on IT projects as associates. The training equips the associates with ICT skills and enables them to deliver services such as data entry, digitization, document conversion, and Web research.

Associates are then provided with the opportunity to participate in a work–study program where they work on projects while simultaneously studying for a degree over the course of three to four years. The associates in the program have flexible work schedules to enable them to both work and study.

DDD Kenya's partnership with Kenyatta University, a public university, allows the associates to take classes at the Digital School of Virtual and Open Learning, where they can combine short on-campus sessions with virtual learning. The partnership was formed after a quality assessment of local universities was carried out. The aim was to find a university that was the best value and that had the capacity to work with the associates to develop a four-year course of study that both matched the associates' interests and was relevant to DDD Kenya's program.

DDD Kenya associates typically work at the company for four or five years, during which time they are supported in their pursuit of goals in higher education through partial scholarships, educational loans, and a work schedule that makes time for study. Because of DDD's commitment to its staff's higher education, the associates are required to make a long-term commitment to the company. Unlike other companies in the BPO sector, DDD does not lay off employees when a project is complete. Clients prefer this work model—especially repeat clients—because they are assured of long-term service. The company therefore attempts to fill its pipeline with recurring projects that employees can work on for a period of several years.

Associates may qualify to receive a partial scholarship from DDD after three months of employment and after they meet university admission requirements. Their education is paid for through a combination of scholarships from the company, their own salaries, and loans. DDD Kenya relies on philanthropic support to cover the cost of its extensive training and scholarships. The government education lender, the Higher Education Loans Board, financed a portion of the tuition costs until 2014, when it changed its policy on supporting private institutions.

Since then, DDD Kenya has been forced to find social investor lenders to support the cost of this portion of its social enterprise.

After graduating from the university, most DDD Kenya employees find themselves with increased employment opportunities. Based on DDD's experience in Asia going back to 2001, DDD ensures that employees with a university degree and work experience leave the company more attractive to corporate employers than before, with the result that the placement rate of DDD graduates has been nearly 100 percent (Digital Divide Data 2015b).

In this model, high-performing associates often have the opportunity to grow within the company as managers. The typical associate employment period and the time it takes to complete a university degree allow DDD staff members to develop personally while building critical skills and knowledge to ensure continuous improvement in their incomes.

The educational and professional development and maturity of the workforce and the increase in incomes have had a deep social impact. In DDD's experience in Asia, alumni go on to high-skilled positions in which they earn more than two times the average regional wage, enabling them to break the cycle of poverty that often traps their families and communities. They are also able to send other family members to school and raise their households' general standard of living.

Setting Up the Company

Internet connectivity is at the heart of the BPO sector, and in Kenya, was enabled by the arrival of submarine fiber-optic underwater cables in East Africa in 2010. Faster and cheaper connectivity is a necessary condition for BPOs, although it alone is not sufficient. Other important factors—such as a favorable regulatory environment, clients, availability of affordable and reliable power, and talented employees—complete the profile of a thriving BPO sector.

The first of Kenya's undersea cables to deliver relatively low-cost, high-speed Internet bandwidth was laid in 2010, paving the way for at least five more. The availability of this bandwidth was one of the factors that made it possible to set up DDD in Kenya—and without which most of its work

would not be possible. The year 2011 proved to be the right time to establish DDD from a technology standpoint, because the Rockefeller Foundation started to test the question of whether digital jobs drive employment in Africa, and in doing so, gave DDD the grant to set up shop in Kenya. It was one of the Rockefeller Foundation's initial grants in the field of digital jobs, now a core focus of its work. The company also had very strong support from the ICT Board (the government agency charged with developing the ICT sector at the time; it is now known as the ICT Authority), in the form of lending it office space while the company established itself.

Administrative processes, such as registering the company, finding an office space, and working with contractors, were slow but relatively straightforward. There were no bribes, incidents of disappearing files, or long bureaucratic delays. Registration took three months, as was stated.

DDD Kenya launched in April 2011 with 30 associates and 6 managers and administrators. As of June 2015, the company has approximately 500 employees, 400 of which are associates.

Running the Business

DDD's leaders at the time said they chose Kenya because the existing domestic economy was relatively strong and vibrant, making it possible to develop a BPO model for Kenyans.

However, things did not turn out as expected. When DDD Kenya started, it was anticipated that 80–90 percent of the business would be from local and government contracts, largely because of the prominence of the BPO and IT-enabled sectors in the Kenyan government's Vision 2030 goals and its sharp focus on the digitization of the economy. BPO is a key government strategy for economic growth and one of six key sectors explicitly highlighted in Vision 2030 (Republic of Kenya 2007). However, in practice, the managing director of DDD found the government to be extremely slow and opaque, and after bidding on many government tenders, the company only won two out of 30.

Eventually, the company also won some additional government-related work. One of its early contracts was with the then–Kisumu Municipal Council (before counties were introduced) and with parastatals (intergovernmental organizations) such as the Kenya National Bureau of Statistics

and the Kenya Bureau of Standards. However, securing good business domestically did not really succeed as projected.

On the flip side, DDD found that the Kenyan education system was quite efficient, even across the socioeconomic divide. DDD's associates were from some of the worst schools in the city but still turned out to be some of the most impressive graduates. High school graduates from these schools typically have strong English language skills and good problem-solving abilities. They were also work-ready in terms of understanding basic requirements of employment, such as punctuality, following instructions, and meeting deadlines. The associates hired at DDD typically have average grades, rather than top grades, in national exams. Those with top grades are usually absorbed into the government scholarship system, and the rest have to pay their own tuition fees. DDD's prospective employees have high school grades good enough to get into university, but not good enough to obtain a scholarship.

In terms of infrastructure, Kenya does not rank well against a number of global BPO hubs. Electricity, rent, and all the rates for inputs used are higher than in India, Bangladesh, and the Philippines, for example. However, because DDD Kenya is able to work with people of a lower education level, the company is able to be more competitive in certain markets, especially those requiring high mastery of English. DDD Kenya has also found that the types of services the company can offer are more complex and sophisticated than what was expected in the initial business plan.

DDD Kenya competes on quality, delivery, and schedule rather than on price, which has turned out better than expected as a result of the available talent pool. The company's international market is consequently bigger than anticipated, and the company has adjusted itself to the fact that the local market and economy have been disappointingly sluggish.

Challenges of Operating a BPO Company

Electricity supply is one of the biggest challenges faced by DDD Kenya. Despite the advantageous location of DDD Kenya in Nairobi's central business district and its access to comparatively cleaner power than the rest of the country, frequent power outages persist in particular seasons. The building in which DDD Kenya is housed has a backup generator

that does not always function during power outages. Electricity is also quite expensive in Kenya, compared with other countries, and accounts for the bulk of DDD Kenya's overhead costs. Electricity is the principal cause of downtime: Outages are extremely disruptive, because without power, operations cannot run, and the company must spend money on backup generators.

The company's second biggest challenge has been the Internet, which, although cheaper and more readily available in Kenya than it used to be, is still not up to the quality and reliability standards required for the industry. Outages, again, are excessively frequent. In 2012, one of the undersea cables out of order, and DDD Kenya's Internet went out for two to three weeks. No work could be delivered to clients; only the work based on the servers could be completed. Although Internet speed has improved since 2012, Internet quality is still a source of frustration, considering that as a business, BPO depends entirely on Internet availability and access.

Successes

DDD Kenya's main success is arguably the growth of the business: The company has nearly 500 employees and serves an international clientele in a highly competitive market. DDD Kenya has a number of brand-name clients and has strong, ongoing relations with many of them. In terms of the Kenyan audience, DDD Kenya has also successfully completed the digitization of the *Kenya Law Reports*, making the laws of Kenya available—for the first time—to the general public.

In general, DDD Kenya has had many successes by sticking to its social mission—enabling disadvantaged youth to acquire new skills through training, employment, and higher education. Clients are satisfied with the work done, and the company is continually improving its quality and productivity for even better services. DDD Kenya has also won a number of awards—the Disability Inclusion Award 2014, Google Innovation Awards (in Education and Training for 2013–2014 and in Business Process Outsourcing for 2013–2014), CIO 100's Top 100 Firm for Innovative Technology for 2013, ICT Value Award for Excellence in Digital Content Development for 2013, and Connected Kenya Innovation Awards Best in BPO and Outsourcing for 2012.

Lessons Learned

DDD Kenya achieved ISO 9001:2008 certification in 2014, marking a milestone in its growth to maturity. ISO 9001:2008 is the International Standard for Quality Management Systems, the most widely used quality management system standard in the world. It provides a framework and set of principles to ensure that effective processes are developed for the management of an organization to consistently satisfy customers and other stakeholders in delivering quality services. ISO certification is also a management method specifying that an organization should have procedures for what it intends to do, should stick to them, and should review them on a yearly basis. The ISO Certification has been invaluable in making DDD Kenya more consistent, reliable, and predictable. It has also enabled a reduction in work-related crises and increased ownership of quality issues among the associates. Stability of processes has also improved as a result of the ISO processes.

The Future

DDD has an additional small office in Tanzania. The company has also been exploring opportunities in other African countries, including Nigeria. The most growth is expected to come from the international market as the company builds its reputation.

Kenya's BPO Sector: Policy and Recommendations

Kenya has a large, well-educated English-speaking youth population and a favorable geographical location. There is a growing outsourcing sector and an innovative ICT industry, making it an ideal location for BPO services. The ICT Authority, a government parastatal under the Ministry of Information and Communication, has been actively involved in leading the growth of the information-technology-enabled service (ITES)–BPO sector. Some of the challenges that ITES–BPO companies face—and our recommendations for helping overcome them—include the following:

- **Building of a domestic market** Accessing work from both local and international clients remains a problem for Kenyan firms because of high infrastructure costs. This makes it difficult for Kenya to compete for international clients with other cheaper outsourcing destinations, such as India and the Philippines. On the other hand, local demand for BPO services remains low in the private sector. The Kenyan government should provide support in the acquisition of work from its ministries and county governments by, for example, structuring contracts in a way that allows local firms to compete more effectively, including giving hiring priority to local labor.
- **Insufficiently comprehensive policy, legal, and regulatory framework** There is need for a more comprehensive policy, legal, and regulatory framework to facilitate the ease of doing business and to address issues to do with data protection and intellectual property rights.
- **Lack of established industry standards** The industry association Kenya IT and Outsourcing Society (KITOS) should develop clearer standards and codes of conduct and should liaise with government agencies to ensure that these standards are bolstered by relevant legislation. This would also improve worker protection, a key concern in certain parts of the BPO industry.
- **Insufficiently widespread marketing of BPO services** The government has been considerably successful in marketing the IT sector, but more effort is required to market the BPO sector. An increase in local and international awareness of the BPO sector and services could increase demand for services. The government should continue branding the ITES–BPO sector to increase general awareness and to showcase the opportunities available. It should also actively promote Kenya as a destination for BPO services at international forums and conferences and make efforts to counter the bad press that has arisen from the likes of terrorist incidents and other challenges in the recent past.
- **Lack of a BPO incentives structure to motivate BPO companies** To attract more clients and investors, the government should develop an incentives framework, including, for example, tax incentives, training subsidies, and youth employment incentives.
- **Lack of training in basic BPO skills** Although there are ambitious plans to develop BPO curricula at several universities, simpler skills such as typing and Excel are not emphasized in the current education system. The government and KITOS should establish a basic

certification that would allow new associates to enter their first employment with proof of basic skills.

- **Shortage of verifiable information and statistics on the BPO sector** There are insufficient data on ICT. Industry statistics are needed to establish the size of the sector, key players, GDP contribution, growth rate, services offered, and the number of people employed—so as to monitor the progress being made and inform evidence-based policy decisions.
- **Unreliable infrastructure** Kenya has inconsistent electricity supply and unreliable telecommunication infrastructure despite recent and ongoing substantial investments by both the private and public sectors. For the BPO industry to grow successfully, investment should continue and the relevant regulators should pay particular attention to reliability and uptime, not just to access.

Despite these challenges, Kenya still has great potential to scale up the BPO sector and attract investment as a BPO destination. Government and industry efforts should concentrate on addressing the stated issues of attracting investors, developing a comprehensive policy, legal, and regulatory framework, establishing industry standards, developing an incentives structure to motivate BPO companies, preparing industry statistics on the BPO sector, and providing reliable infrastructure to create a more conducive environment for BPO investment and growth.

These recommendations, if implemented, would greatly strengthen the BPO sector in Kenya. Kenya has a growing BPO industry, but the market remains largely untapped because it is still a comparatively more expensive destination. Although connectivity continues to improve gradually, policy adoption still tends to be slow. Vision 2030 guidelines are directing policy-making and helping to create awareness about the opportunities in impact sourcing. However, there is still room for the national government and counties to do more for Kenya to become the “top BPO destination in Africa.”

References

- Austin, J., Stevenson, H., & Wei-Skillern, J. (2006). Social and commercial entrepreneurship: Same, different, or both? *Entrepreneurship Theory and Practice*, 30, 1–22.

- Dees, J. G. (1998). *The meaning of social entrepreneurship: Draft report for the Kauffman Center for Entrepreneurial Leadership*. Accessed 22 Feb 2016. Available at: <https://entrepreneurship.duke.edu/news-item/the-meaning-of-social-entrepreneurship/>
- Digital Divide Data. (2015a). Vision and mission. Available at: <http://www.digitaldividedata.com/about/ddd-africa>. Accessed 21 Feb 2016.
- Digital Divide Data. (2015b). 2014 Impact report. Available at: http://www.digitaldividedata.com/sites/default/files/case_study/DDD%202014%20Impact%20Report.pdf. Accessed 21 Feb 2016.
- Institute of Economic Affairs (2010). *Kenya youth fact book*. London: Institute of Economic Affairs.
- Kenya Institute for Public Policy Research and Analysis (KIPPRA) (2013). *Kenya economic report 2013*. Nairobi: KIPPRA.
- Kupolokun, O. (2014). *For-profit social entrepreneurship: A study of resources, challenges, and competencies in UK*. Doctoral thesis, Goldsmiths College, University of London, London.
- Noruzi, M. R., Westover, J. H., & Rahimi, G. R. (2010). An exploration of social entrepreneurship in the entrepreneurship era. *Asian Social Science*, 6(6), 3–10.
- Prahalad, C. K., & Hart, S. L. (2002). The fortune at the bottom of the pyramid. *Strategy+Business*, 26(1), 2–14.
- Republic of Kenya (2007). *Vision 2030: A globally competitive and prosperous Kenya*. Nairobi: Government of Kenya.
- The Monitor Group (2011). *Job creation through building the field of impact sourcing*.
- UNFPA (2014). *State of the world population*. New York: United Nations.
- Zahra, S. A., Gedajlovic, E., Neubaum, D., & Shulman, J. (2009). A typology of social entrepreneurs: Motives, search processes and ethical challenges. *Journal of Business Venturing*, 24(5), 519–532.

Conversation #6

How Technology Makes Farming Sexy Again

Su Kahumbu Stephanou of Green Dreams Tech Ltd.



*Social entrepreneur **Su Kahumbu Stephanou** is a passionate organic farmer and the founder and Chief executive officer (CEO) of Green Dreams Ltd. and Green Dreams Tech Ltd. She is a pioneer in the organic industry in Kenya, working with smallholder farmers for more than 15 years. Her goal is to inspire, enable, and support farmers across Africa as they engage in sustainable agro-ecological agriculture in order to alleviate poverty and to contribute both to food security and to a sustainable environment. Through Green Dreams Tech Ltd., she developed the award-winning mobile phone application iCow*

(www.icow.co.ke), winner of the first Apps4Africa Award, winner of the Vision 2030 Innovation Award for Agriculture in Kenya, and finalist in the Innovation Prize for Africa 2012. iCow today serves hundreds of thousands of farmers across Kenya. Su sits on the advisory boards of a number of global and local agricultural initiatives and is a TED Global Fellow.

What is particularly exciting about being an entrepreneur and why do you consider yourself as one?

I believe you cannot make entrepreneurs. They are born this way. It is something in their DNA that creates this particular insatiable drive that is so characteristic of an entrepreneur. True entrepreneurship cannot be forced through education, only honed by it. I think that is one of the reasons why we see high failure rates among businesses and start-ups. Not everyone is born to be an entrepreneur. One key factor that differentiates entrepreneurs from other people is passion. Entrepreneurs will go beyond the call of the business plan and the idea of making money. They will knock their heads against the wall trying to solve a problem, because they have become extremely passionate and obsessive about it, and they will keep on going at it against all odds.

Sometimes I look down my career path and question whether it could have been different. The answer is always the same. No way. No regrets, and no brakes. There is nothing in me that would allow me to stop. I cannot see into the future, but I just know that this is what I am made to do, and that makes me a passionate entrepreneur. I believe in what I do. I am driven by an unseen and uncontrollable force, and I love it. I call this the entrepreneurial spirit. It is captivating and hugely exciting. A lifelong rollercoaster ride.

As an example, I was not educated or trained in agriculture at all, and I do not even think that my core is really about agriculture. I think just like many entrepreneurs: We look at the world through a lens of connecting dots and are able to see many more dots than other people. Entrepreneurs pick up ideas from many different spaces, sectors, and experiences and manage to put them together into something new. Whether I am watching a movie or walking down the road and whether the movie is about science fiction or about wildlife, I am always picking up new ideas that I can bring

back into my context. It is a constant awareness that allows new light bulbs to light up inside you—hugely challenging and hugely satisfying.

My first job was in a bookshop, where I learned early on that I was not an employable person. I found it deathly boring. I realized very early on that I could not be employed and that I like to charter my own course. That I like control and like to be in the driver's seat. Looking back, this determined streak was evident even at 18 when I left school to join a band. This period gave me the creative space to learn how to earn my own living, despite its ups and downs. Coming from a very creative family, I found it easy to start income-generating projects and did everything from making wooden key chains to selling pies and biscuits. I set high standards for myself in everything I did. They had to be the best. All or nothing.

I was always making something and selling something while I was doing music. Later, I married and moved to South Africa with my husband and two children to join my sister-in-law in business. It did not last very long, because I found it impossible follow someone else's instructions while feeling that mine were more creative, constructive, and productive.

You started your entrepreneurial journey with the organic vegetable company Green Dreams before you ventured into technology. Tell us how it all started!

It started with a hydroponic farm visit in South Africa where lettuce for the fast-food industry was grown. In hydroponics, you do not use soil. The system used plastic-lined troughs and small stones as a growing medium. It is a chemical- and pesticide-intensive process aimed at growing high yields in minimum spaces. It really triggered my interest, and I began to imagine its value in our slums in Kenya. I am not quite sure whether I actually came into agriculture with an interest in agriculture or because of the curiosity for something that just seemed so cool and different.

We returned to Kenya and tried to put up demo sites — and failed abysmally because we knew nothing about the real requirements of plants. We were not from an agricultural background at all, so in the beginning, we faced lots of failures. I have learned to think of my failures as “learnings” and, like many entrepreneurs, expect a continual stream

of them going forward. The talent of an entrepreneur is really to fall forward, often. The crops were infested with pests and disease, failing to grow until we got rid of the hydroponics and put them into soil with drip irrigation in my mother's garden. In no time, we ended up with a whole bunch of lettuce that we then had to sell with the added value of being cleaned and packaged. That is how Green Genes started which turned later into Green Dreams. We (my family and I) crafted little labels, stuck them on the bag, washed the lettuce, and bagged it—and they sold like crazy. We continued developing mixed lettuce bags that were popular in South Africa but nowhere to be seen in Kenya. As the demand grew, we started to involve out-grower farmers in the vicinity, and eventually we had our products in the supermarkets, airlines, and hotels.

My role required managing a growing team as well as a growing range of products and customer preferences. After two years and a close call where my mother became quite ill after being exposed to a lethal pesticide, we changed our production system from conventional, using agro pesticides and fertilizers, to organic production, which is better for our producers, customers, soils, and the environment.

You worked intensively with Kenyan farmers. Can you give us an idea on what farming is like in Kenya today?

As my business grew, I started to look at widening my supply chain and increasingly worked with smallholder farmers as out-growers. A tragic instance where my mother got caught downwind with pesticide and became very sick shifted my mindset about safe food production completely away from industrial production to organic farming. Producing safe food—called organic at the time (we call it agro-ecological today)—is, of course, food that you grow without the use of artificial or synthetic pesticides or toxins. It required educating my entire supply chain on how to produce organically.

In Africa, being a farmer is quite different from the heavily subsidized, trained, and incentivized farmer from the West. Here, the majority of farmers are people who just try to eke out a living on their land and sometimes sell some of their produce in the market. Unlike in developed countries, farmers here were not growing only wheat or only maize. Smallholder farmers grow

on average around 5–8 different crops and vegetables, an assortment of root vegetables, brassicas, fruit, and grains as well as keeping up to four different species of livestock—cows, chickens, goats, sheep, and pigs. Production of this diversity requires a lot of knowledge, and in Kenya we do not have an adequate extension system in place that can deliver so much diverse knowledge at scale. The risks in agriculture are high, and farmers cushion their risk through diversification. To reduce their risks further, they need in-depth knowledge on each of the crops and livestock they keep. The problems the farmers were facing became more obvious to me as I trained them on the product requirements for my business. Lack of knowledge was manifesting itself in reduced yields, poor quality crops and livestock, low farmer income, and poorer and older farmers, because young people were not interested in working in such a tough industry. I also began to realize how the problem was much bigger than just in the organic sector, but countrywide. Where 80 percent of the food that comes to market in Kenya is produced by small-holder farmers, it was becoming apparent that the low-yield production from farmers plus the vagaries of climate change would soon be affecting food security for the nation. This began to concern me and at the same time interest me in creating a solution to this humongous problem.

How can small-scale farming be turned into a market opportunity?

To begin with, we need to understand the parameters within which small-scale agriculture exists and the opportunities that are available when we combine it with technology and other factors.

As a nation of tribes, we are connected to our land—where the biggest asset we have is our land. Culturally, we inherit and pass on land to family members. This has resulted in many land subdivisions, with the result that most farmers or landowners own relatively small parcels of land—meaning that a model for increasing food yields and quality in Kenya must take this fact into consideration.

While the biggest employment opportunity in Kenya lies in agriculture, young people are the targeted segment of the population to move agriculture forward. The challenge therefore is to attract young people into agriculture, given the many obstacles—small parcels of land, land ownership issues, lack of access to capital, lack of access to knowledge

(production and processing as well as other opportunities in the various agricultural value chains), and lack of access to markets. Parts of this complex puzzle have been solved in other countries, such as China, where the use of micro mechanization has tackled the problem of small land-parcel sizes. In Kenya, we do however have the advantage of mobile money. When we couple mobile money, a large youth bracket, micro mechanization, millions of landowners, and millions of consumers, we can create exciting hybrid businesses models and industries that create wealth and build the economy. In so doing, we can build food security not only for Kenya, but for Africa.

One model could be contract farming, where young people—through consultancies and businesses—till the land and install drip irrigation for landowners, who then buy the crops for value addition, processing, and marketing. This model is customizable to Kenya and the complexities mentioned above about land and culture, and it is also much more equitable and better for the country and its people as a whole.

The challenge is to make these kind of opportunities appealing to young people by, for example, empowering them with knowledge on the availability of various agri-technologies—such as drip irrigation, shade netting, micro mechanization, and so on— so that they can build, collaborate, and even create businesses with landowners.

There is a more efficient way of farming in Kenya, if we combine our cultural inheritance system with the power of technology. But we have not yet fully figured this out.

What are some examples and success stories of new ways of farming?

There are many ways to make agriculture sexy again. First of all, let us look at what makes it unsexy.

Farming is back-breaking hard work. At the smallholder level, it is mainly manual and is fraught with risks, some manageable and others completely out of one's hands (e.g., the weather). A farmer's life is made even harder because he or she is bound to the farm through weekends and holidays and typically does not have a pension or healthcare or livestock

insurance. Although farmers perform the most important function of any sector in a country—that is, to produce food—in Africa they are typically ignored and left to their own devices. There are no guarantees in farming. The challenge thus is to turn this around to attract the youth to get engaged in the sector.

During the post-election violence of 2007–2008, I was asked to support a group of young people in Kibera who had been thugs but decided to turn a garbage site into an organic farm. In three days, the land went from garbage to soil as the garbage was removed. One hundred days later, the group was feeding their families and selling surplus vegetables to families in the slum. The success was remarkable because the job was not back-breaking. What made it easy was the use of drip irrigation and a planting system that allowed for an easy way to grow a multitude of vegetables and crops while reducing the likelihood of fungus and other diseases. Making these technologies visible to these young people allowed them to see the benefits and opportunities of making a living from agriculture.

Look at one of our customers on iCow, for example. We stumbled across Aaron when we conducted research on farmers using the iCow platform. He initially went to IT school and tried to find a job in Nairobi. He could not get a job and decided to go back home to his rural area. Here his mom was growing broiler chickens, and he came back to join her in production. Once he made his plans clear, she said, “Not unless you do it with iCow!”—an agricultural information service that you subscribe to, to help enhance your productivity. She learned how to do it the right way, and because she experienced it by retrieving information from us, she was in a better position to produce chickens. He followed her advice, and by the time we got to interview him he was already on his ninth yield of chickens—and his vision of opening up the equivalent of a Kenchick or a KFC has unleashed his entrepreneurial spirit. He is a wonderful example of the kind of young person who learns the nitty-gritty details from the ground up and becomes an expert in his field, which then allows him to look for new opportunities to create value. For him, agriculture is sexy, because he has the ability to grow his knowledge and has affordable tools at his fingertips to do so. He is automatically ahead of a farmer who delves into chicken production without knowledge.

I envision the following model for Kenya: Imagine 40 plots, each a quarter of an acre in size, cultivated by elderly people in a rural area. Tough work. Low yields. Now imagine an organized crop-contracting service run by young people, providing these farmers with services to plow their land, install drip irrigation, and market their yields. The young people go a step further and engage in value addition as well as wholesale and retail sales. Meanwhile, payments are organized over mobile money. And retail outlets passionately market “Buy Kenyan, for Kenya,” supported by government policy. It can happen! These kinds of approaches take into account our local customs, our opportunities, and our national needs.

What exactly is the service that iCow is delivering?

iCow is a mobile phone-based agricultural platform that provides farmers with a variety of products that helps them build agricultural knowledge, reduce risks, and connect with their relevant agricultural experts.

When I designed iCow, the target user I had in mind was a smallholder farmer in Kenya. Sustainability of the product was based on a payment model by the farmers. Starting with a payment model from day one enabled us understand and build products that were of value to our users. It is difficult to evaluate a free product.

The information products on iCow are either subscription or pay-as-you-go products. The farmers receive their content to queries and education in SMS format that they pay for. What we are seeing in the field is that farmers archive the SMS content in exercise books for future reference.

One of the tools on iCow is the cow calendar. The farmer can register his pregnant animal and receive SMS messages about the specific point in the gestation of the animal so that he is aware of what he needs to think about next. He needs to feed the animal differently during this period, which is crucial for future health and milk productivity. Currently, the average Kenyan dairy cow produces six liters of milk a day. The exact same breed produces 40 to 60 liters a day in Europe. They are bred for heavy, high-intensity feeding, and in Kenya they are kept in small farms. There is still unmet potential as well as a disconnect between production systems and animal phenotypes.

We also have chicken calendars on iCow that help farmers with chicken breeding for the broiler market. The broiler's lifespan is only about six to seven weeks, so farmers register the day they get their day-old chicks, and we drip feed SMSs with a comprehensive approach to best broiler practices. These include feeding, vaccinations, hygiene, brooder temperatures, and much more.

Another tool is for soils, enabling farmers to learn about the general soils in their area and advising them to have their soils tested while also providing them with contacts for soil testing-service providers. We have uploaded the entire national soils database on the platform, allowing farmers to get loads of information on the particular soil quality in their area and recommendations that allow them to improve their soil quality. Knowing your soil quality or the specific problems of your soil allow you to make the right decisions about fertilizers—whether to use natural or synthetic and in what volume. Our objective is to enhance the knowledge of the farmer so that he can make informed decisions and decisions he can afford.

How did you scale iCow so that it could reach the broad mass of farmers in Kenya?

Initially, I had wanted to keep iCow agnostic across the three mobile-network operators, because I did not want to push the decision as to which network to choose onto the farmers. Later, because of our marketing strategy, we were fortunate enough to form a partnership with Safaricom. In the early phase, we did a lot of prototyping, tweaking, and product development, resulting in a good product that users liked. Our data showed that within three months of being on the iCow platform, farmers were beginning to see an increase in yields of between two and three liters of milk per animal.

Our exclusive agreement with Safaricom gave us access to their marketing machinery and we used a variety of different channels to market iCow. The response was astounding. At one point between 8000 and 14,000 farmers signed up on our platform every day, and eventually our system crashed. Once we hit 182,000 users in our database, we realized that our back end was not up to the task. Messages did not get sent, and our system became unreliable. We had to redesign iCow in its entirety.

During the one and a half year redesign phase, we added some new tools that came from both farmer feedback and my own experiences as a farmer. These were designed to tackle some of the main pain points in farming. In the redesign of iCow, with help from our partners The elea Foundation for Ethics in Globalisation and Accenture Switzerland, we increased our scope to cover multiple languages and territories, as by this time, we had also received many requests from countries in Africa, Asia, South America, and North America that wanted to use various components of iCow.

We have a variety of feedback loops with farmers that make product development demand driven and easier. So right now, 56,000 farmers use our SMS service three times a week. They are from over the entire country and range in age from 82 to early teens. Interestingly, the average age of farmers as reported by the government is 55. Once we started to do our marketing via Safaricom—using SMS—our average age dropped significantly, and according to our latest survey it is 33 years. With Safaricom, we managed to reach out to a whole new customer segment, which is incredible. We now know that farmers can afford a certain amount of SMSs in a week and are also willing to pay for it as long as they realize impact. My next challenge is to see whether we can provide more information in a shorter time span to create impact faster.

Thank you, Su!



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7

From Cyber Café to Smartphone: Kenya's Social Media Lens Zooms In on the Country and Out to the World

Mark Kaigwa

Introduction

End of the Cyber Café's Reign

The cyber café has been described as an intermediary of the digital divide (Bhan 2011). In 2007, basic connectivity through General Packet Radio Service prevailed in Kenya for the nation's ten million mobile subscribers. Third-generation (3G) mobile telephony technology had yet to arrive, and mobile penetration stood at 28.97 % (CA 2009). In that year, two new cellular mobile operators were licensed. Telkom Kenya (now trading as Orange) and Econet Wireless with its brand yuMobile (TeleGeography 2007) got set to take on Safaricom and Celtel. In March of that year, mobile network operator Safaricom launched its mobile money transfer

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service, M-PESA. By the end of the same year, a milestone of one million registered users was reached (Safaricom.co.ke [n.d.](#)). So began a transformative epoch for Kenya's technology history.

In the developed world, one could consider the desktop computer as the gateway to the Internet—and perhaps even consider one's email address as a “passport” to the Internet. In Kenya, these two things were available to those who had access and could afford the cyber café as a physical location with Internet access and desktop personal computers.

Cyber cafés were seen as commercial ventures for entrepreneurial Kenyans (Bhan [2013](#)). Cyber café attendants charged for per-minute use of desktop personal computers. Mobile Internet, though developing, was not as widespread. 3G service only came to Kenya in 2008 (Wanjiku [2008](#)) for Safaricom, 2011 for Orange (TeleGeography [2011](#)), and 2012 for Airtel (Mayton [2012](#)).

Cyber café owners had seen the opportunity of connectivity and built on it. The list of services provided by cyber cafés included printing, lamination, and binding as well as typing—be it learning how or paying an attendee to type one's documents. It was not uncommon to see visitors charged to obtain an email address or open a profile on a social network. Facebook, the global social networking site based in Palo Alto, California, was growing in popularity since its launch in 2004. Cyber cafés began to realize this and had an incentive to help create Facebook accounts and profiles to increase customer frequency and usage in time spent online.

That said, as the hard-wired Internet reached parts of rural Kenya by 2009 (Wyche et al. [2013](#)), so came changes in how urban and rural Kenyans experienced connectivity. However, usage was not equally distributed countrywide. For low-income rural Kenyans, accessing the Internet at a cyber café or on an Internet-enabled mobile phone represented a significant expenditure (Wyche et al. [2013](#)) and Facebook was seen as a luxury.

Email became an important part of the cyber café ritual. Email was reported as the leading activity on the Internet (Ipsos Synovate [2011](#)). The narrative of having an online mailbox to check for emails and using one's email address to sign up to receive communication led to the ascent of cyber cafés. As mobile telephony developed and more affordable devices were launched into the Kenyan market, the cyber café industry

faltered. Cyber cafés, selling mobile broadband modems, would soon put themselves out of business with a key segment of their customer base, the casual or social browser—that is, those chatting on Instant Messaging, Facebooking, exchanging occasional emails, and so on—who seemed to cut down on their cyber visits. They were the largest segment of people going online (Bhan 2013).

Connected Kenya experienced a tectonic shift in the following four years, thanks to the arrival of the fiber optic cables. As slow and steady as the pace of growth was, M-PESA had taken off. Transfers on the mobile money network had reached Ksh. 23 billion by the time the fiber optic cables made landfall in June 2009. Facebook's growth by that time had seen 300,000 Kenyans users join (Lorica and O'Reilly Media 2009). With that, the net effects began to be felt in people's wallets. Speeds were expected to increase and become more reliable, while prices, which had been constant with very little motion in the market, were expected to slowly drop, and then, to continue doing so. As Calestous Juma noted in an interview, "The speed that knowledge currently moves in Africa is 5 mph — walking pace. But with decent connectivity, knowledge will travel at the speed of light" (Rice 2008).

Habits began to transform too. In just the first 12 months after the fiber optic cables made landfall, the Internet-access point of Kenyans started shifting from cyber cafés to mobile phones (Ipsos Synovate 2010)—and the devices themselves were more widely available, with greater capacity to consume and connect to the Internet.

These shifts came about thanks in no small part to transformative devices and device partnerships, such as the historic Huawei IDEOS mobile phone. When Google, Huawei, and Safaricom saw that mobile Internet use had grown 180 % in 2009–2010, they partnered to launch the IDEOS to accelerate this trend (Vota 2010). For Kenya, this was a watershed moment. The Android-powered touchscreen device sold more than 500,000 units (Okwii 2014). It was a true winner.

Priced at Ksh. 8500 (USD100), it came with 600 MB of data and Ksh. 1000 (USD10) worth of talk time. Seven of every ten phones sold in February 2011 were Huawei IDEOS phones. In that quarter, the phone single-handedly had 45 % of market share in the smartphone segment as the most affordable smartphone in the market (Kemibaro 2011). By

August of that year, more than 350,000 units had been sold as the phone went on course to break the half a million mark (Talbot 2012).

The shift taking place was one of space, in a sense, the physical spaces of connectivity were shifting. It was moving from being dominated by the static settings of cyber cafés to an increasingly mobile-driven world that included feature phones, smartphones, broadband modems, and laptop computers.

When it came to where Kenyans were spending their time online, another shift was also taking place. By the beginning of 2012, social networking had replaced email as Kenyans' number one activity on the Web, followed by entertainment, games, and music (Ipsos Synovate 2012).

It was now that online, too, a shift began to take place—that is, the spaces people were using to interact with one another. The key space was no longer the one built by email companies of the 1990s and 2000s, which had email at their core (with online groups driven by email, early social networks such as MySpace, or instant messaging clients such as Yahoo Messenger). On Opera Mini, a leading mobile browser, Facebook now ranked as the Number One most visited website by Kenyan users, solidifying its position and growing popularity (Opera Software 2010).

A prophetic remark from the past was about to come to fruition. Kwame Nkrumah, Ghana's founding president and the father of modern-day Pan-Africanism, famously said, "We face neither East nor West, we face forward." For Kenya and the rest of Africa, at least for the connected class, a virtual manifestation of this was beginning to take place.

At the time, two Chinese technology companies, Huawei and Zhong Xing Telecommunication Equipment (China), were responsible for the telecoms infrastructures in 53 of 54 African countries (Zhongxiang 2011)—underpinning the fact that the East has one way in on the connectivity of Africans. They also manufactured most, if not all, of the devices that have been used to connect to the infrastructure and the Internet. But if you look to where Kenyans have spent their time online, you find that they look "West," spending their time on Facebook, Google, and other websites that have their main headquarters in Silicon Valley.

To better understand social media's growing influence, we need to examine the five years following the arrival of the fiber optic cables and see them in context through the lens of Twitter. Twitter began as a fledgling

social network launched in 2006 at South by Southwest, an American technology and culture conference. The first Kenyan on Twitter, according to Digital Rand, a social media and blog tracking platform, is considered to be @kamuiiri, a system administrator who signed up in March 2007 (Digital Rand 2014). The social network then began in earnest, with a flock of early adopters, including a number of bloggers following suit.

M-PESA's early adopters were “relatively upscale (and banked) male urban dwellers” (Omwansa et al. 2012). Twitter may have been no different. In M-PESA's case, users were transmitting more than Ksh. 100 million (about USD1.5 million) a day to their unbanked relatives all over the country, creating the very first core of M-PESA's users during the pilot phase, in 2007.

Twitter is perhaps best seen through the lenses of its hashtags over the years—each with its own description of a movement catalyzed and accelerated by the microblogging social network. They have ranged from the melodic, the culturally transcendent, the evocative, the terrorizing, the resplendent, and the heartwarming. Each day, dozens of trending topics catch the attention of Kenyans on Twitter, and a number cross from the virtual world into shaping outcomes for Kenyans on Twitter, legitimizing them for the world, for their leaders, and for themselves.

The Backstory of Blogging and Kenya's Content Creators

When it comes to Kenyan content creators, blogs trace back to an informal online community. The Kenya Bloggers Webring (KBW) was launched in 2003 by blogger Daudi Were of mentalacrobatics.com (Monitor 2015). It picked up the feeds of Kenyan authors online through Really Simple Syndication (RSS) feeds to help Kenyans read Kenyans—whether internationally or locally. There were even awards, dubbed the “Kaybees,” given to members of the community and various publishers (Were 2006). As searches became more dominant and Kenyans, whether in the diaspora or at home, made searches for content closer to home, content creators found their audience coming to

them. Searches of Kenyan topics became more likely to yield a variety of Kenyan-populated websites, including Kenya-focused message boards, forums, and even email listservs for those who still considered email their passport to the Internet. The largest Kenyan sites at the time blended the best of community forums and message boards with content sourced to spark conversations. In some ways, they could even be considered social networks (Obura 2009).

A frontrunner and innovator in this space was David Kobia's mashada.com, which was considered to be Kenya's most popular online forum, even being referenced as a news source (BBC 2008). It was a digital home away from home for Kenyans in Europe and the USA, with local connected Kenyans frequenting the discussions. It had such importance that during the 2007–2008 post-election violence, it had to be shut down—and was called “Kenya's first digital casualty”—for the vitriolic and heated ethnic discussions going on around politics in the contested elections, mirroring Kenyan society at the time (Hersman 2008).

With the rise of Facebook, Mashada's star diminished as the almighty juggernaut of the globe took center stage. Though Mashada still had its faithful users, other diaspora-based message boards and websites competed for the attention of the 3.2 million Kenyans in the diaspora and cannibalized its audience.

Of Twitter, it can be said that the Kenyan users of the microblogging social network site were early adopters and bloggers. A steady flow of prominent Kenyan bloggers joined at the time, and many are still identifiable by their original blogging identities and pseudonyms to this day. They were seeking ways to use Twitter to build community outside of the existing comment sections, blogs, and email exchanges. For some, the purpose was to publicize their own content. Globally, it was not uncommon at the time for bloggers to slowly trade their longer forms of writing and communication for the faster-paced world of 140-character tweets.

The years 2007 and 2008 were significant in Kenya's history. As the members of the diaspora tried to keep in touch with those on the ground in Kenya during the country's post-election violence. Twitter was notable as one of the few sources where people sought the perspectives of Kenyans in Kenya. The news media and publishers were self-censoring or not representing the scale of the unrest.

Ory Okolloh, with her digital space at kenyanpundit.com, started with a blog post asking, “Any techies out there willing to do a mashup of where the violence and destruction is occurring using Google Maps?” (Okolloh 2008). Her readers, who were also fellow bloggers with whom she had interacted frequently in the blogosphere, responded. Three days later—thanks to David Kobia, also a blogger at dkfactor.com; Erik Hersman, a blogger at WhiteAfrican.com; and Juliana Rotich, a blogger at Afromusing.com—Ushahidi was born (Goldstein and Rotich 2008).

Each of the founding members met because of their blogs. They had chosen and built their own digital community online and connected beyond borders, thanks to blogging. For Ushahidi, Twitter soon became the platform’s input channel that it mapped across the world from crises to elections and emergencies. Ushahidi went on to make history as the quartet and the organization became a recognizable African technology brand—software for sifting through the complexities of multiple inputs from social networks, individual SMS texts, and other data points, all plotted geographically.

The Rise of Kenyans on Twitter

Looking at Twitter today, it is clear that it operates as Kenya’s virtual “town square” (Kaigwa and Wu 2015). Journalists now consider it to be a part of their beat, staying tuned to trending blogs and other updates. It has become common to see news broken on Twitter by a blogger—whether a hobbyist, informed industry insider, or cyber-roving reporter pouncing on a story—legitimizing it (at times, plagiarizing it outright!) and publishing it in the Kenyan news media. At least once a week, each of the daily and weekly newspapers sources and quotes tweets and other comments from social media.

News bulletins on Kenyan radio and television networks often make specific calls to action, whether the broadcast is in Swahili or English: “Tweet us your views” or “Our hashtag is...” and similar phrases. These are all appended to raise audience participation as announcers, newscasters, and stations promote a call to action. Some brands have even come to expect that social media will be part of their advertising package, and

some Kenyan newspapers consider their social media audience as another channel for their clients' digital advertising.

As of 2016, only five of Africa's 54 countries have their own list of local trending topics on Twitter. For Kenya, this milestone proved to be a notable transition in Kenyan cyberculture. Previously, the focus for Kenyans had been the rest of the world's trending topics. If Kenya got a hashtag trending, it had to be on a global scale. During that time, when Kenyans referred to themselves as "trending," it was inevitably synonymous with worldwide trending, because this was the only way to see the social proof—that is, on Twitter's list of the "Worldwide Trends." However, starting on April 11 (Cheng-Yue 2013), there was now an in-country "micro-mirror" showing the daily, hourly, and minute-by-minute trending topics of Kenyans.

Makmende: Meme, Muse, and Model

In 2010, an eclectic house/funk/disco band consisting of Daniel Muli, Jim Chuchu, Bill Sellanga, and Mbithi Masya learned in their own way how their personal networks could catapult them to becoming one of Africa's first viral Internet sensations originating from Kenya (McKenzie 2010). Known as Just a Band, the group had been releasing a genre-bending collection of electronic, funk, and Afro-pop hits for just over two years. Their next release, which launched in March 2010, would change African cyberspace.

The way that the band would raise awareness and create expectation for their singles was simple. They would ask close friends to change their profile pictures on social networks to an agreed-upon set of photographs prepared by the band. Their second single of their sophomore album "82" would be no different (Justabandwidth 2010). The band shared cryptic status updates to be published by their respective friends promoting "Ha He" proclaiming "Makmende Amerudi" ("Makmende Is Back") featuring images such as those of Makmende, a fictional Kenyan superhero character, from the soon-to-be-released music video on the cover of GQ, TIME, and Esquire magazines. The profile pictures and status updates created awareness and curiosity in the larger "degrees of

separation” of friends of the band and in their social networks. Compared to their previous single, “Usinibore,” of 2009 (Justabandwidth 2009), there was greater expectation. “Ha-He,” with its blaxploitation theme, nostalgic filters, and quirky character references, drew urban Kenyans back to their upbringing in the 1990s and 1980s.

The music video was released in March 2010 and proved a roaring success. The built-up anticipation led not only to viewership on the band’s YouTube channel, but soon to the establishment of Makmende as an Internet cultural icon, a meme, that others felt fully licensed to contribute to. The resonance of the video soon prompted other enterprising Kenyans to co-opt Makmende’s currency as a variety of individuals created “fan art” about Makmende while others created websites such as www.makmende.com, impersonating the brand and likeness of Makmende. There was even a radio station that created a call-in game based on Makmende, all of which the band distanced themselves from, encouraging the trend to go on (BrandKemistry 2010).

Makmende’s seeming invincibility led to a longstanding trending topic on Twitter that catalyzed it all through the hashtag #Makmende, sparked by Kenyans who had watched the video. #Makmende was lit up by the world as a global trending topic, making Twitter’s top ten list for hours. It was viral. Across the world, Twitter users followed and joined in. The jokes about it took on a style perfected in Internet culture when referring to Hollywood martial artist Chuck Norris (Know Your Meme 2012). The recipe was to set up satirical factoids with absurdly exaggerated claims about Makmende’s toughness, invincibility, fighting style, and masculinity. As the world chimed in with its comments, quips, and one-liners, the view count on the video rose and rose.

Kenyans on Twitter began to believe, following all the screenshots that were tweeted on the day, that no matter how few they were, they could not only get the digital ear of the world, but they could rally a global digital community to chip in. The Makmende phenomenon has been cited as an example of a transnational cultural flow originating in the Global South (Jenkins et al. 2013; Zuckerman 2010). The participatory playfulness around Makmende led to a “meme of aspiration” (Ekdale and Tully 2013), a meme through which a certain niche of Kenyans collectively reimagined a hypermasculine hero who could lead the country toward

political and economic stability at home, and cultural and technological dominance abroad. Here, Ekdale and Tully's article (2013) drew from multiple texts about and within the Makmende meme, including videos, artwork, tweets, Facebook posts, blog messages, and news reports.

Makmende even featured in short films about voter registration produced by Just a Band as part of their civic-action creative campaign *Kuweni Serious* (Kiswahili for "Get serious") (Kuweni Serious 2010). From the first few tweets to the front cover of the *Wall Street Journal* online, the campaign made a historic statement in Internet culture.

Makmende also caused what would later be called a Wikipedia war, in which online editors deleted various attempts to create a Makmende page, citing rules such as copyright infringement, vandalism, or incomprehensibility. The phrase "Makmende's so huge, he can't fit in Wikipedia" was coined because the editors disagreed on whether the fictional character deserved a page.

This back-and-forth battle was characterized as one between inclusionists and deletionists (Ford 2011). For the deletionists, Makmende was an imaginary character from a small African country. He did not deserve a Wikipedia page, because, frankly, no one in the English-speaking world would really care about him. Although he was big in Kenya, he was not notable enough to deserve an encyclopedia entry (Zuckerman 2010).

Digital Identity Spurs Drought Intervention

In July 2011, digital marketing executive Ahmed Salim began a personal initiative around an impending drought and famine facing Kenya. The drought was described as the most severe since 1995 (UN OCHA 2011) and was anticipated to be the worst in 60 years (BBC 2011). Salim started with a pair of hashtags, #SacrificeAMealKE and #FeedKE, the latter of which he ultimately proceeded with. He noted that, a day after a plea to his timeline and followers, 58 people came forth to donate a meal to the Kenya Red Cross (Salim 2011a). A week later, he had raised Ksh. 140,880 from 172 people (Salim 2011b).

As the campaign gained momentum, it was adopted by the Red Cross, which later turned it into a national public-private partnership (Kenya

Red Cross 2014). It was then launched into the public domain with a facelift, including a new title—#KenyanforKenya—and corporate partners, including telecommunications company Safaricom and KCB Bank (formerly known as Kenya Commercial Bank). What started as a Twitter hashtag got people to act on their country's behalf and grew into a historic nationwide campaign.

The result was a national conversation that traversed Kenyan society, with endorsements by celebrities and other noteworthy Kenyans and touching montages and songs composed by the country's biggest artists. The giving was done by ordinary Kenyans, including individuals and institutions pledging to solve the crisis with their own local contributions. The campaign raised more than Ksh. 677 million, reaffirming the ability of Kenyans on Twitter to spark changes that touched the nation as a whole.

Snippets in Cyberspace Lead to Songs in Public Space

Also in 2011, spurred by the uprisings in Tunisia and Egypt, civil society groups in Kenya were inspired by conversations among Kenyans on social media, as they discussed what a local response similar to the Arab Spring might look like. From this, #Kenya28Feb movement was born.

The call to action for the hashtag that turned into a movement was based on Kenya's national anthem. The anthem was originally composed as a prayer (Muindi 2015). The anthem is a common denominator for those who grew up singing it, hearing it, and committing it to memory as youth. For Kenyans of all faiths, ethnic backgrounds, interests, and socioeconomic backgrounds, the three verses of the national anthem were seen as a call for unity, not as an outright protest (Kenya 28 Feb 2011).

At 1:00 p.m. East African Time, Kenyans commemorated February 28 on the fourth anniversary of the signing of the National Peace Accord. The Accord had followed Kenya's 2007–2008 post-election violence, when the two principals formed what would become the coalition government (National Accord and Reconciliation Act 2012).

Kenyans of all walks of life tweeted their photos, recorded audios of their singing, and even convinced co-workers, staff, and passersby to pause and sing. The movement was hosted by Inuka Kenya Trust, a grass-roots advocacy group founded in 2009 by journalist and former anti-corruption czar John Githongo. These events went on to last for another year, with an even larger campaign beforehand, featuring recognized Kenyan athletes, media personalities, and others.

Medics Mobilize against Ministry before Masses

In October 2012, Dr. Christine Sagini, a Kenyan doctor and member of the Kenya Medical Practitioners and Dentists Union, recounted how—during negotiations between the union and the Ministry for Medical Services—Minister Peter Anyang Nyong’o had “called medical doctors sulking children, crying for peremende” (Kiswahili for “sweets”) (K24TV 2012). After this exchange and a breakdown in the negotiations, the doctors resolved to strike. “We’ll tell Anyang Nyong’o and the world exactly what kind of peremendes we want,” Dr. Sagini said in an interview with K24, a Kenyan television station. Irene Kimacia, the journalist on assignment, described the movement as “spreading like a bushfire (online), with 3,000 doctors tweeting their experiences to the public” (K24TV 2012).

The title of the campaign was “Thanks for your taxes, here is a sweet” (Peremende Movement 2012a). The name of the movement was a hidden reference to a certain Kenyan supermarket chain that was infamous for claiming to be out of loose change, particularly one-shilling coins, and offering shoppers their change in the form of sweets (Kajilwa 2015). The #PeremendeMovement struck a chord with the public through a well-coordinated attempt by doctors to tweet in sync and through infographics, blog posts, and media appearances chronicling their challenges (Peremende Movement 2012b). The government, according to union Chairman Victor Ng’any, noted that after the protest, there was good will from the government in their negotiations (K24TV 2012).

Kenyans Online Make Their Voices Heard in Electoral Debates

Twitter was gaining in legitimacy as a channel for those willing to try their cases in the court of public opinion, rallying the public to engage and amplify their messages.

The 2013 election stood out because it was the first one in which Kenya had a significant number of social media users. More than 1.8 million of Africa's 50 million Facebook users were in Kenya (Colic 2013), and there were hundreds of thousands of Kenyans on Twitter, all following and interacting with the candidates. The pre-election push ensured that voters were being courted in cyberspace ahead of the ballot.

The presidential debates stood out as an electoral event never seen before. The first of their kind in the country's history, the debates were geared toward putting the candidates before a global audience in cyberspace, with broadcasts on 8 television stations, on 32 radio stations, and on YouTube. The debates generated buzz both before the live event and then during it, with speculations on whether there would be only six main candidates or the full eight running for office. The frontrunners preferred fewer candidates, selected on the basis of polling data, while the media organizers pushed for more candidates, arguably to dilute conflict on-stage (Moss and O'Hare 2014). Anxiety crept in as it took a last-minute court decision to ensure that media organizers included fringe candidates lawyer Paul Muite and teacher Mohammed Dida. This court intervention further illustrated how contested and coveted the debate platform was, offering—especially for the minor candidates—free and unparalleled publicity.

When asked if the presidential debates made a difference, Kenyan political analyst Kwendo Opanga remarked to the BBC that they had offered smaller parties a chance to shine in the eyes of the public (Okwembah 2013).

Al-Shabaab versus the Administration: Twitter Amplifies Terror during Westgate Attack

Later that year, the Westgate Mall attack would change the face of Kenyan history. At noon on Saturday, September 21, 2013, an agonizing attack began. Four gunmen associated with Al-Shabaab laid siege on the upscale

Nairobi mall. However, their real-world actions had ramifications both in cyberspace and in real spaces, leaving 67 dead, 175 injured, and a nation in mourning.

The attack proved a watershed moment on social media. On one side were the aggressors, the four Al-Shabaab gunmen inside the mall. Authorities, first responders, and journalists descended on the scene but stood clear, with various security personnel going in. The public was put in a position not seen previously in terrorist attacks, watching through their phones and television screens as individuals trapped inside the mall sent updates into cyberspace. Some of these were pleas for help; others were messages to family or warnings to all who would see them.

Al-Shabaab, the terrorist group that claimed responsibility, was also online. The group had, as was common at the time, a pair of Twitter accounts, @HSMPress_ and @HSM_Press. From these accounts, members live-tweeted the siege and struck a chord of palpable fear. The exchanges in cyberspace involved the office of the President, the Ministry of Interior and Coordination of National Government, Al-Shabaab, various journalists, and Kenyans on Twitter on, and away from, the scene.

At 1:28 p.m. Kenyan time on September 22, the Kenyan military's official Twitter account announced that most of those trapped inside had been rescued and that "most parts" of the mall complex were under control (Anzalone 2013). The claim that the attack was nearly over was disproved in the early morning of September 23, when an explosion rocked the Westlands district of Nairobi (where the Westgate Mall is located). Larger explosions followed in the early afternoon. The siege would not be over for another day. Twitter and members of the public were served through blogger Robert Alai's timeline, as he found, verified, and tweeted updates on Westgate—even tweeting against the Kenya Defense Forces Twitter account when he deemed it necessary (Alai 2013). Alai was praised by fellow Kenyans on Twitter and recognized by the press for his work during Westgate, apart from his divisive day-to-day persona as a blogger and critic (Stieber 2013).

Private Developers Meet Match Thanks to Pupils, Protestors, and Pope

Coming back from their Christmas holidays, students at Langata Road Primary School found an unusual fixture at their school. Their playground was no longer theirs. Fenced off with a stone wall and a green metal gate, it had been claimed by a private developer. Photojournalist and activist Boniface Mwangi, writing in a Facebook invitation to what he called the #OccupyPlayground protest, called the developers “professional land grabbers acting on behalf of a very senior politician in the Jubilee government” (Mwangi 2015). The protest event, slated for January 19, 2015, was organized to donate sports equipment, according to the invitation, which received approximately 958 RSVPs from those who said they would attend.

On the day, clad in their green uniforms, students as young as 6 and as old as 14 joined Boniface and others protesting the land grab. In the group of attendees, placards with messages, such as “Uhuru government is protecting land grabbers,” could be seen. Even Member of Parliament Kenneth Okoth was in attendance, along with police in full riot gear, in case the situation escalated. What started as a chanting of slogans by the students and protestors developed into an animated shaking open of the developer’s gate and pushing down parts of the walls amidst loud cries and cheers.

The scene was volatile, and as protestors clashed with police, the police reacted by shooting tear-gas canisters into the crowd, sending the children scrambling. The scenes that followed were hard to watch—with children screaming, choking, and being rushed away amidst the clouds of smoke.

Skeptics judged the protestors, expressing cynicism for their use of the children, while opposition politicians tweeted shame on the government. It took an apology and a visit from the Minister for Interior and Coordination of National Government Major General (Ret.) Joseph Ole Nkaissery (Honan 2015). The political pressure that followed led to the naming of the private developers by Lands Cabinet Secretary Charity Ngilu (Waruinge 2015). The Pope in his visit to Kenya in November 2015 held a session with slum dwellers. He singled out land grabbing,

specifically admonishing faceless “private developers who even grab playgrounds” and repeating the phrase “private developer,” which had been used extensively on Twitter and in the media (Simiyu 2015).

#SomeoneTell the World: Kenyans on Twitter Make Their Mark

However, when it comes to hashtags that engage the rest of the continent, nothing has quite had the longevity of the #SomeoneTell hashtag. This hashtag is many things, most often a rallying cry for the country to put away digital divisions, cultural contrasts, and differing opinions—a call to arms that has Kenyans ready with their data bundles, Wi-Fi hotspots, keyboards, and keypads prepared to take digital aim at the latest target.

The first major instance of the hashtag’s use was that of #SomeoneTellCNN, in March 2012. On March 5 of that year, #Kony2012, an online campaign and viral advocacy video by the American nonprofit advocacy group Invisible Children, was launched. The campaign urged the American public to use social media to put pressure on US leaders and celebrities in a bid to make guerilla group leader Joseph Kony “famous” (Invisible Children 2012). Described as the fastest-growing viral video of all time, the film reached 100 million views in 6 days, and 3.7 million people pledged support (Invisible Children 2012). The response was a tidal wave of headlines, attention, and spotlights shown onto Uganda from the USA and the West. This was not without Africans online voicing their opinions, many of them finding #Kony2012 factually inaccurate, an oversimplification of a complex conflict, with a call to action that removed agency from those actually on the scene and on the ground in Gulu, Northern Uganda. There were also cries that the campaign was fraught with a “white savior complex,” speaking to a Western predisposition to see and accentuate stereotypes about the continent’s narratives of helplessness in the absence of interventions from foreign (i.e., Western) partners. Nigerian author Teju Cole famously wrote about Kony 2012, criticizing the backers’ culture for supporting brutal policies in the morning, founding charities in the afternoon, and receiving awards in the evening (Cole 2012).

Members of the African diaspora and significant numbers of local Africans decried the campaign (Jardin 2012), aiming not to let America and the world buy into its one-sided rhetoric. Outspoken Ugandan diaspora member TMS Ruge wrote an opinion piece in the *New York Times* to challenge the claims that Kony 2012 was a revolution (Ruge 2012).

#SomeoneTellCNN: Where It All Began

Even without the headlines and exchanges of #Kony2012 having ceased, Uganda's neighbor, Kenya would have a case of its own to answer on the world stage. On March 11, 2012, CNN's East Africa correspondent David McKenzie filed a story about a grenade attack at a bus terminal in Nairobi that killed six people and injured more than 60 (BBC 2012). When the story went on air on the CNN International channel, anchor Jonathan Mann stood in front of an animated Kenyan flag emblazoned with the headline "Violence in Kenya." The flag and coverage of the story were interpreted as a skewed misrepresentation of the facts, because Kenyans were the victims of terror, not the perpetrators of it. And so, #SomeoneTellCNN was born (Wamathai 2013).

The narrative behind CNN's coverage harkened back to various depictions of Kenya strung across international media during the 2007–2008 post-election violence. The same Kenyans who were connecting in cyber cafés at their leisure in years past were faced with experiencing or viewing on their TV screens as the world watched Kenya in chaos. A local media ban muzzled the Kenyan press from reporting on the post-election violence as it occurred but international media covered it extensively. Meanwhile, hateful SMSes were exchanged through mobile networks among Kenyans, thanks to mobile telephony (Goldstein and Rotich 2008). The country sank into a dark part of its history.

Kenyans tweeted the broadcaster and the journalist, thereby creating another global trending topic. #SomeoneTellCNN was profane, profound, and piercing. Armed with satire, humor, facts, examples, and occasional insults, Twitter users made the case—globally—that the news report was a mistake and that their country deserved an apology. They got it. David McKenzie, the journalist who filed the story, was the first to

apologize to Kenyans on Twitter, with a tweet acknowledging the inaccuracy of the reporting (McKenzie 2012).

For Africans who participated and joined Kenyans in calling on CNN for an apology, perhaps it was also fueled by the concurrent #Kony2012 campaign discussions that disgruntled both local Africans and the diaspora. A place to vent frustration in the transient ebb and flow of Twitter trends, buoyed by the energy and agency of the young, connected continent on display for the world to see. #SomeoneTell was on its way to becoming a hallmark of Kenyans on Twitter.

#SomeoneTellAfrica: Kenyans in Continental Combat

Kenya began to use the #SomeoneTell hashtag to combat other digital denizens in African countries. The list is lengthy. Kenyans, if asked, perceive that they have a 100 % record of defeating foes large and small. These “cyber-wars” are often born out of news stories that broke on traditional media or in online publication. In the case of #SomeoneTellUganda, an article insinuated that Kenya’s President-elect Uhuru Kenyatta was actually a Ugandan. The story even carried a congratulatory message from the King of Bunyoro, Solomon Gafabusa Iguru, to his “cousin” Uhuru after he was confirmed as president. A newspaper carried pictures of relatives who looked like Kenyatta and even ran a follow-up story on how Jomo Kenyatta might have been Omukama Kabarega’s son. Kenyans were livid and tweeted insults and memes, launching whatever they could to attack Ugandans on Twitter (Wambui 2013).

Another example is Botswanan Foreign Affairs and International Cooperation Minister Phandu Skelemani, who warned the President-elect not to set foot in Botswana should he refuse to cooperate with the International Criminal Court (Wambui 2013). Kenyans on Twitter (known as KOT) took this hard and started the hashtag #SomeoneTellBotswana to defend their president and country. The uproar forced Skelemani to retract his statement and state that Kenya and Botswana would continue having a good relationship (BBC 2013).

#SomeoneTellZimbabwe serves as a cautionary tale about the maturity of the hashtag. A Kenyan website with a quote from Zimbabwean

President Robert Mugabe describing Kenyans as thieves touched a nerve of Kenyans (Spectator 2015). The resulting hashtag war with Zimbabweans began, only for Kenyans to realize that the article had been on a satirical website—something that had been clear all along to Zimbabweans on Twitter (known as Twimbos) (African Exponent 2016). A *New York Times* article by East Africa bureau chief Jeffrey Gettleman used the Mugabe quote in a damning article about corruption in Kenya's society—and a retraction was later issued when it emerged that even he had been duped (Gettleman 2015).

The hashtag was also used to send a message to the highest offices in the land; #SomeoneTellUhuru and #SomeoneTellKagame, for example, aimed to speak clearly to the heads of state in Kenya and Rwanda, respectively. American televangelists have been particularly notorious in some of their inaccurate statements, caught on video, about Kenya and have issued apologies and messages of reconciliation after encountering thousands of tweets correcting them (e.g., #SomeoneTellTDJakes and #SomeoneTellPatRobertson).

#SomeoneTellCNN: Election-Fever Brings CNN

In 2014, CNN's new East Africa correspondent Nima Elbagir filed her story "Armed and Ready to Vote" (Elbagir 2014), featuring a would-be militia group training and ready to defend themselves with what Elbagir described as "guns fashioned from iron piping, homemade swords, and bullets bought from the black market." She and the television network would draw the wrath of Kenyans on Twitter, Africans, and others worldwide.

Speaking with the chalk-faced leader of these militiamen rolling around doing somersaults on the ground and "ready for war," Elbagir thought she had found her big scoop and big break. Her prediction: Violence in Kenya's election. This was the second strike for CNN, and they were pronounced guilty once again. #SomeoneTellCNN was back and just as vicious as before. A storm of tweets arose, aimed at the broadcaster and the journalist in question. The difference, this time, was that a new precedent was about to be set—offline. Dr. Bitange Ndemo, Permanent

Secretary in the Ministry for Information and Communications at the time, relayed news from a National Security Committee meeting that morning with intelligence chiefs. He called CNN's coverage "stage-managed"—a claim that CNN would later refute in its written apology. Ndemo said that CNN had planted the story in its international news and that the Kenyan government would protest vociferously, viewing it as irresponsibility of the highest order in a world news organization. He promised to write to CNN's world news headquarters to protest the piece, calling it propaganda that was causing chaos and expressing hope that CNN would retract it (Kenya Citizen TV 2013). This was the first time that the government had weighed in on a matter of national security inspired by and stoked on Twitter.

#SomeoneTellCNN: Presidents Set New Precedent against Media

The year 2015 saw the third and possibly final "strike" for CNN—set on the largest stage so far. US President Barack Obama was set to grace the Global Entrepreneurship Summit, taking place in Kenya—and Kenya was preparing to welcome back its "son of the soil."

CNN America began its reportage with a Web story and initial tweet with the words "President Barack Obama is not just heading to his father's homeland, but to a hotbed of terror" (CNN 2015). This remark was followed with CNN's television broadcast and picked up by Kenyan observers in the diaspora and online. The phrase "hotbed of terror" was contested, even as it first appeared in numerous angles of coverage from CNN. It was repeated and appeared in text and in speech several times by various pundits and news anchors on the network. The live feed of the broadcast could not be watched in Kenya, but the screenshot sailed back and landed on the timelines of connected Kenyans, begging for a response. The onslaught of tweets made the global broadcaster modify the headline and opening of its story (Mullin 2015) away from "terror hotbed" to "father's homeland" (Hopkins 2015).

While there is no denying that there was some truth to the phrase, the description and outright characterization of the country as a resembling

other global terror hotspots was a stretch (Mutiga 2015). Kenya had suffered a string of atrocities by the Somalia-based terror group Al-Shabaab, but most of Kenya did not resemble the parts of the world where terror attacks are commonplace, and the phrase was hence interpreted as reducing all the complexities of Kenya into a single narrative.

As the hashtag #SomeoneTellCNN was reactivated once again, it was filled, this time around, with imagery and memes showing the country's diversity, beauty, landscapes, and urban life as Kenyans sought to counter the narrative with positive storytelling and captivating imagery. Kenyans on Twitter also got smarter with humor, satire, and quips making their case against CNN and its gaffe by ridiculing the broadcaster. The state of America was put under scrutiny, too, as the contradictions of US life were highlighted, including issues such as gun violence.

Kenyan media owner and industrialist Chris Kirubi proved to be one of the most popular commentators early on. Challenging CNN, he praised the country's local investment opportunities, some of which he was going to be showcasing during the Global Entrepreneurship Summit. His key tweet was among the first to go viral: "Unless you are the one bringing the terror, we are a hotbed of investment opportunities & great people" (Kirubi 2015).

The word "hotbed" made its way famously across cyberspace. Kenyans on Twitter rallied to show, through tweets, pictures, and videos, that their city was safe and the country had more to it than a headline. It also became a topic during the summit as "hotbed" was mentioned in two speeches from two different heads of state. President Uhuru Kenyatta, when opening the Global Entrepreneurship Summit, said that Kenya was a "hotbed of vibrant culture, natural beauty, and infinite possibility" to the audience's applause (Kenyatta 2015). The Global Entrepreneurship Summit's opening plenary session saw each keynote speaker react to the CNN headline. President Obama, President Kenyatta, and Julie Gichuru, the master of ceremonies, took turns at rewriting the headline, with President Obama adding that Kenya is a hotbed of innovation. Kenya was also referred to as a hotbed of entrepreneurship and of investment opportunity (Clarke 2016)—colossal endorsements that flew in the face of the original media story and implicitly sent a nod to Kenyans on Twitter.

The government chose to issue a response as well. The highest-ranking intelligence officer in the government, Major General (Ret.) Joseph Nkaissery, the Cabinet Secretary for the Ministry of Interior and Coordination of National Government, spoke on the issue. At a press conference where he spoke in Kiswahili, he called the coverage “lies,” describing the network’s message as “propaganda” and ending by inviting an apology from CNN (Capital FM Kenya 2015). He would later be quoted as having termed CNN’s actions a sustained campaign to portray Kenya in a bad light and its reportage as demonstrating irresponsibility and smacking of arrogance (Angira 2015). By then, it was not just the thousands of tweets that CNN would have to answer, but to the government of Kenya itself. As part of the fallout, a USD1 million advertising contract between Kenya and CNN was suspended (Murumba 2015a). The Kenya Tourism Board also said it was reacting to “misrepresentation of the country’s status” (Murumba 2015b).

After the Global Entrepreneurship Summit, CNN sent one of its highest-ranking officers, Tony Maddox, to Kenya. The executive vice president and managing director for CNN International paid a personal visit to President Uhuru Kenyatta to deliver the network’s apology in person. He said, “There is a world at a war with extremists; we know what a hotbed of terror looks like, and Kenya isn’t one.” He expressed regret and talked down any notion of the story as had been created in bad faith (Mutiga 2015). President Kenyatta, as part of his statement on their meeting, mentioned his disappointment and explained to Mr. Maddox why “Kenyans, as expressed by those on Twitter, were so angry” (Mutiga 2015).

Conclusion

Twitter remains for us a lens to view connected Kenyans as a whole. The nation’s sense of belief in the power of technology to bring about change, shift dialogue, and present a narrative now plays out both on a smaller stage for local trending topics and sometimes on the larger stage of the world as a whole.

Each day, as Kenyans wake up, they receive the mainstream media with its headlines and news. They also have Twitter’s list of local trending

topics—an algorithmically generated service that takes popular and emerging trends and showcases them. While Kenya may no longer trend globally as much because of this, there is now a local lens to study the habits of connected Kenyans at a far more granular level.

As became clear while researching and creating the A–Z of Kenyan Twitter website, a need remains for exploring and understanding the depth and breadth of Pan-African digital society and culture (Kaigwa and Nendo 2014). The pace of which African nations with local trending topics such as Kenya, South Africa, Nigeria, Ghana, Algeria, and Egypt continue to create cyberculture invites examination. The role of the mobile phone has ensured a place for Twitter in Kenyan hearts, minds, and headlines (Nzomo 2014), but the journey is far from over. What new paradigms will arise with the African uptake of new social media platforms? What is to be said of a world where social media “self destructs” akin to image-based messaging app and social network Snapchat? Digital dictionaries such as A–Z of Kenyan Twitter can be considered as emerging media formats to guide locals and internationals to provide greater African context and perhaps even lead to greater global understanding.

What of a world where visual social media dominates the globe and challenges stereotypes? In 2015, the Twitter hashtag #TheAfricaTheMediaNeverShowsYou brought forward the work of Instagram users, both professional photographers and hobbyists, with pictures of African capital cityscapes and vignettes of life on the continent that challenged Western media and global stereotypes of disaster and catastrophe (Banning-Lover, 2015). Will we see less of these as Africans evolve with the social media and mobile times?

WhatsApp, the instant-messaging application, which is owned by Facebook, can be considered to be the future of social networking, having been built entirely around the mobile phone, contacts, and minimal data usage. WhatsApp can take the place of Kenya’s largest social network—despite its appearance as an instant messaging application. This shift from its perception and packaging as an instant messaging mobile app to an informal social network was predicted as a key trend for Kenya’s social media evolution (Kaigwa et al. 2014). The app will take on a greater role as a pseudo social network made up of groups and potentially businesses in 2016 and beyond (WhatsApp Inc. 2016). More mindful work,

targeted at a profound understanding of Africa's cyberculture, is needed to answer these and many more questions that will allow us to better feel the pulse of contemporary society.

And thus has the paradigm fully shifted from cyber cafés to mobile phones and, from there, to the niche network Twitter, which presently remains a leading public platform in Kenya's digital economy. While the platform faces a tough time in determining its future in the USA (Constine 2016), its prospects in Kenya—and Kenya's belief in it—remain bright, even though it has no guarantee on its position.

References

- African Exponent. (2016). #KenyaVsZimbabwe: Kenya's cyber-bullying tactic and misguided Twitter tirade. <https://www.africanexponent.com/post/kenyas-cyberbullying-tactic-and-misguided-twitter-tirade-1082>. Accessed 17 Mar 2016.
- Alai, R. (2013). *Interior ministry not helping with wrong info. Building is on fire on LIVE TV while you claim it has been put out. #WestgateAttack*. Twitter. <https://twitter.com/RobertAlai/statuses/382190027398062081>. Accessed 10 Mar 2016.
- Angira, Z. (2015). Kenya protests at CNN broadcast. <http://www.nation.co.ke/news/Joseph-Nkaiisery-CNN-of-smear-campaign-against-Kenya/-/1056/2804434/-/3cwtme/-/index.html>. Accessed 17 Mar 2016.
- Anzalone, C. (2013). The Nairobi attack and Al-Shabab's media strategy. *CTC Sentinel*, 6(10). <https://www.ciaonet.org/attachments/23804/uploads>. Accessed 17 Mar 2016.
- Banning-Lover, R. (2015). *The Africa the media never shows you – in pictures*. <http://www.theguardian.com/global-development-professionals-network/2015/jun/30/the-africa-the-media-never-shows-you-in-pictures>. Accessed 31 Mar 2016.
- BBC. (2008). *Battle of the blogs in Kenya*. <http://news.bbc.co.uk/2/hi/africa/7189291.stm>. Accessed 9 Mar 2016.
- BBC. (2011). *Horn of Africa tested by severe drought*. <http://www.bbc.com/news/world-africa-14023160>. Accessed 15 Mar 2016.
- BBC. (2012). *Kenya blames al-shabab for deadly Nairobi grenade attack*. <http://www.bbc.com/news/world-africa-17326086>. Accessed 12 Mar 2016.
- BBC. (2013). *Botswana apologises to Kenya over Kenyatta ICC warning*. <http://www.bbc.com/news/world-africa-21784867>. Accessed 13 Mar 2016.

- Bhan, N. (2011). *The role of the cyber cafe*. Nitibhan.com. <http://nitibhan.com/2011/10/31/the-role-of-the-cyber-cafe/>. Accessed 15 Mar 2016.
- Bhan, N. (2013). *Impact of mainstreaming and commodification of cyber cafe services*. Nitibhan.com. <http://nitibhan.com/2013/05/04/impact-of-mainstreaming-and-commodification-of-cyber-cafe-services/>. Accessed 16 Mar 2016.
- Brandkemistry. (2010). *Official statement from just a band about Makmende*. <https://brandkemistry.wordpress.com/2010/03/30/official-statement-from-just-a-band-about-makmende/>. Accessed 17 Mar 2016.
- Capital FM Kenya. (2015). *Apologise in the interest of civility, Kenya tells CNN*. Capital FM Kenya Youtube Channel. <https://www.youtube.com/watch?v=xbUbdjx-o4A>. Accessed 17 Mar 2016.
- Cheng-Yue, R. (2013). *Trends in 160+ locations | Twitter blogs*. Twitter Blog. <https://blog.twitter.com/2013/trends-in-160-locations>. Accessed 1 Mar 2016.
- Communications Authority of Kenya (CA). (2009). *Communications statistics report second quarter 2008/09*. <http://ca.go.ke/images/downloads/STATISTICS/Sector%20Statistics%20Report%20Q2%202008.pdf>. Accessed 2 Mar 2016.
- Constine, J. (2016, February 10). *Twitter's monthly user count actually shrunk if you exclude SMS*. Techcrunch. <http://techcrunch.com/2016/02/10/twitter-is-shrinking/>. Accessed 17 Mar 2016.
- CNN. (2015). *President @BarackObama isn't just heading to his father's homeland, but to a hotbed of terror*. [Http://t.co/OkTE671wfe](http://t.co/OkTE671wfe). Twitter. <https://twitter.com/CNN/status/624006935218647040>. Accessed 12 Mar 2016.
- Clarke, T. (2016). *Kenya: It's a hotbed of what?* Africa.com. <http://www.africa.com/kenya-its-a-hotbed-of-what/>. Accessed 14 Mar 2016.
- Cole, T. (2012). *2- the white savior supports brutal policies in the morning, founds charities in the afternoon, and receives awards in the evening*. Twitter. https://twitter.com/tejucole/status/177809558608150529?ref_src=twsrc%5Etfw. Accessed 17 Mar 2016.
- Colic, I. (2013). *Afrographique (an overview of the latest user numbers in the...)*. Afrographique. <http://afrographique.tumblr.com/post/46417790373/an-overview-of-the-latest-user-numbers-in-the>. Accessed 26 Feb 2016.
- Digital Rand. (2014). *State of social media in Kenya*. <http://digitalrand.com/resources/reports/A002.pdf>. Accessed 2 Mar 2016.
- Ekdale, B., & Tully, M. (2013). *Makmende Amerudi: Kenya's collective reimagining as a meme of aspiration*. *Critical Studies in Media Communication*, 31(4), 283–298. doi:10.1080/15295036.2013.858823.

- Elbagir, N. (2014). *Armed as Kenyan vote nears*. CNN. <http://edition.cnn.com/videos/#/video/international/2013/02/28/elbagir-kenya-armed.cnn?iref=all-search>. Accessed 16 Mar 2016.
- Ford, H. (2011). *This missing wikipedians*. Networkcultures.org. http://www.networkcultures.org/_uploads/%237reader_Wikipedia.pdf. Accessed 17 Mar 2016.
- Gettleman, J. (2015). An anticorruption plea in Kenya: 'Please, just steal a Little'. *New York Times*.: http://www.nytimes.com/2015/11/05/world/africa/kenya-government-corruption.html?_r=0. Accessed: 15 Feb 2016.
- Goldstein, J., & Rotich, J. (2008). Digitally networked technology in Kenya's 2007–2008 post-election crisis. *Berkman Center Research Publication*, 2008–9.
- Hersman, E. (2008). *Mashada forums: Kenyas first digital casualty*. WhiteAfrican. <http://whiteafrican.com/2008/01/29/mashada-forums-kenyas-first-digital-casualty/>. Accessed 15 Mar 2016.
- Honan, E. (2015). *Kenyan officials condemn use of tear gas at children's protest*. Reuters. <http://www.reuters.com/article/us-kenya-police-playground-idUSKBN0KT1U020150120>. Accessed 17 Mar 2016.
- Hopkins, C. (2015). *Kenyans launch hashtag campaign after CNN calls their country a 'terror hotbed'*. Dailydot. <http://www.dailydot.com/politics/cnn-kenya-terrorism-twitter-hashtag/>. Accessed 17 Mar 2016.
- Invisible Children. (2012). *KONY 2012*. Invisible Children Youtube Channel. <https://www.youtube.com/watch?v=Y4MnpzG5Sqc>. Accessed 13 Mar 2016.
- Ipsos Synovate. (2010). *Kenya Audience Research Foundation Establishment Survey, Q4*.
- Ipsos Synovate. (2011). *Kenya Audience Research Foundation Establishment Survey, Q1*.
- Ipsos Synovate. (2012). *Kenya Audience Research Foundation Establishment Survey, Q1*.
- Jardin, X. (2012). *African voices respond to hyper-popular Kony 2012 viral campaign*. BoingBoing. <http://boingboing.net/2012/03/08/african-voices-respond-to-hype.html>. Accessed 5 Mar 2016.
- Jenkins, H., Ford, S., & Green, J. (2013). *Spreadable media: Creating value and meaning in a networked culture*. New York: New York University Press.
- Justabandwidth. (2009). *Just a band – Usinibore*. Justabandwidth Youtube Channel. <https://www.youtube.com/watch?v=43XrFVp-fXY>. Accessed 8 Mar 2016.
- Justabandwidth. (2010). *Just A band – Ha-He*. Justabandwidth Youtube Channel. https://www.youtube.com/watch?v=_mG1vleETHc. Accessed 17 Mar 2016.

- K24TV. (2012). *Peremende movement: Give us the 'sweets'*. K24TV Youtube Channel. <https://www.youtube.com/watch?v=9VPpfYN72zU>. Accessed 17 Mar 2016.
- Kaigwa, M., Madung, O., & Bajaber, S. (2014). *The 2014 Nendo social media trend report*. Nendo.co.ke. <http://report.nendo.co.ke>. Accessed 20 Feb 2016.
- Kaigwa, M., & Nendo. (2014). *The A to Z of Kenyan Twitter*. Nendo.co.ke. <http://atoztwitter.nendo.co.ke>. Accessed 17 Mar 2016.
- Kaigwa, M., & Wu, Y.-S. (2015). #MadeInAfrica: How China-Africa relations take on new meaning thanks to digital communication. In A. Gadzala (Ed.), *Africa and China: How Africans and their governments are shaping relations with China* (1st ed., pp. 149–170). Lanham: Rowman & Littlefield Publishers.
- Kajilwa, G. (2015). *Central Bank of Kenya warns supermarkets against offering sweets for change*. Standard Media. <http://www.standardmedia.co.ke/business/article/2000178395/central-bank-of-kenya-warns-supermarkets-against-offering-sweets-for-change>. Accessed 17 Mar 2016.
- Kemibaro, M. (2011). *The Huawei IDEOS sells over 60, 000 units in Kenya*. Moses Kemibaro. <http://www.moseskemibaro.com/2011/05/17/the-huawei-ideos-sells-over-60000-units-in-kenya/>. Accessed 23 Feb 2016.
- Kenya 28 Feb. (2011). *Why 28 Feb?* Kenya28Feb. <http://28feb.co.ke/whats-the-plan/why-february-28th/>. Accessed 17 Mar 2016.
- Kenya Citizen TV. (2013). *Bitange Ndemo's reaction to CNN video*. Kenya Citizen TV Youtube Channel. https://www.youtube.com/watch?v=ugW1L_0w3z4. Accessed 17 Mar 2016.
- Kenya Red Cross. (2014). *Kenyans 4 Kenya archive*. Kenya Red Cross. <http://www.kenyaredcross.org/index.php/kenyans-for-kenya>. Accessed 8 Mar 2016.
- Kenyatta, U. (2015). Speech by H.E. Uhuru Kenyatta during the opening of the Global Entrepreneurship Summit. Scribd. <http://www.scribd.com/doc/272541000/Speech-By-H-E-Uhuru-Kenyatta-During-the-Opening-of-the-Global-Entrepreneurship-Summit>. Accessed 19 Mar 2016.
- Kirubi, C. (2015). *Unless you are the one bringing the terror, we are a hotbed of investment opportunities & great people #SomeoneTellCNN*. Twitter. <https://twitter.com/CKirubi/status/624137472822411264>. Accessed 25 Feb 2016.
- Know Your Meme. (2012). *Makmende*. <http://knowyourmeme.com/memes/makmende>. Accessed 17 Mar 2016.
- Kuweni Serious. (2010). *Save yourself. Vote. (frustrated hawker)*. Kuweni Serious on Youtube Youtube Channel. <https://www.youtube.com/watch?v=DbSc1UvGs6s>. Accessed 17 Mar 2016.

- Lorica, B., & O'Reilly Media. (2009, June 17). *Active Facebook users by country & region*. Slideshare. http://www.slideshare.net/oreillymedia/active-facebook-users-by-country-region-june-2007/10-South_America_Active_Users_By. Accessed 17 Mar 2016.
- Mayton, J. (2012). *IT news Africa- Africa's technology news leader*. ITNews Africa. <http://www.itnewsafrica.com/2012/02/airtel-kenya-launches-3g-network/> Accessed 16 Mar 2016.
- McKenzie, D. (2010). *Video news*. CNN. <http://cnn.com/video/?/video/world/2010/03/31/mckenzie.kenya.viral.sensation.cnn>. Accessed 8 Mar 2016.
- McKenzie, D. (2012). *Our reporting on last night was accurate, the banner used in bulletin was not. I contacted CNN for future bulletins. Apologies to all*. Twitter. <https://twitter.com/McKenzieCNN/status/178794841663217664>. Accessed 7 Mar 2016.
- Monitor. (2015). *The state of blogging and social media*. <http://www.monitor.co.ke/wp-content/uploads/2015/06/The-State-of-Blogging-and-Social-Media-in-Kenya-2015-report.pdf>. Accessed 16 Mar 2016.
- Moss, N., & O'Hare, A. (2014). Staging democracy: Kenya's televised presidential debates. *Journal of Eastern African Studies*, 8(1), 78–92. doi:10.1080/17531055.2013.869929.
- Muindi, B. (2015). *How Kenya's national anthem was composed and the men behind it*. Tuko. <https://tuko.co.ke/64646-how-kenyas-national-anthem-was-composed-and-the-men-behind-it.html>. Accessed 31 Mar 2016.
- Mullin, B. (2015). *CNN calls Kenya "hotbed of terror," sparks #SomeoneTellCNN*. Poynter. <http://www.poynter.org/2015/cnn-calls-kenya-hotbed-of-terror-sparks-someonetellcnn/360133/>. Accessed 20 Mar 2016.
- Murumba, S. (2015a). *Kenya promotion deal with CNN still suspended despite apology*. Business Daily Africa. <http://www.businessdailyafrica.com/Corporate-News/No-advertising-deal-with-CNN-despite-apology-KTB-boss-says/-/539550/2834914/-/c254iaz/-/index.html>. Accessed 17 Mar 2016.
- Murumba, S. (2015b). *Kenya suspends CNN deal over terrorism slur*. Business Daily Africa. <http://www.businessdailyafrica.com/Kenya-suspends-CNN-deal-over-terrorism-slur/-/539546/2822870/-/qliv68/-/index.html>. Accessed 17 Mar 2016.
- Mutiga, M. (2015). CNN executive flies to Kenya to apologise for 'hotbed of terror' claim. *The Guardian*. <http://www.theguardian.com/world/2015/aug/14/cnn-kenya-apologise-obama>. Accessed 17 Mar 2016.
- Mwangi, B. (2015). #OccupyPlayGround. <https://www.facebook.com/events/378529712319607/>. Accessed: 19 Mar 2016.

- National Accord and Reconciliation Act. (2012). Kenya Law. http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/NationalAccordandReconciliationAct_No4of2008.pdf. Accessed 12 Mar 2016.
- Nzomo, V. (2014). *Public law and social media use by state officers: Lessons from chief justice Twitter spat with former registrar*. CIPIT Blog. <https://cipitblog.wordpress.com/2014/11/04/public-law-and-social-media-use-by-state-officers-lessons-from-chief-justice-twitter-spat-with-former-registrar/>. Accessed 17 Mar 2016.
- Obura, F. (2009). *Social networking sites a boon for webmasters*. Standard Media. <http://www.standardmedia.co.ke/article/1144010249/social-networking-sites-a-boon-for-webmasters>. Accessed 3 Mar 2016.
- Okolloh, O. (2008). *Update Jan 3 11:00 pm*. Kenyan Pundit. <http://www.kenyanpundit.com/2008/01/03/update-jan-3-445-1100-pm/>. Accessed 9 Mar 2016.
- Okwembah, D. (2013). *Did Kenya presidential debate make a difference?* BBC. <http://www.bbc.com/news/world-africa-21430278>. Accessed 17 Mar 2016.
- Okwii, D. (2014). *Which mobile vendor will deliver the ultimate \$50 smartphone for Africa?* Dignited. <http://www.dignited.com/10896/mobile-vendor-will-deliver-ultimate-50-smartphone-africa/>. Accessed 17 Mar 2016.
- Omwansa, T. K., Sullivan, N. P., & Guardian, T. (2012). *Amazon.com: Money, real quick: The story of M-PESA (guardian shorts book 22) eBook*. http://www.amazon.com/Money-Real-Quick-M-PESA-Guardian-ebook/dp/B007FPP7NI/ref=sr_1_1?ie=UTF8&qid=1458210629&sr=8-1&keywords=money+real+quick. Accessed 19 Mar 2016.
- Opera Software. (2010). *State of the mobile web*. <http://media.opera.com/media/smw/2010/pdf/smw062010.pdf>. Accessed 17 Mar 2016.
- Peremende Movement. (2012a). *Peremende movement*. <https://peremende.wordpress.com/>. Accessed 17 Mar 2016.
- Peremende Movement. (2012b). *Pay our doctors*. <https://peremende.wordpress.com/2012/10/03/pay-our-doctors/>. Accessed 17 Mar 2016.
- Rice, X. (2008). Internet: Last piece of fibre-optic jigsaw falls into place as cable links east Africa to grid. *The Guardian*. <http://www.theguardian.com/technology/2008/aug/18/east.africa.internet>. Accessed 17 Mar 2016.
- Ruge, T. (2012). 'Kony 2012' is not a revolution. *New York Times*. <http://www.nytimes.com/roomfordebate/2012/03/09/kony-2012-and-the-potential-of-social-media-activism/kony-2012-is-not-a-revolution>. Accessed 17 Mar 2016.
- Safaricom.co.ke. (no date). *Celebrating 9 years of changing lives*. http://www.safaricom.co.ke/mpesa_timeline/timeline.html. Accessed 16 Mar 2016.

- Salim, A. (2011a). *After 1 WEEK – #FeedKE*. Ahmed Salims. <http://ahmedsalims.com/post/8117754664/after-1-week-feedke>. Accessed 17 Mar 2016.
- Salim, A. (2011b). ‘*Dear Kenyans..*’, 100 % KENYAM!!!. Ahmed Salims. <http://ahmedsalims.com/post/7837442344/dear-kenyans>. Accessed 17 Mar 2016.
- Simiyu, O. (2015). *End land injustices, pope Francis says*. The Nation. <http://www.nation.co.ke/news/-/1056/2974348/-/13iojnnz/-/index.html>. Accessed 19 Mar 2016.
- Spectator. (2015). *Robert Mugabe – God should never have created those thieves (Kenyans) here in Africa*. <http://www.spectator.co.ke/2015/11/robert-mugabe-god-should-never-have-created-those-thieves-kenyans-here-in-africa/>. Accessed 1 Mar 2016.
- Stieber, Z. (2013). *Robert Alai, Kenyan Blogger, earns praise for coverage of terror attack at Westgate mall*. The Epoch Times. <http://www.theepochtimes.com/n3/296998-robert-alai-kenyan-blogger-earns-praise-for-his-coverage-of-kenya-terror-attack-at-westgate-mall/>. Accessed 20 Mar 2016.
- Talbot, D. (2012). *Android marches on east Africa*. MIT Technology Review. <https://www.technologyreview.com/s/424454/android-marches-on-east-africa/>. Accessed: 17 Mar 2016.
- TeleGeography. (2007). *Econet plans 2008 launch*. <https://www.telegeography.com/products/commsupdate/articles/2007/07/20/econet-plans-2008-launch/>. Accessed 17 Mar 2016.
- TeleGeography. (2011). *Telkom Kenya launches 3G in Nairobi, Mombasa, Kisumu*. <https://www.telegeography.com/products/commsupdate/articles/2011/08/26/telkom-kenya-launches-3g-in-nairobi-mombasa-kisumu/>. Accessed 16 Mar 2016.
- UN Office for the Coordination of Humanitarian Affairs (OCHA). (2011). *Eastern Africa drought humanitarian report no. 3*. <http://reliefweb.int/report/burundi/eastern-africa-drought-humanitarian-report-no-3>. Accessed 17 Mar 2016.
- Vota, W. (2010). *\$100 Huawei Android mobile phone is bringing the netbook revolution to smartphones*. ICTworks. <http://www.ictworks.org/2010/09/07/100-huawei-android-mobile-phone-bringing-netbook-revolution-smartphones/>. Accessed 7 Mar 2016.
- Wamathai, J. (2013). *What #SomeoneTellCNN is all about [Updated]*. Hapa Kenya. <http://www.hapakenya.com/someonetellcnn-trending-worldwide/>. Accessed 25 Feb 2016.
- Wambui, B. (2013). *We are legion: Why Kenya’s next war will be on Twitter*. The Nation. <http://www.nation.co.ke/Features/DN2/-/957860/1941640/-/e8xvzk/-/index.html>. Accessed 9 Mar 2016.

- Wanjiku, R. (2008). *Safaricom launches 3G technology*. Network World. <http://www.networkworld.com/article/2280369/network-security/safaricom-launches-3g-technology.html>. Accessed 16 Mar 2016.
- Waruinge, M. (2015). *Trending: Private developer behind Langata land grab named – kiss FM*. Kiss100. <https://kiss100.co.ke/trending-private-developer-behind-langata-land-grab-named/>. Accessed 8 Mar 2016.
- Were, D. (2006). *Kaybees – The Kenyan blog awards (2006)*. Mentalacrobatics. http://mentalacrobatics.com/2006/03/kaybees_the_kenyan_blog_awards_2006/. Accessed 17 Mar 2016.
- WhatsApp Inc. (2016). *Making WhatsApp free and more useful – WhatsApp blog*. WhatsApp Blog. <https://blog.whatsapp.com/615/Making-WhatsApp-free-and-more-useful>. Accessed 2 Mar 2016.
- Wyche, S. P., Schoenebeck, S. Y., & Forte, A. (2013). *‘Facebook is a luxury’: An exploratory study of social media use in rural Kenya*. Andrea Forte. <http://www.andreaforte.net/WycheFacebookCSCW13.pdf>. Accessed 17 Mar 2016.
- Zhongxiang, Z. (2011). *China report*. China Africa. http://www.chinafrica.cn/china_report/txt/2011-01/02/content_322394.htm. Accessed 17 Mar 2016.
- Zuckerman, E. (2010). *Makmende’s so huge, he can’t fit in Wikipedia. ... My heart’s in Accra*. <http://www.ethanzuckerman.com/blog/2010/03/24/makmendes-so-huge-he-cant-fit-in-wikipedia/>. Accessed 3 Mar 2016.

Conversation #7

Toward Digitizing Information for the Benefit of the Many Rather Than the Few

Munyutu Waigi of Umati Capital



***Munyutu Waigi** was raised in Mombasa and left for England when he was 13 years old. The technology bug bit him when he worked in information technology (IT) support for the Williams Formula One racing team as part of his four-year degree program at London's Brunel University, where he studied information systems. After graduating, he joined the global management consultancy Accenture, working in communications and high tech. The urge to do something much bigger that would challenge him became overwhelming—and he decided to quit three months short of his three-year anniversary at the firm. He moved back to Mombasa to start all over again and set up MoComm*

Wireless, a Wi-Fi company. About year and a half later, he finally got his big break. Along with Leandro Sanchez, he co-founded Rupu, a group buying website that has become Kenya's largest e-commerce firm. Two years later, Munyutu cashed out and used the funds to start his life's true work: And that is pretty much the beginning of Umati Capital.

Munyutu, what is the story behind Umati Capital?

In a nutshell, Umati Capital is an innovative tech-based lending institution. We primarily lend to processors and exporters across the agriculture sector. Umati provides working capital, invoice discounting, and supply chain financing solutions to bridge challenging 30-, 45-, 60- or 90-day payment terms faced by suppliers.

How does the digital solution work in practice?

Take, for example, the coconuts value chain. There is the farmer who grows the coconuts, and in turn, sells them to a processor–exporter who extracts value and sells the compressed oil to international buyers across the USA and UK. Having purchased coconuts from hundreds of farmers, the processor–exporter has usually less than 30 days to settle the debt—but unfortunately has to wait 45 days to receive payments from his or her international buyers. This leaves a funding gap that the processor–exporter has to plug. Instead of approaching banks, which require collateral and lengthy processing times, the processor–exporter has Umati Capital as a premier solution provider. Unlike banks, Umati Capital does not require collateral to lend to the processor–exporter. Furthermore, we offer technologies, such as mobile and web apps, that help digitize the processor–exporter's purchasing process, which is usually very manual. All in all, Umati Capital offers seamless financing along with innovative technology—a value proposition most banks can't match.

How will your solution affect the agribusiness value chain?

According to recent statistics, there are 700 million people across Africa engaged in agricultural activities. That is seven-tenths of Africa's population, considering recent estimates of just over a billion people. This is further compounded in Kenya, where statistics have shown that

agriculture contributes 25 % of the Kenyan gross domestic product (GDP). Surprisingly, only 4 % of bank lending supports this key pillar in our economy. Why? Perhaps it has a lot to do with the fact that the key actors (farmers) do not have credit profiles—the basis of most structured lending—that would give traditional lenders comfort in their economic activity.

How is Umati Capital addressing this issue? The majority of assistance (international and local) to the agricultural sector has been tackling the issue from ground up. At Umati Capital, we believe the opposite: The issue has to be tackled from the top down. You can argue that there are several reasons why farmers rarely get paid in full and on time. We believe that by first tackling the structured value chains—by improving working capital across them—you can learn key lessons around using technology to streamline their processes before moving on to the larger challenge—the unstructured value chains.

What has been one of your biggest “Aha!” moments while working with Umati Capital?

Unfortunately, the life of an entrepreneur is filled with many unpredictable moments. There are countless “What just happened?” moments that leave you trying to make logical sense of events. I have concluded that luck and the right timing play a crucial part in my daily struggle.

My biggest “Aha!” moment came at the seed investment stage of Umati Capital. Like most startups at that stage, we barely had any cash and we rode purely on futuristic ideas about how Umati Capital would shape the lending sector in the years ahead. Thanks to the powers that be, we eventually closed an investment round with Accion Venture Labs worth USD400,000, at a valuation of USD1.4 million. What started off as a dream to change the way small and medium-size enterprises in Africa access working capital had suddenly become a funded idea. I guess the scale and reality of what we were doing crystallized further in 2015, when we were recognized by Citigroup, *Forbes* magazine, MIT, and the MasterCard Foundation, among many global names.

One of Kenya's own technology entrepreneurs who is also an investor in Umati Capital, Joseph Mucheru, has been appointed to the position of cabinet secretary in the Ministry of Information and Communications. What does this mean for the tech community?

First of all, Joe is an all-round good guy. He is unlike most who have achieved success at his level. His humility, coupled with his calm disposition, lets him work with people across different spectrums and backgrounds. I firmly believe he is the best person for the job. Joe is Google's former Sub-Saharan Africa lead, based in their Nairobi office. He was Google's first Sub-Saharan employee and was key in setting up Google's presence in Africa from 2007. Before joining Google, he worked in various roles, including chief technology officer and chief executive officer (CEO), at Wananchi Online (the leading provider of affordable entertainment and connectivity for East Africa's rapidly growing middle class), a company he co-founded in 1999.

What does Joe's appointment mean for the tech community? As much as the technology community is about creating scalable enterprises, we also want to see government changes aimed at the greater good of the nation. We believe Joe's vision and character can help create such an environment.

What are some of the key areas that need to be digitized by the government?

The overarching goal should be to achieve transparency through technology. The process of getting your ID card, passport, driver's license, National Hospital Insurance Fund card, or National Social Security Fund card needs to be digitized as soon as possible. By digitizing these processes, you will eradicate most of the daily corruption in the system. We also need to start digitizing basic government services in order to make those processes more transparent, less corrupt and, by that, more efficient. Another aspect is security. If you commit an offense in Nairobi, for example, two weeks later in Mombasa, the police will have no knowledge of your offense. Digitizing our security forces, beginning with the police, in a way that significantly minimizes corruption would be marvelous.

Why is the power of technology best deployed to combat corruption?

At least once a week, there is a new corruption case that is opened up, and the annoying part of it all is that no one will be taken to jail. It is immensely frustrating! If we can put technology on the agenda that can actually minimize corruption by introducing new, transparent processes together with government leaders who own the process, then we are having a substantial impact on the lives of Kenyans. It is through technology and digitizing basic processes that we can transform Kenya in the shortest time possible.

Thank you, Munyutu!



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Part III

The Inner Life of Technology Entrepreneurship in Kenya

8

Building ICT Entrepreneurship Ecosystems in Resource-Scarce Contexts: Learnings from Kenya’s “Silicon Savannah”

Johannes Ulrich Bramann

Introduction

“Kenya’s technology push leaves investors cold” reads an oft-quoted article from 2014 (Reuters 2014). A lack of talent, a scarcity of seed capital, and insufficient profit potential in a market characterized by low-income consumers have, according to the author, driven disappointed investors to look for opportunities elsewhere. The current chapter shows that establishing ICT ecosystems is indeed difficult in resource-scarce countries. These ecosystems tend not only to be in a nascent stage, they are also missing essential ingredients and resources—financial resources, specialized organizations, universities, and relevant human capital—that help enable high-growth entrepreneurship and that have to be put in place “from scratch.” The referred to article then closes with an investor’s dubious promise to return to Kenya “When real money is ready to be made” (Reuters 2014). But how do we overcome the challenges to reach that phase?

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The central goal of the chapter is to shed light on the evolution of Kenya's ICT ecosystem and ask "What are the barriers to and enablers of growing an ICT ecosystem in a resource-scarce context?" Using Isenberg's framework of entrepreneurship ecosystems (2011), my research, conducted in Kenya in the fall of 2013, highlights a set of barriers and enabling processes necessary for the maturation of Kenya's ICT ecosystem. Based on these, I propose a model that explains ICT ecosystem emergence in resource-scarce contexts. The chapter ends with specific recommendations that tackle the current barriers in an effort to move ecosystems beyond their nascent phase. Research into such an endeavor can deduce pivotal policy prescriptions that account for context and stage. The chapter will therefore conclude with suggestions for further research.

Theoretical Background

Over the last decades, the entrepreneurship domain has seen a shift from investigating the entrepreneur and his or her characteristics and motivations toward focusing on the context in which entrepreneurship takes place (Thornton 1999). In this spirit, I understand technology entrepreneurship as the creation of new ICT-enabled organizations, which occurs in a context-dependent social and economic process (Beckman et al. (2012); Gartner 1988; Low and Abrahamson 1997; Thornton 1999). In resource-scarce contexts, technology entrepreneurs face a set of contextual challenges, such as low-income consumers, disproportionately higher risk of entrepreneurial failure, and low enforcement of formal institutions and contracts (Webb et al. 2009). In addition, technology entrepreneurs in Kenya face particular challenges that arise when starting a venture in the formative years of a new industry, such as a lack of overall legitimacy for the industry, the need to carve out new market structures, and the need to recruit untrained employees (Aldrich and Fiol 1994). The venturing processes, resource requirements, and strategies of entrepreneurial ventures arguably take distinct forms in order to respond to such aggravated challenges (Kiggundu 2002; Thornton 1999). However, many of the existing insights into technology entrepreneurship arise from resource-rich contexts, such as the USA and

Europe and thus have only limited applicability for contexts such as that of Kenya. Context-specific research in resource-scarce environments is needed rather than one-size-fits-all policy prescriptions that emanate from the Global North (Zoogah and Nkomo 2013). In this chapter, I account for the contextual particularities of Kenya in order to develop adequate and relevant knowledge for Kenya. Moreover, I seek to open up a conversation for further research in resource-scarce contexts that see the model I develop as a point of departure.

Today's focus on ecosystems in the entrepreneurship domain has emerged recently but rapidly (Autio et al., 2014; Feld 2012; Isenberg 2010, 2011; Kantis and Federico 2012; Napier and Hansen 2011; Mason and Brown 2014; Zacharakis et al. 2003). The entrepreneurship ecosystem perspective, as understood by Isenberg (2010, 2011) and Mason and Brown (2014), provides a framework to understand the ability of regional contexts to encourage and support the creation of new ventures. To achieve this, the framework builds heavily on the insights of geographic economics, in particular cluster theory and regional innovation systems (Mason and Brown 2014). Within the stream of cluster theory, geographical economists have sought to explain the reasons for the geographic clustering of economic activity, the inner dynamics of clusters, and the economic benefits that result. Regional innovation systems literature offers abundant insights into the relational elements within regions that govern innovation and entrepreneurship. Despite the extant research, the entrepreneurship ecosystem framework offers a unique perspective that is distinct from cluster and regional innovation systems theory in three ways.

First, its specific goal is the creation of growth-oriented entrepreneurship (Miller 2005). As such it focuses on nurturing aspirational entrepreneurs that seek to build large and rapidly expanding firms rather than on, for example, the founding of small businesses that are operated in order to provide income for the owner. The presence of such high-growth type of firms has been shown to be vital for job creation (Anyadike-Danes et al. 2009) and building regional innovation systems (Mason et al. 2009; Du et al. 2013), which is why their promotion has been declared central to policymakers across the Organisation for Economic Co-operation and Development (OECD 2010, 2013).

Second, the framework provides a list of the main conditions that are required to successfully generate and nurture such ambitious

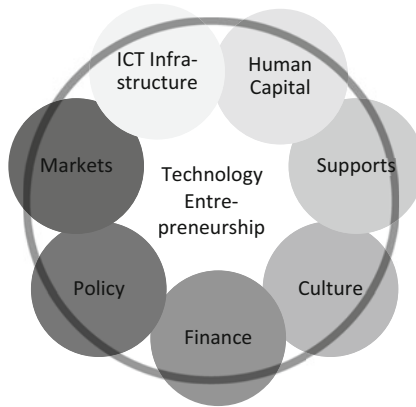


Fig. 8.1 Dimensions of an ICT entrepreneurship ecosystem (Adapted from Isenberg 2011)

entrepreneurship. Isenberg’s widely recognized entrepreneurship ecosystem framework (2011) proposed six main conditions—conducive sociocultural norms around entrepreneurship, availability of entrepreneurial support systems, availability of qualified human capital, presence of appropriate financing sources, relevant entrepreneurship policy, and venture-friendly markets for new products. Because of the explicit focus of this chapter on technology entrepreneurship in a resource-scarce context, a seventh condition—ICT infrastructure—was added as a further condition. See Fig. 8.1.¹

Third, the framework provides important insights for the design of entrepreneurship policy. On the one hand, regional factors are considered central in determining an ecosystem’s barriers to and enablers of entrepreneurship. Therefore, generic strategies to foster ecosystem growth add little value. This is especially relevant in an ICT sector context, where the “gold standard” of Silicon Valley has in the past inspired worldwide generic policy action such as engineering technology clusters, setting up technology incubators, and supporting venture capital industries (Isenberg 2010, 2011). Arguably, these strategies can indeed

¹ See Isenberg (2011) for a discussion of these conditions and their subcategories. For a more comprehensive literature review on the entrepreneurship ecosystem framework and its role in fostering entrepreneurship, see Mason and Brown (2014).

add value, but their worth has to be reconsidered in light of each ecosystem's individual needs and opportunities. Over the last decade, multiple governments have essentially wasted millions of US dollars on generic technology-cluster policy efforts (Economist 2007; Isenberg 2010). On the other hand, the framework views ecosystems as interrelated organisms in which corrective actions to remove a barrier in one dimension have side effects on the entire ecosystem. For example, although providing grant money to entrepreneurs to address funding gaps may be effective from a financing perspective, it can—if managed too loosely—undo the toughening effect on human capital that the equity capital market usually exerts and retard the formation of a venture capital industry and its strategic resources. In the past, many governments prioritized one or two dimensions over others, because they deemed these to be especially important to entrepreneurial success. However, effective approaches to fostering entrepreneurship in a region need a comprehensive and holistic approach that takes into account all dimensions of the framework (Isenberg 2010, 2011). Ács et al. (2014) illustrated this point by showing that when one ecosystem element is far less developed than others, it forms a bottleneck that limits the growth of the entire system and hinders the creation of new ventures. Assuming policymakers as the main designers of ecosystem-fostering strategies, Isenberg (2011) therefore argued for the need for intensive dialogue with ecosystem stakeholders from all ecosystem dimensions. In this way, the policymaker can gain a holistic picture of the ecosystem's unique challenges and opportunities and “co-design” interventions with knowledgeable practitioners. These interventions will then be executed in iterative circles of experimentation and feedback to enable the policymaker to find out what works in his or her context.

For this chapter's inquiry into the barriers faced by an early ecosystem in a resource-scarce country and the resulting enablers, previous theorizing provides little insight. First of all, much previous work on regional innovation systems, clusters, and entrepreneurship ecosystems neglects the time dimension of an ecosystem's development. Mason and Brown (2014) found that ecosystems “are discussed as if they emerged fully formed.... There is little understanding of how successful entrepreneurial ecosystems come into being and evolve.” This is unfortunate, because Feldman and

Braunerhjelm (2004) showed that there is an evolutionary logic to cluster formation and that therefore a young ecosystem faces different challenges than a more mature one. Thorny chicken-and-egg questions have been ignored. For example, if the availability of local financing is a key attribute, did it predate the emergence of businesses in which to invest, or did the businesses predate the financing, in which case how were the initial businesses financed (Mason and Brown 2014)? Second, insights into why and how such systems get started provide little constructive insights in resource-scarce contexts. Cluster theory literature has argued that clusters emerge where certain preconditions make for “fertile soil.” Examples of such preconditions are the presence of advanced knowledge institutions that both generate knowledge advancements and supply the skilled scientists, engineers, and professionals that are considered to be at the source of entrepreneurial endeavors (Isenberg 2011; Porter 1998; Mason and Brown 2014). Other scholars point to proximity to established industries and government spending. In America, for example, the role of the defense industry in the early growth of Route 128 and Silicon Valley is well documented (Adams 2011; Leslie 2000; Saxenian 1994). Further, the presence of successful entrepreneurs and entrepreneurial firms in creating spin-off effects that benefit the ecosystem across its dimensions is stressed in multiple studies (Mason and Brown 2014). Arguably such “fertile soil” is the foundation on which early industry emergence processes, such as the emergence of activity networks and the establishment of a technological base are built (Gustafsson et al. 2015). How is it, then, that we sometimes see technology ecosystems growing in resource-scarce contexts that generally lack such soil? What substitute institutions and processes can ecosystems in such contexts draw on to emerge anyway? This chapter’s findings concerning the enabling processes that have been at play in the Kenyan ecosystem give insight into these questions by pointing at, for example, the pivotal role played by the entrepreneurial support system. Furthermore, Isenberg’s recommendation (2010, 2011) to work holistically and address multiple dimensions at once is only of limited practicability. In resource-scarce contexts, there is a need to establish most of the conditions in the ecosystem perspective from scratch, and the question of prioritization arises. Given the unique contextual features of resource-scarce environments, which are the components that have

to be established first to kick-start an entrepreneurial ecosystem? And in what order should the other components follow so that high-growth entrepreneurship can be realized? The model developed here of entrepreneurial ecosystem emergence provides insight into these two questions and shows that despite commonly assumed antecedents to entrepreneurial ecosystem emergence, new ecosystems can successfully emerge in contexts where abundant venture capital and highly specialized resources are not yet in place.

Empirical Context

Over the last decade, Kenya's ICT infrastructure has seen significant advancements. In 2012, the connection of LION2, the fourth under-sea cable, catapulted Kenya's bandwidth per user to a continent-leading 24000 mbps (ITU 2013). The country's Internet penetration rate of 43 % in 2014 was very strong compared with that of its East African neighbors (Data.un.org 2016), and the mobile phone and mobile money penetration rate of 83 % and 59 %, respectively, were nothing short of impressive (Communication Commission of Kenya 2015). A lively technology scene has grown up around the technology hubs, accelerators, and entrepreneurship competitions that have settled near Nairobi's Bishop Magua Center and along Ngong Road. Together, these developments have gained significant global media attention as an emerging space that was enthusiastically dubbed the "Silicon Savannah" (Economist 2012; Uhl 2012). In 2015, several innovative and expanding ICT ventures inhabited the ecosystem, such as Sendy, which uses mobile technology to let local motorbike taxis offer courier services, and BitPesa, which disrupts the international remittances market by combining Bitcoin with mobile money infrastructure.² Finally, important signals of approaching ecosystem maturation are the million-dollar exit of the mobile commerce firm Weza Tele (Disrupt-africa.com 2015) and the latest funding round for solar company M-Kopa, which raised over USD19 million in equity capital (pv-magazine.com 2015).

² See sendyit.com and bitpesa.co.

Research Method

My research followed an inductive theory building approach, using data on multiple case studies and additional semi-structured interviews. Such qualitative research methods were applied because they are helpful in understanding the “why and how” of a phenomenon (Yin 1994) and are appropriate when little is known about the phenomenon and current perspectives seem inadequate in the given empirical context (Eisenhardt 1989). In a four-month field visit to Nairobi in 2013, ten detailed case studies of local technology entrepreneurship endeavors were created. These characterized the founders, the venturing process, the underlying business model, and, importantly, the problems and enablers faced. To increase the generalizability of the findings, intercase variation was maximized (Eisenhardt 1989) along the dimensions of founder nationality, stage of the venturing process, and sector of focus of the enterprise. To verify and substantiate emerging themes, 20 additional interviews with a diverse set of ecosystem stakeholders were held, including venture capitalists, managers of local incubators and seed funds, university professors, and managers of nongovernmental organizations (NGOs). In line with Eisenhardt (1989), the research process was characterized by flexible, opportunistic data collection in which the semi-structured interview guidelines were continuously refined (Charmaz 2014; Glaser 1992). In addition, the research benefited from ethnographical insights gained through working on-site in a Kenyan co-working space and taking part in numerous events, competitions, and informal activities with technology entrepreneurs. The interviews were recorded, coded, and analyzed for the relevant barriers to and enablers of Kenya’s nascent ICT ecosystem. Cyclical coding processes were applied (Glaser 1992) to derive the main barriers and enablers, grouping them into the framework and assessing their interrelations and relative importance. The model of nascent ecosystem emergence was then developed in a process of abductive theorizing (Tavory and Timmermans 2014) as an iterative process between the empirical materials and the existing literature on how new industries emerge and ecosystems evolve.

The research took a holistic perspective on the barriers and enablers that were encountered instead of providing an in-depth discussion of any one ecosystem dimension in particular. This is helpful in understanding how ecosystems

function as a whole. In respecting the limitations of conducting one-person research on an entire ecosystem, I do not claim to have provided an exhaustive view of all the factors, and I encourage the reader to critically assess my findings and to use them as a starting point for debate and further analysis.

Findings: Barriers and Enablers in Kenya's Early ICT Ecosystem

The barriers to and enablers of entrepreneurship in Kenya are summarized in Fig. 8.2, and discussed in the remainder of the section below.

Conducive Cultural Norms around Entrepreneurship

The cultural norm dimension includes societal attitudes toward various important aspects of entrepreneurship, such as tolerance for risk, innovation, and experimentation. The social status of entrepreneurs, attitudes toward wealth creation, and the visibility of entrepreneurial success stories are also important in this dimension. From the interviews, a general consensus emerged that the entrepreneurship career path has low prestige associated with it, especially among older generations. In the historical context of Kenya, first the colonial rule of the British and then the rule of Daniel arap Moi from 1978 to 2002 left very little opportunities and freedoms for individual business owners and entrepreneurs (Himbara 1994). There has therefore clearly been a lack of examples of successful high-growth entrepreneurs that could have shaped the perception and prestige of this career path. Most of the interviewed entrepreneurs had completed university-level degrees and indicated that professional careers were deemed more appropriate for such levels of education.

Two cultural characteristics were found to affect the interviewees' perception of and tolerance for risk. First, the local context seemed to be characterized by institutionalized low trust.³ Respondents mentioned a strong fear of being defrauded by business partners, because of little trust

³ See Welters (2012) for a literature review on high- and low-trust contexts and their impact on entrepreneurship.

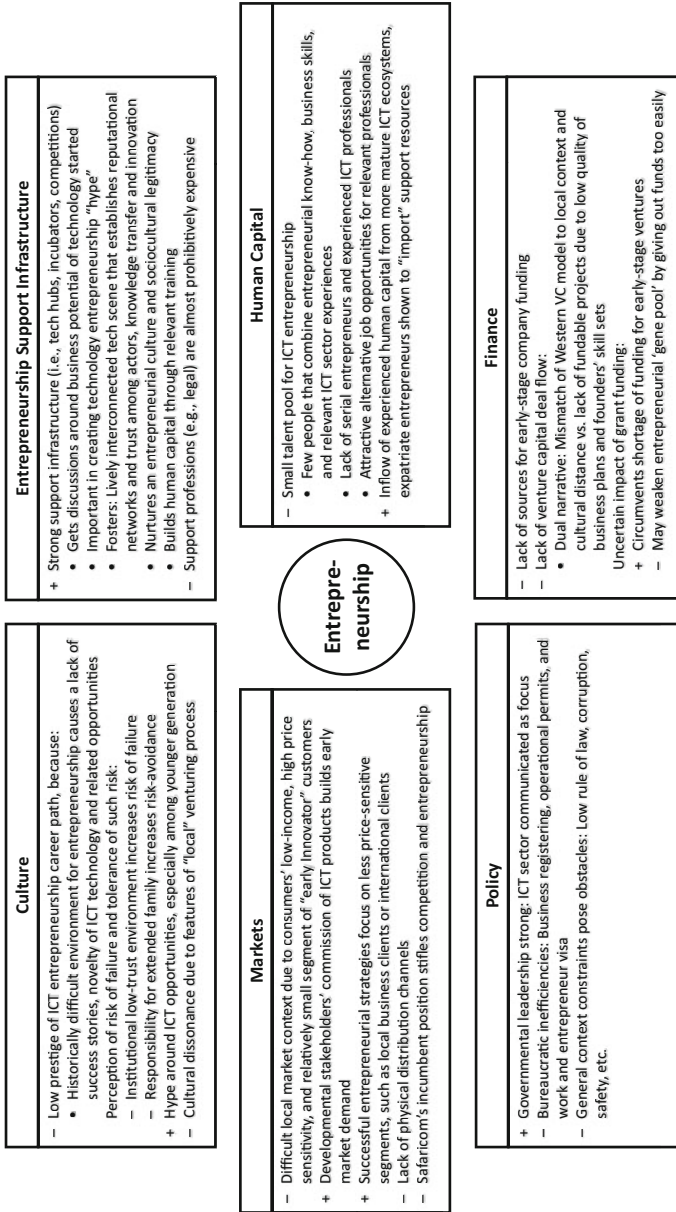


Fig. 8.2 Barriers to (-) and enablers of (+) technology entrepreneurship in Kenya's early ICT ecosystem

in other people's integrity, in the enforcement of contracts, and in weak national legal institutions. This mistrust was especially evident in interactions with a strong imbalance in power such as with large corporations or high-ranking officials. The institutionalized low-trust environment seemed to help discourage the decision to start up a venture. Second, the cultural norm of having to provide for extended family members in relation to one's ambition of becoming an entrepreneur was important. Respondents indicated that family members in the local context were often expected to generate support in the form of financing, jobs, and connections for a wide array of other family members. This need to provide a stable flow of resources increases the appeal of corporate job positions and decreases the entrepreneur's tolerance for risk and ability to forgo profits in early venturing phases.

The Kenyan ecosystem is a melting pot of numerous different nationalities. From the interviews, two particularities of the local venturing processes emerged as causing a dissonance between local and international stakeholders—first, a “lean mentality” among local entrepreneurs, whose limited ability or willingness to forgo revenues and profits in early venturing phases has led to limited attention to market research and business model validation; and second, a “hyperdiversification of efforts,” where local entrepreneurs engaged in multiple entrepreneurial endeavors at the same time or were distracted by other jobs. Multiple interview excerpts showed that international respondents have interpreted these practices as a lack of professionalism or a sign of insufficient entrepreneurial knowledge.

Availability of Entrepreneurial Support Systems

The availability and affordability of professional services related to entrepreneurship (e.g., legal, accounting, and technical services) as well as entrepreneurship support institutions, such as incubators and accelerators, are included in this dimension. The analysis found that Nairobi's multiple entrepreneurship-supporting institutions, such as open tech hubs, accelerators, and incubators, provided numerous enabling effects. Respondents named the possibility of meeting like-minded individuals who shared their enthusiasm for technology entrepreneurship to have

been key in nurturing and maintaining entrepreneurial ambitions, gaining sociocultural legitimacy, learning basic entrepreneurial and management skills, and building a community of like-minded people. The events, competitions, and workshops that are frequently held in support institutions were not only important brokers of entrepreneurial know-how and information on technical developments, but also fostered innovation processes through enabling exchange between various stakeholders and interest groups. In a context where power failures occur often and high-speed Internet connections and office space are costly, the shared workspaces available at these institutions significantly lowered the threshold for technology entrepreneurship. Further, the close contact and frequent interaction that have been achieved through these support institutions were indicated to have given rise to closely connected communities. The analysis showed that such networks improve accountability and incentives to stick to the proper conduct of business through reputational effects within the community. Respondents therefore indicated a lower perceived risk of entering into business relations with members of such a tech community compared with nonmembers of the community.

Availability of Qualified Human Capital

The human capital dimension includes the availability of relevant human capital—in particular, serial entrepreneurs—and of educational institutions with the ability to produce the relevant human capital. The skill sets needed to build a technology venture span management and entrepreneurial knowledge and leadership skills as well as technological know-how and relevant local ICT industry insights. The analysis showed that individuals who could contribute such skills and experiences were in short supply in Nairobi's ecosystem. The reason for this shortage lay in the overall youth of the ecosystem and the relative absence of knowledge-intensive industries or research institutions, where relevant skill sets and experiences could be acquired. In contrast to more mature ecosystems, where aspiring entrepreneurs have learned the traits of technology management and leadership in years of practice before starting their own venture, the entrepreneurs interviewed here often pursued entrepreneurship directly after finishing their education, because of a lack of alternative employment opportunities.

Although it is hard for educational institutions to stand in for practical experience in the area of management or software engineering, several interviewees indicated that too little emphasis has been placed on the provision of entrepreneurship knowledge and practical management skills to business and technology sciences students. Some entrepreneurs have indicated that universities in the context seem more focused on preparing students for professional careers and could do more in promoting entrepreneurship. Finally, the respondents stressed that individuals who do possess the skills required for technology entrepreneurship and have experience in resource-scarce technology sectors often have attractive corporate employment opportunities. Many of these candidates therefore seem to choose a relatively stable and prestigious corporate or government job.

A key enabler that emerged in the human capital dimension was the inflow of human capital from more mature ecosystems. Incoming expatriate entrepreneurs bring valuable skill sets and relevant experiences to the ICT ventures they have either founded or worked in. The case study research showed that some of these individuals seemed to be able to continue to draw on top-notch entrepreneurial support resources from their home ecosystems, such as networks, education, mentoring, and access to financing. Further, they provided foreign market knowledge that was valuable in targeting international consumers. Because these resources were used in establishing a Kenyan technology venture, they can be viewed as an example of the successful transfer of such resources. Internationals also seem to play leading roles in support institutions as, for example, managers of incubators, mentors at educational facilities, or venture capitalists. The research's findings suggested that such expatriates are often intrinsically motivated to create social impact instead of being attracted by profit potential.

Presence of Appropriate Financing Sources

The financing dimension includes the availability of several funding options for entrepreneurs, including angel investing networks, venture capital funds, zero- and seed-stage capital, public capital markets, and debt financing. The most common sources of capital at early venturing phases—including personal savings, family, friends, angel investors, and early-stage seed funds—were found to be scarce in the Kenyan ecosystem.

Although a local venture capital market had not yet formed, the Kenyan technology hype had attracted foreign investors looking for opportunities. However, the analysis showed a lack of deal-flow into local ventures at early and at later stages of the investment funnel. Venture capital stakeholders indicated that this was caused by a shortage of fundable projects, the low quality of underlying business plans, and the lack of entrepreneurial skills of the founders. Another narrative was that there seemed to be a mismatch between the Western venture capital model and the local market context of Kenya, where low-income consumers and local context constraints keep many potential businesses from satisfying venture capitalists' requirements for high-margin, high-growth potential. Additionally, a cultural distance between the local founders and the mostly Western investors—embodied in dissonant values, goals, work practices, and communication styles—seemed to impede the formation of trust-intensive partnership. A local venture capital sector had not yet formed at the time of the research, and Kenyan high-net-worth individuals reported being uninterested in investing in local technology firms.

In the Kenyan ecosystem, new ventures can also access financing from nonmarket sources, such as from the NGO sector, the government, and international development agencies. Despite the apparent merits of providing much-needed financing, such funding was shown also to have a detrimental effect on the wider ecosystem. Some interviewees criticized the fact that the rigor of selection in these situations was too low and led to the adverse outcome of weak companies getting funding. This was related partially to the lack of experience and know-how of public sector actors in identifying promising technology ventures. Further, respondents indicated that the funding had, in this early ecosystem development stage, outweighed the number of actually worthy candidates. The Tandaa grant initiative of the Kenyan ICT Authority, for example, has been criticized for not providing the additional mentoring resources that are needed at early venturing phases. Finally, several interviewees indicated that the availability of grant financing had created situations where financial resources were too easily available to local entrepreneurs, giving rise to the term “compepreneur,” meaning an entrepreneur who moves from one entrepreneurship competition to another to finance his or her livelihood through prize money and hence is too distracted to actually focus on building a venture.

Relevant Entrepreneurship Policy

The policy dimension includes the regulatory framework, existence of incentives for entrepreneurs (i.e., through tax benefits), and establishment of venture-friendly legislation (i.e., through bankruptcy and labor laws, contract enforcement, and secure property rights). From the interviews, a general consensus emerged that weak government administration processes, rule of law, and contract enforcement as well as corruption have been damaging the climate for entrepreneurship. Although this chapter cannot provide an exhaustive overview of all relevant policy factors, two recurring themes deserve attention. One is the attainment of visas, be it for foreign entrepreneurs coming to the country or for professionals seeking to work in new Kenyan ventures. Interviewees mentioned the process of obtaining work visas as being costly and time consuming. The alternative, receiving an investor visa, requires the applicant to have at least USD300,000 in a Kenyan bank account, which can be considered a high barrier. Further, processes and fees for business registration as well as obtaining business operational permits emerged as being problematic.

Venture-Friendly Markets for New Products

The market dimension reflects whether or not the market is accommodating for entrepreneurs, as determined, for example, by the presence of so-called early adopters who are able and willing to try new products. In a market context that is characterized by low income and a relatively small early-adopter customer segment, establishing monetization in a business-to-consumer model emerged as being very hard. Entrepreneurial strategies therefore seem somewhat limited when serving business clients or international consumers. A large part of local technology entrepreneurs in the study focused on ventures with social impact and monetization provided by government or international development stakeholders. Finally, a reoccurring theme among the entrepreneurs as well as the wider ecosystem stakeholders was the dominance of the telecommunications conglomerate Safaricom. Safaricom was suggested as not actively seeking interaction with the rest of the ecosystem, despite the potential win-win

situation that could be achieved through open innovation strategies (see also GSMA 2014). Respondents gave examples of such behaviors, such as not sharing Application Programming Interface interfaces to its M-PESA platform, not publishing data on market developments, and not actively seeking cooperation with local entrepreneurs (see also GSMA 2014).

Discussion

Key Barriers to and Enablers of Early ICT Ecosystems in Resource-Scarce Contexts

The research yielded a set of key barriers to technology entrepreneurship along the dimensions of human capital, culture, finance, and markets. For a nascent ecosystem in a resource-scarce country, building a human capital resource base able to successfully catalyze technology entrepreneurship may be one of the most difficult challenges. Many scholars have argued that the required skills, experiences, and mindsets for aspirational entrepreneurship are best learned through practice and cannot merely be learned in educational institutions. Given a lack of structures to gain such practical experience in young resource-scarce ecosystems, this begs the question of how those first embryonic structures can be put in place. In addition, the necessary educational reforms can be expected to take years before producing relevant human capital.

Promising candidates aspiring to be entrepreneurs may be further demotivated from pursuing their career path by the relatively low prestige and legitimacy associated with entrepreneurship, the pressure to provide for their family, and the relatively high risk of failure. Again, if successful entrepreneurial endeavors are needed to form positive social norms accordingly but top talent is currently demotivated to found new ventures, how should such norms form?

Entrepreneurial finance is another key barrier. A lack of seed capital can be expected in resource-scarce ecosystems, because of low general saving levels and the absence of ICT conglomerate managers and serial entrepreneurs who combine the expertise and wealth required for angel investments. In addition, the significant risks inherent in the context seem

to discourage seed investment funds. The example of Kenya shows that foreign investors may be unwilling to invest in local ventures even at later stages of the investment funnel. This was found to be caused by the investors' perception of a lack of local talent and the inability of local technology firms to meet the investors' profit and growth expectations. As a means of overcoming this shortage, alternative funding sources from donors and impact investors have been offered in the Kenyan ecosystem. In addition to the apparent positive effect of such financing, however, negative impacts on the wider ecosystem have emerged, evolving around detrimental effect on the "entrepreneurial gene pool," the donors' inability to provide non-financial resources, and shortcomings in candidate selection and grant administration. These findings are in line with Isenberg's argument (2011) that nonmarket-based financing often keeps bad companies from failing, which is detrimental because it does away with the Darwinist selection process otherwise set in motion by the equity finance market. According to Isenberg (2011), this process is a rigorous feedback mechanism that toughens up entrepreneurs and throws down a motivation to excel. Failure is often viewed by aspiring entrepreneurs as a valuable learning experience and as a necessary evil from a societal perspective because it redeploys the entrepreneurs and the involved capital to work on other, potentially more promising projects (Isenberg 2011). Finally, the resources that market-driven equity investors supply, such as managerial resources, access to networks, market expertise, and continuous mentoring (see Avnimelech et al. 2007), may be considered especially valuable in an early ecosystem, where entrepreneurs are comparably young and inexperienced.

The market environment for ICT-enabled products in resource-scarce countries that are still in the nascent years of their ICT industry provides a difficult context for technology entrepreneurs. The research in Kenya has shown that a consumer base characterized by low-income, price sensitivity, and a low willingness to try new products makes it hard to establish monetization through consumers. However, successful entrepreneurial strategies have emerged that focus on social problems and establish monetization through governmental or donor institutions or that serve less price-sensitive local business clients or international consumers.

The current study found several enabling processes that can help establish the conditions for technology entrepreneurship in resource-scarce

countries. Most importantly, I argue, the entrepreneurial support system in Nairobi has effectively substituted some of the resources and processes of ecosystem emergence that previous literature attributed to institutions that form “the necessary fertile breeding ground” (Mason and Brown 2014). Open technology hubs, relevant competitions, conferences, and accelerator programs were shown to be integral in generating global hype for the topic of technology in Kenya and play an essential role in building an active technology entrepreneurship scene. Further benefits that surfaced are the provision of entrepreneurial knowledge and training, creating and nurturing interest in technology entrepreneurship and conducive sociocultural norms, establishing trust among actors, and fostering innovation processes through connecting actors. Finally, technology hubs seem to play an important role in igniting conversations between various stakeholders about potential ICT business opportunities. Further, the inflow of foreign human capital was found important in building first ecosystem structures. In the short run, the inflow bridges the talent scarcity seen in nascent phases and helps get first entrepreneurial projects off the ground. Because numerous entrepreneurship scholars have argued for the need to develop entrepreneurial skills through actual experience and from experienced entrepreneurs rather than from textbooks, these first founders and support institution managers establish an important context for the development of local human capital. Finally, the commissioning of ICT products and services on behalf of institutional and NGO stakeholders has emerged as being pivotal in building initial market demand.

Development Trajectory of Tech Ecosystems in Resource-Scarce Contexts

Based on the insights from the Kenyan ecosystem presented here and using theoretical abduction, I propose a model of ICT ecosystem emergence in resource-scarce countries. Because of the early stage of my research on this topic, I encourage others to further refine, reframe, and change the model.

The model outlines four phases of development:

1. Establishment of a nationwide ICT infrastructure
2. Establishment of institutionally facilitated corporate entrepreneurship to help build embryonic structures of a market for ICT-enabled products and lay the groundwork for an entrepreneurship support infrastructure
3. Birth of first ecosystem structures with significant barriers to entrepreneurship
4. Formation of first ventures, creating spin-off effects that help build the conditions for further entrepreneurship

In the first phase, significant investments need to be mobilized to achieve a connection to the global grid of ICT infrastructure, and hence, set a minimum technological basis for ICT ecosystem emergence. Crucial concerns at this stage include the privatization of the telecommunications sector and collaboration with international development agencies to supplement the significant investments.

In the second phase, the market for telecommunication products needs to be developed by ensuring countrywide accessibility of telecommunications products and services. The consumer needs to be educated to be familiar with new transaction patterns and gain a minimum of ICT literacy. Seeing the large scope and significant challenges faced, it is recommended that government and development institutions help enable corporations to create such a basis. The example of Kenya showcases these two stages, in which policy actors first collaborated to establish ICT connectivity and the telecommunication sector was privatized and then multiple stakeholders collaborated to empower the corporation Safaricom to build the local market for mobile telecommunication and mobile payments. Especially with regard to the establishment of M-PESA, researchers have stressed the close collaboration among policymakers (Kenyan Central Bank), development stakeholders (UK Department for International Development), and corporate interests (Vodafone) that was required to successfully introduce the service (Hughes and Lonie 2007). From a regulatory perspective, this requires policymakers to

impose relatively lenient regulations, which is why Alexandre (2011) has argued that at this phase of ecosystem development “regulation needs to follow innovation” in cases where the benefits of ICT-related products outweigh the potential risks of underregulation. Given the necessity for ICT-enabled products and services to handle payments and the lack of alternatives to cash-based payments in many contexts, the prioritization of a mobile payments mechanism stands as a prerequisite for the emergence of an ecosystem.⁴ Finally, in this phase, initial community-building efforts among potential entrepreneurs and other ecosystem stakeholders emerge, and discussions around the value, nature, and techniques of using ICT to carry out particular activities need to get started (Mezias and Kuperman 2001; Munir and Phillips 2002). This is the stage that Gustafsson et al. (2015) called the “emergence of activity networks” and “formation of industry identity.” The findings presented earlier indicate that in resource-scarce countries, these processes can develop around entrepreneurial support infrastructure, such as open technology hubs, accelerators, and incubators as well as entrepreneurship competitions. The foundations of such institutions should therefore be established as early as in phase two of ecosystem development.

In the third phase, the preconditions of basic consumer ICT literacy and widespread use of telecommunication and mobile payment services are established. The previously launched community-building processes of the entrepreneurial support system have given rise to a closely connected tech scene. However, given the very early stage of ecosystem development and lack of wider ecosystem conditions, the environment is still far from conducive to new venture creation. The Kenyan ICT ecosystem stood at this phase at the time of my empirical research, and as previously discussed, stark challenges in the state of human capital, culture, finance, and markets prevailed. Nevertheless, the study also showed that enabling processes set in motion by the support infrastructure lead, over time, to the establishment of a sounder human capital base as well as to the formation of conducive sociocultural norms around technology entrepreneurship. Further, the available entrepreneurship support institutions were central in creating hype for technology in Kenya, which was

⁴ See Andersen and Drejer (2008) for a discussion of systemic innovations.

important for the inflow of financial resources and provided a space for financiers and policymakers to interact with members of the tech scene. Enabling factors include the inflow of foreign human capital, the development stakeholder's provision of entrepreneurial grant financing, and their creation of market demand through commissioning ICT-enabled products and services.

If the challenges of the third phase are managed and the enablers continue to build the conditions for entrepreneurship, over time, more and more technology ventures will manage to establish themselves. The successful establishment of first technology ventures advances market emergence in institutionalizing new transactional patterns (Leblebici et al. 1991) and demonstrating market viability (Phaal et al. 2011). Further, identity-building processes that give sociocultural legitimacy to the entrepreneurs begin to take place (Aldrich and Fiol 1994).

With increasing venture formation, eventually the fourth phase of ecosystem emergence is reached. In this phase, a critical mass of technology ventures has formed, creating spin-off effects that bring improvements along all ecosystem dimensions. These effects create self-reinforcing virtuous cycles of entrepreneurship activity that leads to the creation of an ecosystem that, in turn, supports further entrepreneurial activity (Isenberg 2011; Mason and Brown 2014). For instance, the human capital base is upgraded through training and experience, and serial entrepreneurs emerge when former key employees leave their organizations to found their own new ventures (Keeble and Wilkinson 1999). Financial capital, mentoring, and access to networks become available when successful entrepreneurs act as angel investors after a successful exit (Feldman 2001). In this vein, Mason and Brown (2014) stressed the size of entrepreneurial exits as an important leverage factor. Ideally exits should leave entrepreneurs and senior management sufficiently wealthy so that they can reinvest their wealth in other ventures and focus full time on the creation of more entrepreneurship. The vital role of emerging serial entrepreneurs and angel investors as drivers of ecosystem growth has been shown empirically in earlier studies (Drexler et al. 2014). Furthermore, these emerging entrepreneurial success stories build legitimacy for the career path of entrepreneurship in general, shaping social norms around risk, failure and wealth creation and inspiring new generations of entrepreneurs

(Isenberg 2011). With a critical mass of clients, a support network of professional and technological services emerges. These include law firms with expertise in intellectual property, venture capital firms, management consultants, and technology-marketing firms (Kenney and Patton 2005). Additionally, the market becomes increasingly easier to penetrate as ICT products become more established. Finally, experienced entrepreneurs often take on public positions or advise policymakers in the creation of entrepreneurship-friendly policy (Isenberg 2011).

Conclusion

This chapter has offered a holistic perspective on the barriers to and enablers of the maturation of Kenya's early ICT ecosystem across the dimensions of culture, human capital, entrepreneurship support systems, finance, policy, and markets. Enriching these empirical insights with relevant theory on how ecosystems emerge and develop, I have proposed a model that explains how ICT ecosystems can emerge in resource-scarce contexts despite the absence of important preconditions. The model shows how enabling processes can be drawn on to substitute and establish the condition factors. The recommendations developed below are addressed to governments, development stakeholders, and practitioners in resource-scarce countries that seek to move their young ICT ecosystem toward maturity.

1. **Get the foundations right—ICT infrastructure, mobile payment, telecommunications market, and entrepreneurial support infrastructure**

The fact that technology ecosystems need, at the very minimum, ICT infrastructure, a way of handling payments, and a functioning telecommunications market is not surprising. What is surprising is the central role that the research presented here found entrepreneurial support institutions to play in catalyzing early industry emergence processes and establishing the conditions for entrepreneurship, particularly for developing human capital and creating interest in technology entrepreneurship. The establishment of support infrastructure, such as open technology hubs,

entrepreneurship accelerators, and competitions, should therefore be undertaken very early in the ecosystem emergence process, both through private and public sector efforts.

2. Enable the enablers—entrepreneurship support infrastructure, inflow of foreign human capital, and public sector market for ICT products

In addition to the pivotal role of entrepreneurship support infrastructure, the inflow of foreign human capital has proved beneficial in overcoming human capital shortages in the short term and in building a sounder resource base in the medium term. A structured program to increase inflow and the exchange of relevant human capital between the local and more mature ecosystems would further leverage such effects. The program could proactively invite entrepreneurs and facilitate the processes through arranging visas, accommodations, and the like. In addition, an exchange scholarship program for local talent to gain working experiences and networks in other ecosystems would also be beneficial. In this vein, diaspora Kenyans active in ICT industries abroad may prove valuable and may be willing to provide mentoring or even angel investments for emergent Kenyan ICT ventures when invited to do so. Such human capital development interventions need to be made alongside ongoing educational reforms. Another enabler is the commissioning of ICT-enabled products and services to solve social problems on behalf of governmental, NGO, or international development stakeholders. In Kenya, these have emerged as being key for early market emergence and the emergence of first technology ventures. To support the emergence of an ICT product market, some governments have also provided tax incentives for private sector companies that buy from new and local ICT ventures (see Drexler et al. 2014, pp. 77–80, for more information on creating early market demand).

3. Create kick-starter firms that set spin-off effects in motion

The establishment of first technology ventures is critical to ecosystem emergence because they set powerful spin-off processes in motion that, over time, automatically eradicate some of the barriers to emergence. For the provision of entrepreneurial financing, this means that despite the

somewhat ambiguous impact of nonmarket-based sources of financing, their benefits outweigh their drawbacks in this context. Because traditional sources of early-stage entrepreneurial financing are either not present or unattainable, alternatives need to be provided. In addition to the competitions and grants that were available in Kenya, I therefore propose to introduce an entrepreneurial stipend program financed by public stakeholders. In such a program, entrepreneurs receive a monthly stipend to cover their living expenses during the first phases of the venturing process, accompanied with relevant mentoring in order to produce viable businesses for market-based investors to invest in. A major example is Germany's EXIST technology entrepreneurship scholarship program. It is administered through university incubators and has been shown to positively influence network formation and the integration of universities in regional entrepreneurship ecosystems (Koschatzky 2003; Exist.de 2016). In this spirit, developmental finance organizations should provide investment capital and resources for operational costs to existing early-stage investment funds and accelerators to address the seed capital shortage (see GSMA 2014). These funds are already capable of selecting promising ventures and providing nonfinancial resources and hence are in a better position to administer seed capital than, for example, governmental stakeholders or donor agencies themselves (Avnimelech et al. 2007). Simultaneous efforts to support human capital formation, as proposed earlier, will offset at least some of the detrimental side effects of such interventions. Finally, policymakers can enable spin-off effects by providing tax breaks for angel investments and entrepreneurs and by further removing bureaucratic obstacles to new ventures. To achieve the latter, other countries have installed offices or contact staff that provide swift governmental services, such as business registration, operational permits, and employee visa arrangements, to technology firms.⁵

4. Engage practitioners in continuously refining your ecosystem-fostering strategy

It is—and should be—a common recommendation to governments to involve local practitioners in the design of their entrepreneurship policy,

⁵See, for example, Berlin-partner (2016).

because these are the actors who know about the unique challenges and enablers present in the ecosystem (Isenberg 2010, 2011; Vogel, 2013). As this chapter has shown, taking a holistic and multidimensional ecosystem perspective requires decision-makers to account for hundreds of different factors. This can only be achieved through intense and ongoing exchanges with ecosystem stakeholders from the respective dimensions. The need for such bottom-up information and co-design of policies is especially pivotal in resource-scarce contexts, where a lack of knowledge of approaches that work in such contexts might tempt policymakers to copy generic policy prescriptions that “worked in the West.” In Kenya, many achievements in kick-starting the ecosystem were driven by practitioners themselves, who took the initiative to open technology hubs and other support institutions. Such stakeholders are an invaluable resource because they already have a good overview of the ecosystem. Policymakers therefore need to put processes in place that enable the engagement of practitioners in the design and continuous refinement of their ecosystem-fostering strategy. Examples for such processes include establishing an open-door culture for ecosystem participants to talk with policymakers as well as regular fixed-day meetings and roundtable discussions that bring together experts from all ecosystem dimensions. Once such processes are in place, policymakers can start launching ongoing rounds of intervention and feedback that facilitate the emergence of an environment that breeds high-growth technology entrepreneurship.

5. Anticipate the challenges and prepare to meet them

A dynamic perspective acknowledges that ecosystems face different challenges at different phases and enables participants to prepare for what is coming next. Two challenges that nascent ecosystems may encounter on the way to maturation have emerged. First, the suggested early empowerment of a private sector enterprise to build embryonic telecommunication market structures may later lead to the presence of a powerful incumbent that stifles competition and entrepreneurial efforts. Policymakers should address this from the start, when, for example, negotiating licenses with such a corporation, and find ways to encourage the incumbent to interact with the ecosystem at later stages (also see GSMA 2014). Second, the inflow of foreign ecosystem participants leads to a culturally very diverse entrepreneurship scene. The research presented

here found that dissonant underlying assumptions around the goals and processes of entrepreneurship between local and international stakeholders cause friction that disturbs ecosystem functioning. It is therefore important to enter into a dialogue about the value of local venturing processes and the need to integrate the various approaches. Continuous efforts in that direction may lead to the institutionalization of better venturing processes that benefit from internationally proven practices while also being locally responsive.

Future Research

The research presented here has provided much-needed insights into the challenges and enablers that shape the development trajectory of nascent technology ecosystems in resource-scarce contexts. However, these findings have only scratched the surface of what is out there and, given the qualitative nature of the research methods, require validation and extension through further grounded theory research. In this spirit, anthropological and sociological research is urgently needed to understand more about the contexts' cultural dynamics. Potential starting points for such explorations could be the increased uncertainty avoidance of potential entrepreneurs caused by feelings of responsibility for their extended family members, the role of networks around entrepreneurship support institutions in establishing trust in an otherwise institutionalized low-trust context, and the dissonant cultural values and venturing practices between international and local practitioners that impede venture creation. Moreover, further research on the question of entrepreneurial financing mechanisms that are appropriate in resource-scarce and young ecosystems is pressing because as this research indicates, neither non-market-based financing nor the Western venture capital model provide a fully satisfying fit (see Chapter 14 Gugu and Mworira in this book). Are there local cultural practices that could be drawn on to develop a financing mechanism that is more appropriate to the context? What are ways to draw in more local investors?

This research's model of nascent ecosystem development in resource-scarce contexts outlines relatively broad phases that need refinement.

Researchers may want to compare different ICT ecosystems across resource-scarce contexts in longitudinal studies to determine challenges that are inherent to different ecosystem development phases and how to overcome them. Although the model focuses on very early stages of ecosystem development, the Kenyan ecosystem in 2016 seems to be approaching maturation. How does maturation integrate into the model? What learnings does Kenya's maturation provide for strategies of fostering nascent ecosystems? What new challenges and enablers arise at this phase? My research argues that, for ecosystem maturation, entrepreneurial spin-offs are pivotal and that both large entrepreneurial exits as well as formally new ventures that manage to grow to a large-scale leverage spin-off effects (Mason and Brown 2014; Mayer 2013). Large exits, however, require several rounds of growth capital so that entrepreneurs can grow their business to a stage where substantial value has been created, and they demand the presence of large corporations or potent investors to act as buyers (Mason and Brown 2014). Moreover, the rapid growth of firms may require the collection of equity on public capital markets (Mayer 2013). Are these conditions sufficiently established in Kenya and other resource-scarce contexts? And: Do phenomena that work in resource-rich contexts, such as crowding-in of investors, work in resource-scarce contexts?⁶

References

- Ács, Z. J., Autio, E., & Szerb, L. (2014). National systems of entrepreneurship: Measurement issues and policy implications. *Research Policy*, 43(3), 476–494. <http://linkinghub.elsevier.com/retrieve/pii/S0048733313001613>. Accessed 24 Jan 2014.
- Adams, S. (2011). Growing where you are planted: Exogenous firms and the seeding of Silicon Valley. *Research Policy*, 40(3), 368–337.
- Aldrich, H. E., & Fiol, C. M. (1994). Fools rush in — the institutional context of industry creation. *Academy of Management Review*, 19, 645–670.

⁶See Avnimelech et al. (2007) and Wonglimpiyarat (2015) for a discussion of the conditions that made Israel's Yozma initiative successful.

- Alexandre, C. (2011). Regulators as change agents. *Innovations*, 6(4), 3–16. http://www.mitpressjournals.org/doi/abs/10.1162/INOV_a_00096. Accessed 19 Feb 2016.
- Andersen, P. H., & Drejer, I. (2008). Systemic innovation in a distributed network: The case of Danish wind turbines, 1972–2007. *Strategic Organization*, 6, 13–46.
- Anyadike-Danes, M., Bonner, K., Hart, M., & Mason, C. (2009). *Measuring business growth: High growth firms and their contribution to employment in the UK: Research Report MBG/35*. London: National Endowment for Science Technology and Arts (NESTA).
- Autio, E., Kenney, M., Mustar, P., Siegel, D., & Wright, M. (2014). Entrepreneurial innovation: The importance of context. *Research Policy*, 43(7), 1097–1108.
- Avnimelech, G., Schwartz, D., & Bar-El, R. (2007). Entrepreneurial high-tech cluster development: Israel's experience with venture capital and technological incubators. *European planning studies*, 15(9), 1181–1198.
- Beckman, C., Eisenhardt, K., Kotha, S., Meyer, A., & Rajagopalan, N. (2012). Technology entrepreneurship. *Strategic Entrepreneurship Journal*, 6(2), 89–93.
- Berlin-partner. (2016). The Berlin start-up unit. Berlin Partner für wirtschaft und technologie. <http://www.berlin-partner.de/en/the-berlin-location/the-berlin-startup-unit/>. Accessed 8 Jan 2016.
- Charmaz, K. (2014). *Constructing grounded theory* (2 ed.). Thousand Oaks: Sage.
- Communications Commission of Kenya. (2015). Quarterly sector statistics report, fourth quarter, April–June 2015. *Communications Commission of Kenya*. www.cck.go.k. Accessed 15 Jan 2016.
- Data.un.org. (2016). Kenyan internet users (per 100 people). *UNdata*. http://data.un.org/Data.aspx?d=WDI&f=Indicator_Code%3AIT.NET.USER.P2. Accessed 15 Jan 2016.
- Disrupt-africa.com. (2015). Weza Tele acquired for \$1.7m — Kenya reacts. *Disrupt Africa*. <http://disrupt-africa.com/2015/05/weza-tele-acquired-for-1-7m-kenya-reacts/>. Accessed 20 Jan 2016.
- Drexler, M., Eltogy, M., Foster, G., Shimizu, C., Ciesinsik, S., Davila, A., et al. (2014). *Entrepreneurial ecosystems around the globe and early-stage company growth dynamics: Industry agenda*. Geneva: World Economic Forum.
- Du, J., Gong, Y., & Temouri, Y. (2013). *High growth firms and productivity: Evidence from the UK*. London: NESTA.

- Economist. (2007). The fading lustre of clusters. *The Economist*. <http://www.economist.com/node/9928211>. Accessed 6 May 2015.
- Economist. (2012). Upwardly mobile. *The Economist*. <http://www.economist.com/node/21560912>. Accessed 14 Jan 2016.
- Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, 14(4), 532–550.
- Exist. (2016). EXIST — Existenzgründungen aus der Wissenschaft. *Exist.de*. <http://www.exist.de/DE/Programm/Ueber-Exist/Ueber-Exist.html>. Accessed 13 Jan 2016.
- Feld, B. (2012). *Startup communities: Building an entrepreneurial ecosystem in your city*. Hoboken: Wiley.
- Feldman, M. P. (2001). The entrepreneurial event revisited: Firm formation in a regional context. *Industrial and Corporate Change*, 10, 861–891.
- Feldman, M., & Braunerhjelm, P. (2004). The genesis of industrial clusters. In P. Braunerhjelm & M. Feldman (Eds.), *Cluster genesis: Technology-based industrial development* (pp. 1–15). Oxford: OUP.
- Gartner, W. B. (1988). Who is an entrepreneur? Is the wrong question. *Entrepreneurship Theory & Practice*, 12, 47–67.
- Glaser, B. (1992). *Basics of grounded theory analysis*. Mill Valley: Sociology Press.
- GSMA. (2014). Digital entrepreneurship in Kenya 2014. *GSMA Mobile for Development*. http://www.gsmaentrepreneurshipkenya.com/GSMA_KENYA-AR2014-060214-WEB-SINGLE-PGS.pdf. Accessed 01 Mar 2015.
- Gustafsson, R., Jääskeläinen, M., Maula, M., & Uotila, J. (2015). Emergence of industries: A review and future directions. *International Journal of Management Reviews*, 18, 28–50.
- Himbara, D. (1994). *Kenyan capitalists, the state, and development*. Nairobi: East African Publishers.
- Hughes, N., & Lonie, S. (2007). M-PESA: Mobile money for the “unbanked” turning cellphones into 24-hour tellers in Kenya. *Innovations*, 2(1-2), 63–81.
- International Telecommunication Unit (ITU). (2013). *Measuring the information society*. ITU. <http://www.itu.int/en/ITU-D/Statistics/Pages/publications/mis2013.aspx>. Accessed 19 Feb 2016.
- Isenberg, D. (2010). How to start an entrepreneurial revolution. *Harvard Business Review*, 10(6). <https://hbr.org/2010/06/the-big-idea-how-to-start-an-entrepreneurial-revolution/ar/1>. Accessed 19 Feb 2016.
- Isenberg, D. (2011). *The entrepreneurship ecosystem strategy as a new paradigm for economic policy: Principles for cultivating entrepreneurship: Presentation at the Institute of International and European Affairs*. Wellesley: Babson.

- Kantis, H., & Federico, J. (2012). Entrepreneurial ecosystems in Latin America: The role of policies'. *International Research and Policy*, 6, 1–19 http://www.innovacion.gob.cl/wp-content/uploads/2012/06/Entrepreneurial-Ecosystems-in-Latin-America_the-role-of-policies.pdf. Accessed 27 Apr 2014.
- Keeble, D., & Wilkinson, F. (1999). Collective learning and knowledge development in the evolution of regional clusters of high technology SMEs in Europe. *Regional Studies*, 33(4), 295–303.
- Kenney, M., & Patton, D. (2005). Entrepreneurial geographies: Support networks in three high-technology industries. *Economic Geography*, 81, 201–228.
- Kiggundu, M. N. (2002). Entrepreneurs and entrepreneurship in Africa: What is known and what needs to be done. *Journal of developmental entrepreneurship*, 7(3), 239–258.
- Koschatzky, K. (2003). Entrepreneurship stimulation in regional innovation systems-public promotion of university-based start-ups in Germany. *SSRN*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1510581. Accessed 19 Feb 2016.
- Leblebici, H., Salancik, G. R., Copay, A., & King, T. (1991). Institutional change and the transformation of interorganizational fields: An organizational history of the United States radio broadcasting industry. *Administrative Science Quarterly*, 36, 333–363.
- Leslie, S. W. (2000). The biggest 'angel' of them all: The military and the making of Silicon Valley. In M. Kenney (Ed.), *Understanding Silicon Valley: The anatomy of an entrepreneurial region* (pp. 48–67). Stanford: Stanford University Press.
- Low, M. R., & Abrahamson, E. (1997). Movements, bandwagons, and clones: Industry evolution and the entrepreneurial process. *Journal of Business Ventures*, 12, 435–457.
- Mason, C., & Brown, R. (2014). *Entrepreneurial ecosystems and growth-oriented entrepreneurship: Final report*. Paris: OECD.
- Mason, G., Bishop, K., & Robinson, C. (2009). *Business growth and innovation: The wider impact of rapidly growing firms in UK city-regions*. London: NESTA.
- Mayer, H. (2013). Entrepreneurship in a Hub and Spoke Industrial District: Firm Survey Evidence from Seattle's Technology Industry, *Regional Studies*, 47, 1715–1733.

- Mezias, S. J., & Kuperman, J. C. (2001). The community dynamics of entrepreneurship: The birth of the American film industry, 1895–1929. *Journal of Business Venturing*, 16, 209–233.
- Miller, D. (2005). Entrepreneurial archetypes. In M. A. Hitt & R. D. Ireland (Eds.), *Entrepreneurship: The blackwell encyclopedia of management* (pp. 66–69). Oxford: Blackwell Publishing.
- Munir, K. A., & Phillips, N. (2002). The concept of industry and the case of radical technological change. *Journal of High Technology Management Research*, 13, 279–297.
- Napier, G., & Hansen, C. (2011). *Ecosystems for young scaleable firms*. Copenhagen: FORA Group. Nightingale.
- OECD. (2010). High-growth enterprises: What governments can do to make a difference, OECD studies on SMEs and entrepreneurship. *Organisation for Economic Cooperation and Development*. Paris: OECD.
- OECD. (2013). An international benchmarking analysis of public programmes for high-growth firms. *Organisation for Economic Cooperation and Development LEED programme*, Paris: OECD.
- Phaal, R., O'Sullivan, E., Routley, M., Ford, S., & Probert, D. (2011). A framework for mapping industrial emergence. *Technological Forecasting and Social Change*, 78, 217–230.
- Porter, M. E. (1998). Clusters and the new economics of competition. *Harvard Business Review*, 76(6), 77–90.
- Pv-magazine.com. (2015). M-Kopa Solar secures \$19 million equity investment. *pV magazine*. http://www.pv-magazine.com/news/details/beitrag/m-kopa-solar-secures-19-million-equity-investment_100022256/#axzz3xmUDhjHG. Accessed 15 Jan 2016.
- Reuters. (2014). Kenya's technology push leaves investors cold. *Reuters*. <http://www.reuters.com/article/kenya-tech-idUSL6N0UE15920141231>. Accessed 15 Jan 2016.
- Saxenian, A. (1994). *Regional competitive advantage: Culture and competition in Silicon Valley and Route 128*. Cambridge, MA: Harvard University Press.
- Tavory, I., & Timmermans, S. (2014). *Abductive analysis: Theorizing qualitative research*. Chicago: University of Chicago Press.
- Thornton, P. H. (1999). The sociology of entrepreneurship. *Annual Review of Sociology*, 25, 19–46.
- Uhl, P. (2012). Im Silicon Savannah. *Der Spiegel*. <http://www.spiegel.de/spiegel/print/d-122579517.html>. Accessed 14 Jan 2016.

- Vogel, P. (2013). The employment outlook for youth: Building entrepreneurship ecosystems as a way forward. *Conference Proceedings of the G20 Youth Forum*. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2357856. Accessed 13 Feb 2014.
- Webb, J. W., Tihanyi, L., Ireland, R. D., & Sirmon, D. G. (2009). You say illegal, I say legitimate: Entrepreneurship in the informal economy. *Academy of Management Review*, 34, 492–510.
- Welter, F. (2012). All you need is trust? A critical review of the trust and entrepreneurship literature. *International Small Business Journal*, 30(3), 193–212.
- Wonglimpiyarat, J. (2015). Mechanisms behind the successful VC nation of Israel. *The Journal of Private Equity*, 18(4), 82–89.
- Yin, R. K. (1994). *Case study research — Design and methods* (2 ed.). Thousand Oaks: Sage.
- Zacharakis, A. L., Shepherd, D. A., & Coombs, J. E. (2003). The development of venture- capital-backed internet companies: An ecosystem perspective. *Journal of Business Venturing*, 18, 217–231.
- Zoogah, D. B., & Nkomo, S. (2013). Management research in Africa: Past, present, and future. In T. R. Lituchy, B. J. Punnett, & B. B. Puplampu (Eds.), *Management in Africa: Macro and micro perspectives* (pp. 9–31). New York: Routledge.

Conversation #8

Women Working in Tech: Making the Invisible Visible

Judith Owigar of AkiraChix



Judith Owigar is an African entrepreneur who uses technology as a tool to empower youth and young women. She believes that exposure to, education about, and actual use of technology can improve quality of life—and as such change the world for the better. Judith is a co-founder and the operations director of AkiraChix, a not-for-profit that aims to inspire and develop a successful force of women who create technology solutions, change women’s perception of technology, and change Africa’s future. She is also the founder of JuaKali, an online platform that links skilled manual laborers in Kenya’s informal sector—commonly known as JuaKali workers (Kiswahili for “hot sun”)—with employers in the construction industry.

What is the story behind AkiraChix?

A group of friends and I started AkiraChix in 2010. It all stemmed from the need to see more people like us in the field of technology. Three of us in the original co-founding team worked in the same company, and we constantly felt we needed to prove that our work was good enough. We were three women among the total of five developers, and outsiders from the neighboring company would come and ask, “Who actually codes in this office?”—then they would look at the dude. We felt invisible.

My generation grew up with the common stereotype that women have lower mathematical or critical thinking ability than men. This has affected how men view women in the workplace and also how women viewed themselves. It has led both men and women to question the place of women in science, technology, engineering, and math fields. Our personal experience as women developers led us to start a community for women in technology where we are visible, can support each other, and can grow our skills—because we wanted to be the best in our field!

What is the biggest fear when it comes to working in an environment that is male dominated?

One of my greatest fears was to be my true self as woman in a male-dominated space. When I first entered the technology space as a university student, my first thought was to find a way to fit in. At that time, I thought the best way to fit in and blend with the crowd was to act more like my classmates and play down my feminine attributes. The fact that I was a woman by itself made me stand out. My choice of clothing was greatly influenced by the fact that I did not want my womanhood to be the center of attention. It was easier for me to wear baggy clothes because I was not confident in my femininity. Over the course of the years, I have become confident in the fact that I am a woman and I am a technologist. I have come to realize that I need to hold both identities in order to be my true self. I think this is one of the underlying reasons why many women shy away from male-dominated spaces, because you feel like you have to give up a part of yourself to fit in. One of the reasons I believe AkiraChix is such a strong force is because we give women the freedom to be themselves.

When was the first time you realized that AkiraChix was going to work?

Our point of validation came when we participated in hackathons. There used to be very many hackathons at the iHub, and as usual there were always more men than women. In the early years of the iHub, most of the girls who participated in the hackathons were members of AkiraChix. We usually worked together as a team. The point of validation came when other women would come to the event and would look at us and ask to join us. From that moment on, it validated our point that there was a need to have a women-only space where women could take risks, fail, learn, and succeed.

What is the vision of AkiraChix?

AkiraChix's vision is to nurture generations of women in Africa who use technology to create solutions and positively affect their community. In order to make our vision a reality, we would like to have organizations like AkiraChix all over Africa. Ultimately, we would like to see more women join the field of technology. We will say that we have accomplished our vision when the representation of women in the field of technology is no longer an issue.

When we started building the technology ecosystem in Kenya, we used to copy a lot of what we saw in Silicon Valley. We used to read a lot in Mashable, TechCrunch, and so on. We read about all these start-ups that seemed to be overnight successes, with their massive valuations and big IPOs. For a moment, we felt like we were in Silicon Valley ourselves, forgetting that we live in Kenya, where very few people have much disposable income and when it comes to technology, they want to spend their money on something relevant. Very few people in Kenya use technology just because it is fun. We have realized that in order to sell in this market, the service needs to serve a real need or address a clear pain point. Over time we have realized that it takes more work to build a software-based business-to-client service than a business-to-business service—and we really had to rewire our thinking with regard to operating a technology business in our context.

As a co-founder of AkiraChix, I looked to Silicon Valley to give me answers on how to work on the issue of women's low representation in technology. But over time, I realized we had a better chance of solving the issue for ourselves right here in Africa, because the technology ecosystem was young and in its formative stages. If we tackled the problem before it became as institutionalized as it is in Silicon Valley, then we had a better chance of success. I came to see that we are operating at the best time to address this problem. Our hope is that, 20 years from now, women will account for more than 40 % of the workforce in the field of technology.

In order to achieve this vision, we want to scale to five training centers in towns and cities all over Africa. We also want to expand to the major urban centres within Kenya. And in order to reach more African women technologists, we plan to partner with hubs and co-working spaces all over the continent to support their initiatives of having more women represented in technology. We are currently developing the Akirachix model that we can share with interested people and organizations. This is the best way and time for us to write the story of African women in technology.

How did you create a community for women?

We started by having monthly meet-ups for women in technology. Over time, we realized that we were sharing a lot of information and knowledge among ourselves that other women could benefit from. We therefore decided to start a training program that targeted young women from low-income areas. We wanted to target young women who did not have an opportunity to be in the technology industry. Over time, we also started a high school program so that we could expose girls in secondary schools to careers in the technology industry. We had realized that many girls did not consider careers in technology, because they did not know about them, and if they did they did not see women whom they could identify with.

As we continue to grow our community of women in technology, we have also realized that we need to work with men in the industry as our partners. This is because the women we work with do not exist in a vacuum. They work and study with men in school or on the job. One of the

ways we have been doing this is by engaging men in our programs. Many of our trainers, for example, are men. On a wider scale, we encourage the members of our network to participate in events hosted at the iHub co-working space. One of our greatest realizations as AkiraChix was that we are a subcommunity within the greater tech community. We are not a separate entity. Recognizing this and communicating it to the tech community has made them more open to supporting our activities.

What are the kinds of struggles you get exposed to as a female entrepreneur?

There is a lot of sexism in Kenyan culture, and it is hard for a woman to be viewed as a competent leader. If a woman gets assaulted or battered, she usually gets blamed for it irrespective of how the man acted. It is usually considered to be the woman's responsibility to prevent such acts of violence. For women who are leaders in technology or leaders in other professions, the bar is set much higher. We are expected to navigate unwritten social rules when dealing with both men and women. There is also the assumption that marriage validates a woman's leadership abilities. This can make it harder for a young unmarried woman like me to get respect in certain circles.

Being a part of Acumen's East Africa Fellows Program has helped me understand and appreciate myself as an influencer in my community and helped me define my purpose. Through this experience, I no longer look down on myself just because I am young—and I strive to be an example in my speech, conduct, love, and faith.

How did it happen that you were on the same panel with Presidents Uhuru Kenyatta and Barack Obama at the Global Entrepreneurship Summit (GES)? What did it mean to you?

I was contacted two weeks before the conference and asked if I was interested in participating in a panel at the GES. I was asked to give a two minute pitch of any subject I would like to discuss. I gave a mini elevator pitch on Akirachix. At that moment I did not realize I would be giving a more refined version of that pitch while seated between the President of the US, Barack Obama, and the President of Kenya, Uhuru Kenyatta, two weeks later.

That experience gave validation to the work we as AkiraChix have been doing. On an individual level, I felt that I represented very many young African women who are trying to make a difference in their communities. At that moment on stage, I felt I was speaking for young women all over Africa.

Thank you, Judith!



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9

The Challenges of Technology Entrepreneurship in Emerging Markets: A Case Study in Nairobi

Marlen de la Chaux and Angela Okune

Introduction

Over the past decade, national and international interest in technology entrepreneurship in Kenya has surged, in part as a result of the rapid dissemination of mobile technologies, the installation of digital infrastructure grids, and the growing consumer markets for technology in East Africa (Hussey 2015). In Nairobi in particular, computer scientists, bloggers, and technology enthusiasts have been creating and seizing opportunities to build technology businesses. To support their endeavors, a number of innovation hubs—spaces dedicated to nurturing technology entrepreneurship, usually through business incubation or acceleration—have become operational. At the same time, local and

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international impact, angel, and seed fund investors have been flocking to Nairobi in hopes of identifying and sponsoring Nairobi's next big technology start-ups.

As such, the budding community around technology entrepreneurship in Kenya seems well positioned to “churn out one successful start-up after the next,” as one of our informants put it. Yet, entrepreneurs, innovation hubs, journalists, and investors alike agree that creating sustainable technology businesses in Nairobi has continued to be extremely difficult (Quartz 2014; Mulupi 2013). What is more, patience is beginning to wane—and skeptics have begun voicing doubts about Nairobi's potential as the metropolitan center for East African technology entrepreneurship (Reuters 2014).

For more than 20 years now, a rich stream of research has shown that, in emerging markets, low levels of consumer demand, weakly developed financial markets, inefficient administrative systems, and underdeveloped physical infrastructures can constitute significant barriers to launching a successful business (see, e.g., Honig 1998; Pissarides et al. 2003). Although these factors may partially explain some of the difficulties that entrepreneurs encounter, our attention was drawn to another one—the relative novelty of technology entrepreneurship *per se* in Nairobi: The first computer science courses were introduced across the city's universities only in the late 1990s, and the spread of technology—especially mobile phones and Internet grids—began less than a decade ago (The Economist 2012). Could it be, then, that *new* forms of entrepreneurial activity in emerging economies—in our case, technology entrepreneurship in Nairobi—are faced with added challenges as a result of their novelty?

Drawing on an in-depth qualitative case study consisting of over 70 interviews and various written accounts, we explored the perspectives of those directly involved in technology entrepreneurship in Nairobi, i.e. technology entrepreneurs, innovation hub staff, and investors. We found that contradictory perspectives about the availability of capital, divergent views on what constituted key business skills, and misaligned perceptions of potential technology consumer markets characterized interactions among the actors involved in Nairobi's technology entrepreneurship. From our analysis, we conclude that

these disconnects constitute an additional challenge to novel forms of entrepreneurial activity by complicating capital flows, business skills development, market identification, and thus ultimately the creation of new technology businesses.

The chapter is organized as follows: First, we provide an overview of existing research on the challenges to entrepreneurship in emerging markets, followed by a brief reflection on the nature of new forms of entrepreneurial activities. After a summary of our methodology and research context, we explicate our findings. The chapter concludes with recommendations for those seeking to foster an environment conducive to technology entrepreneurship in Nairobi (and possibly in other contexts where technology entrepreneurship constitutes a new form of entrepreneurial activity).

Challenges to Entrepreneurship

Barriers to Entrepreneurship in Emerging Markets

Emerging markets can be defined as contexts that exhibit a high pace of economic development while lacking institutional features such as stable political, financial, and legal systems; regulations; and infrastructures (Hoskisson et al. 2000). An important stream of research has investigated entrepreneurship in emerging markets and, identified four central barriers to entrepreneurship that often persist: lack of financial capital, low levels of demand for new products and services, inefficient administrative systems, and underdeveloped physical infrastructures. These constraints especially characterize sub-Saharan Africa, where business creation “is typically more difficult than in other parts of the world” (Rivera-Santos et al. 2015).

First, emerging economies tend to exhibit rudimentary and sometimes barely functioning financial markets. Often linked to more general problems of high depreciation and inflation rates (Pissarides et al. 2003), this causes difficulties in securing capital for business creation. In Kenya, for example, interest rates average around 9 percent (Julian and Ofori-Dankwa 2013; World Bank 2015b). Consequently, entrepreneurs often have no choice but to rely on personal savings or informal lending

through their social networks in order to fund their ventures (Thornton et al. 2011).

Second, emerging markets tend to exhibit relatively low levels of demand for new products and services. Orser et al. (2000) explained that because subsistence incomes prevail in emerging markets, potential customers are less likely to risk spending the small amounts of available cash on new products and services whose functionality has not yet been confirmed by widespread adoption. In Kenya, although penetration rates for mobile phones are relatively high, consumers have been comparatively hesitant to buy technology innovations that were locally created. Instead, consumers prefer the products and services of global technology companies such as IBM, Nokia, and Huawei, which dominate mobile and software markets in Kenya (Reuters 2014).

Third, legal and administrative systems are often marked by slow procedures, corruption, and a lack of property rights enforcement (Peci et al. 2012), which make processes associated with the creation and operation of a new business time-consuming and unnecessarily costly (Aidis et al. 2012; Peng and Shekshnia 2001). Kenya ranks 136th (of 189 economies) for ease of doing business, with administrative costs for setting up a business requiring over 40 percent of the average gross domestic product (GDP) per capita (World Bank 2015a). Often, therefore, in order to save costs and time, entrepreneurs hesitate to register their new businesses, which, in turn, excludes them from property rights protection and other legal safety nets, as fragmented as they may be (Khavul et al. 2009).

Finally, infrastructures are frequently inadequate for business creation in emerging markets, impeding access to suppliers, consumer markets, and market information (Coad and Tamvada 2012). Nairobi struggles particularly with the insufficient capacity of its roads and its power grid (Blas 2013). Entrepreneurs in emerging markets may therefore incur additional costs in order to reach suppliers as well as customers. One frequently used strategy is to rely on personal networks to access market information and suppliers and to disseminate products or services through family and friends (Jack and Anderson 2002; Thornton et al. 2011).

New Forms of Entrepreneurial Activity

In a sense, any entrepreneurial activity is new, because it consists of the discovery and exploitation of previously unrecognized but potentially profitable business opportunities (Shane and Venkatamaran 2000). Researchers, however, have distinguished several forms of entrepreneurial activity. Thornton (1999), for example, distinguished demand- and supply-driven forms. Kunkel (2001) developed a typology that distinguished between need-driven, technology-driven, low-growth-potential, income-substituting, part-time, and lifestyle forms of entrepreneurship.

In addition to motivation-based approaches, entrepreneurial activity can also be classified according to the types of new ventures that ensue (cf. Gartner et al. 1989). Social enterprises, for instance, are associated with distinctive forms of entrepreneurial activity. By combining social and market objectives, social enterprises' business models, strategies, and funding streams differ significantly from those of more traditional businesses (Austin et al. 2006). Technology businesses, similarly, are also associated with distinct types of entrepreneurial activity. A key differentiator, as Beckman et al. (2012) emphasized, is that innovations in science and engineering, rather than market demand, drive technology entrepreneurship.

When new forms of entrepreneurial activity first emerge, they may face a variety of challenges. For example, structures that facilitate the new form may not yet be in place. Social entrepreneurs, for example, initially had difficulty in formally registering their businesses, because the organizational structure blending social and for-profit values did not yet legally exist (Galera and Borzaga 2009). Similarly, reliable patenting processes for the commercialization of technologies only developed over time, as technology entrepreneurship became established as a distinctive type of entrepreneurial activity (Datta et al. 2015). Moreover, traditional stakeholders such as investors or universities may not initially understand and share the perspectives, values, or practices associated with the new forms of entrepreneurial activity. By taking stock of current developments, Cooper (1973), presented and described to the academic

community the then-new phenomenon of technology entrepreneurship in North America.

In summary, entrepreneurial activity may be classified according to the drivers or the types of ventures created. In either case, new forms of entrepreneurial activity are associated with additional challenges, such as limited acceptance from stakeholders or a lack of legal support. However, research so far has focused on industrialized economies, where new types of entrepreneurs do not also encounter the lack of financial markets, low levels of demand, ineffective policies, and weak infrastructure that entrepreneurs in emerging markets must cope with. As a result, little is understood about the challenges associated specifically with new forms of entrepreneurial activity in emerging markets.

A Case Study of Technology Entrepreneurship in Nairobi

To learn more, therefore, we drew on an in-depth qualitative case study highlighting the challenges associated with new forms of entrepreneurial activity in Nairobi. Entrepreneurship itself is, of course, not new in the region. Informal entrepreneurs such as the *jua kali* (Kiswahili for “hot sun”) as well as entrepreneurial activity related to agriculture and real estate have existed for decades (King 1996). However, technology entrepreneurship constitutes a new type of entrepreneurial activity. In comparison with existing types, technology entrepreneurship relies heavily on science innovations and therefore a strong technology skill and knowledge base. Nairobi’s universities, however, only graduated their first computer scientists in 1997 (20 students at the University of Nairobi), 1998 (21 students at the Jomo Kenyatta University of Agriculture and Technology), and 2003 (20 students at Kenyatta University).¹ In addition, unlike agriculture and real estate entrepreneurship, software and mobile technology entrepreneurship caters to consumers who already own the necessary technological hardware. A potential Kenyan consumer base for technology entrepreneurship only evolved in the mid-2000s,

¹ These figures were provided by our informants.

following significant infrastructural improvements and the rapid dissemination of mobile phones across the country. In 2007, only 30 percent of Kenyans owned a mobile phone; in 2014, the figure stood at roughly 80 percent (Communications Authority of Kenya 2015). Finally, technology enterprises tend to compete globally, because technology innovations—particularly software and mobile-technology innovations—can be relatively independent of context (Wickham and Vecchi 2008). This further distinguishes technology entrepreneurship from many other forms of entrepreneurial activity, which tend to be localized.

Since 2010, a variety of innovation hubs have taken up operations in Nairobi to promote and facilitate the creation of technology ventures. Manske (2014) remarked on the hubs' centrality to technology entrepreneurship in the city, writing that "until 2010, around the time when iHub (one of Nairobi's first innovation hubs) was becoming a reality there wasn't much to say about the local tech ecosystem." Currently, at least six innovation hubs operate out of Nairobi.

Our case study consists of more than 70 semi-structured qualitative interviews with technology entrepreneurs, investors, innovation hub staff, and technology professionals in Nairobi, and explores their views on technology entrepreneurship. The interviews ranged from 30 minutes to 2 hours, with an average of 65 minutes apiece. In addition, Angela Okune, the second author of this chapter, served as the research director at iHub, Nairobi's largest innovation space for technology entrepreneurship, giving her detailed insight into various social dynamics over time that might have remained implicit during the interviews with some of our informants. We captured these insights in the form of a written narrative.

Taking a grounded theory approach (Glaser and Strauss 1967)—in which the theory emerges from the data rather than data confirming existing hypotheses—we analyzed our rich data by first broadly grouping pieces of information. From this, three groups of actors—technology entrepreneurs, investors, and innovation hub staff—emerged as being central to the processes and practices of technology entrepreneurship. Through iterative coding, we compared the three groups' views² on technology

² Although the individuals within each group naturally also expressed some degree of heterogeneity in their views, an analysis of their individual views is beyond the scope of this chapter.

entrepreneurship, which revealed three recurring themes: financial capital, business skills, and market readiness. Finally, we discussed our analysis with key informants to ensure validity and reliability.

Perspectives on Technology Entrepreneurship: Contradiction, Divergence, and Misalignment

Our findings are presented in three parts. First, we bring to the surface the contradictory perspectives among technology entrepreneurs, innovation hub staff, and investors on the role of financial capital. Second, we examine the divergent understandings that the three groups have of the business skills that are crucial to technology entrepreneurship. Finally, we analyze how understandings of what constitutes a viable technology consumer market are misaligned.

Too Much Seed Capital or Too Little?

We found, perhaps most saliently, that the entrepreneurs, innovation hub staff, and investors had contradictory views about the availability of financial capital for technology start-ups. Whereas the entrepreneurs saw a disconnect between the investments they seek and the investments that are available, the innovation hub staff problematized an overall lack of capital, and the investors complained that start-ups have too much funding available.

Entrepreneurs: Disconnect between Available Funding and Funding Sought

The technology entrepreneurs spoke of three types of disconnects between the funding available and the funding sought: the accessibility of funding generally, the volume of capital needed, and the type of investment sought.

First, our data revealed that many entrepreneurs looking for investments struggled to approach investors. A survey showed that fully 75 percent of start-ups in Kenya looking for external financing did not

contact investors (GSMA 2014). Often, this seems to have been caused by information gaps and subsequent ambiguities about where and how to approach suitable investors. As one informant explained, “The information about available funding doesn’t get to the right people.”

Second, many technology entrepreneurs perceived a challenge in attracting the appropriate amounts of capital. One entrepreneur said:

There’s a gap for investments for start-ups who probably need something like USD100,000. Because the guys who want to invest are willing to put in at least USD500,000, you know? And there’s this other side of investors who want to put in USD25,000 [or] USD10,000. And so the gap for growth and really making it matter is....lacking.

Finally, the entrepreneurs perceived a disconnect between the types of funding sought and the types of funding offered. Although capital from donations and impact investments might be available, many entrepreneurs have become wary of the associated administrative processes, often in the form of regular reports and presentations. As one technology entrepreneur explained:

I was just sent a 13-page document that asked me to compile a 100-page report to get money from a fund. I don’t have the time to manage those kinds of strings attached.

Innovation Hubs: Lack of Seed Capital

By contrast, many founders and managers of innovation hubs in Nairobi perceived that an overall lack of seed capital was hampering the survival and growth of promising technology start-ups. As one hub employee elaborated: “It’s capital. Even in Silicon Valley they probably say that they don’t have enough capital. But it really is lacking here.” Innovation hubs particularly cited the overwhelming number of start-ups—an estimated 80 percent (GSMA 2014)—that rely on personal savings or family networks for capital. Moreover, capital through bank loans is also often inaccessible, with interest rates for technology start-ups hovering at around 20

percent (Reuters 2014). The manager of one innovation hub spelled out the consequences:

When they [entrepreneurs] run out of money, they panic and start applying for random grants and competitions. Some of them just do another [incubation or acceleration] program — totally unreasonable. They should focus on reaching their customers and making money that way instead of going from program to program.

Investors: Too Much Seed Funding

The venture capital and angel investors perceived a different reality: Instead of a lack of capital, they saw an oversupply. One informant complained that “Africa is over-flooded with money,” and other investors said they have struggled with a scarcity of investment opportunities:

We have a couple of start-ups that we’re interested [in] investing in and we’re doing due diligence. But I’m not overloaded with so many good start-ups that we feel like we do not have enough money.

The investors offered two explanations for the lack of investment opportunities. First, they perceived the prominence of grants and social investments as crowding out other investments. Over the past years, the World Bank’s InfoDev has disbursed multi-million-dollar grants to nurture information and communication technology (ICT) innovation in Nairobi, while impact and not-for-profit investors such as the Acumen Fund and the Rockefeller Foundation have operated their (East) African headquarters from Nairobi (InfoDev 2014; The East African 2012). A seed capital investor added:

If a start-up can get a grant from one of the development agencies, they get the money and nobody asks what they do with it. They are spoilt with all the development money. But we can’t do that. We are not a charity.

Second, the investors perceived a shortage of start-ups that met their criteria. In particular, many prospective investees were missing formal

records that conventionally form the basis of investment decisions. Many investors expressed surprise about the lack of accounting practices and business planning among start-ups and subsequently doubted entrepreneurs' ambition and trustworthiness. In one case, a seed fund manager explained that after a start-up received the funds' investment, "they stopped answering...emails; they stopped paying their staff and apparently moved to the coast with the money." Such examples, although extreme, further decrease investors' confidence in potential investment opportunities.

Divergent Notions of Business Skills

Although the entrepreneurs, innovation hub staff, and investors agreed on the importance of building technology–business skills, we found that their views of how business skills should be prioritized diverged. Whereas the entrepreneurs focused on planning and strategy, the hub staff prioritized the importance of team building and leadership, and the investors emphasized administrative and structural skills.

Entrepreneurs: Strategy and Planning

The entrepreneurs explained that the ability to iterate on a business model and product as well as selling ideas to potential investors and customers were crucial. In other words, they felt that being passionate about an idea was one component while turning the idea into a business was another:

It's easy to have an idea and you're very passionate but nobody cares. You talk to investors and angels and they're not interested. I think once you make your idea one that people care about you've got a sustainable business.

In addition to understanding how to move from idea to business, the entrepreneurs saw the creation of business structures as another key skill they lacked. Many of the entrepreneurs used start-up terms, such as "minimum viable product," "prototyping," or "fail fast," during our

interviews. Their familiarity with such terms alone, however, seems insufficient for successfully implementing the associated business structures. One entrepreneur remarked:

Talk to the start-ups that are sitting there [co-working at a hub] and I guarantee you that not a single one of them would know their numbers. They wouldn't have anything available that investors would want to see.

Innovation Hubs: Team Building and Leadership

The innovation hub staff primarily perceived the importance of building a strong founding team. This stemmed from innovation hub staff seeing technology entrepreneurs focus on the technology aspects of their idea and, as they progressed from idea to product, realize they lacked the business skills to build a company. A member of one innovation hub's staff noted:

The most 'successful' start-ups all have at least one businessperson with a nontechnical background. If someone is working alone on their business, most likely this person won't be successful in their entrepreneurial attempt.

Almost half of Kenyan start-up founders have a technical background (GSMA 2014), and without a strong business leader on their team, such start-ups can end up fixating on technical details such as perfecting code.

Second—and closely linked to building a strong team—the hub staff perceived a lack of leadership skills among entrepreneurs. Leadership was understood to be crucial for communicating the vision of the business and attracting high-quality team members who shared a founder's vision and values. Leadership of a multidisciplinary team, however, may require founders to communicate their technological innovations and ideas in simple, effective terms to those who may be unfamiliar with technology jargon. A hub staff member explained:

It's difficult for young entrepreneurs to articulate [their vision and values] and to play that leadership role. Controlling for the quality of the idea, the next important factor is leadership. Leadership and business skills are intertwined.

Investors: Business Administration

The investors expressed surprise at the lack of financial and administrative structures they saw among technology start-ups. A venture capital investor said:

We need to see that they keep budgets, that they keep track of their income and their expenditures, that they have a plan for income, that they have a long-term plan for returns — and they don't do that. Most of the start-ups don't track anything they do and then there is nothing you can do. Because even if I think they have potential, I can't make a positive decision. I have to justify why we...should finance them...and I can't do that if I have nothing written...if I have no accounts to show me what they are doing.

To investors, accounting and financial skills were therefore key for demonstrating a start-up's business potential. Because investors primarily use financial models to make investment decisions, the absence of financial figures captured through regular, reliable bookkeeping makes it difficult to assess the future profitability of a start-up—suggesting that when technology start-ups learn the value of good accounting, they will be more likely to receive investments.

Misaligned Market Perspectives

A company that cannot find customers to purchase its products or services will struggle to survive. Identifying the right market, however, sounds simpler than it often is. A recent poll among the founders of failed start-ups revealed that 42 percent cited a lack of a market need for their product as the primary reason for the business's failure (Fortune 2014). Despite Kenya's high mobile phone penetration, an established customer base for emergent technology innovations is still lacking. Consequently, we found that entrepreneurs, innovation hub staff, and investors have each developed their own interpretations of what constitutes a viable market for technology in Nairobi.

Entrepreneurs: Fuzzy Markets

Entrepreneurs encounter a high degree of skepticism among potential customers. Although mobile phones have penetrated daily life in Nairobi,

many potential customers seem to remain hesitant about mobile-related innovations and other technologies. Many entrepreneurs have reported difficulties when trying to sell their technology product or service. The founder of a small start-up summarized the situation as follows:

A real challenge is market matureness. Everything else you can overcome and turn into an opportunity. This you can't. There is a widespread lack of trust in Kenyan society. That's probably the result of many years of hardening experiences. People here don't trust that your product will deliver what it's promising, and they don't believe that you'll stick around or can be taken seriously.

To overcome this barrier, a number of technology entrepreneurs have turned to what we term the nonprofit market, composed of international development agencies and nongovernmental and nonprofit organizations that have expressed interest in using technology to resolve challenges at the economic base of the pyramid. In contrast to for-profit markets, where profit is made through product sales, nonprofit markets give grants to start-ups so that they target beneficiaries, that is, those at the bottom of the pyramid who cannot otherwise afford to pay for the company's product or service. As one technology entrepreneur explained:

[For grants] you need to hit as many poor people in the slums as possible. That might be different from what angel [investors] say. They care more about whether you can actually make money out of the people in the slums whereas someone else [giving a grant] might say, "Do it all for free, just hit the numbers."

Innovation Hubs: Designing for Markets

In contrast with the lack of market readiness that the entrepreneurs perceived, the innovation hub employees found that the majority of technology entrepreneurs failed to develop adequate products for existing markets. As one hub manager said:

Honestly, the customers are there. That's not the main issue. You just have to design a product that fits what they want.

Most hub employees explained that the majority of technology entrepreneurs failed to identify and address appropriate markets for their products and services. In particular, the innovation hub employees perceived that the majority of technology start-ups conducted insufficient market research and did not pilot their product or iterate on customer feedback. The hubs therefore emphasized the importance of tailoring products and services to customer demand and have offered a variety of mentoring opportunities to guide entrepreneurs. Innovation hub employees seemed to remain impartial about the type of markets that businesses could viably target. Whether start-ups find customers that are willing to pay for a start-up's products and services or whether they obtain grants from nonprofits to distribute their products, the hubs' main concern was that entrepreneurs frame any kind of market in the first place.

Investors: Identifying Market Boundaries

The investors tended to perceive consumer-driven markets—that is, markets composed of individuals and businesses that purchase a start-up's products and services—to be the only viable target markets. This contrasted with the technology entrepreneurs and innovation hub staff, who also perceived the viability of designing for nonprofit markets. One investor elaborated on start-ups that tailored their products and services to the nonprofit market:

The development money, it's not helping them become sustainable. They start designing their business plan to target development agencies and not the customer, and then once the grant runs out it's a dead end. And then that makes it hard for us. Because all these companies might be run by promising entrepreneurs, but they have the wrong incentives.

Recognizing that the number of potential customers for technology goods and services may not yet be large enough to make start-ups sustainable, many of the investors therefore emphasized the importance of instead developing technology products and services for the East African market at large. In contrast to the entrepreneurs and innovation hubs, the investors thus perceived the only viable markets to be customers that purchase technology start-ups' goods and services.

Discussion: Disconnected Perspectives as Challenges to Technology Entrepreneurship in Nairobi

In the previous section, we presented the perspectives of three key groups of actors—technology entrepreneurs, innovation hub staff, and investors—on the availability of capital, business skills, and the readiness of technology markets. To conclude, we reflect on how these disconnected perspectives may constitute additional barriers to technology entrepreneurship in Nairobi (see Table 9.1).

Table 9.1 Summary of actors’ disconnected perspectives on technology entrepreneurship in Nairobi

	Entrepreneurs	Innovation hub staff	Investors	Subsequent barrier to technology entrepreneurship
Financial capital	Disconnect between capital available and capital sought	Undersupply	Oversupply	Contradictory perspectives impede access to funding
Business skill	Lack of idea for market development	Lack of team management	Lack of business structure	Divergent perspectives make skills development time- and resource-intensive
Market readiness	Consumer skepticism as an obstacle	Entrepreneurs don’t design for markets	NGOs and donations distract from markets	Misaligned perspectives make technology market potential ambiguous

Contradictory Perspectives: Financial Capital

First, we found that the entrepreneurs, innovation hub staff, and investors expressed contradictory views about the availability of capital for technology entrepreneurship. Technology entrepreneurs consequently encounter an additional barrier when attempting to secure funding, namely the need to bridge these contradictory views.

Many of the entrepreneurs remarked that, incentivizing North American or European entrepreneurs to join the start-up's board or founding team meet investors' expectations and helps attract financial investments. The vast majority of angels and venture capital investors have been non-Kenyan, and merely 26 percent of investments have been made to start-ups founded by Kenyans thus far (GSMA 2014). One foreign entrepreneur explained that she built trust with another foreign investor based on their shared love of a soccer team, which ultimately secured an investment. A serial Kenyan entrepreneur summarized:

You'd be surprised by how this ecosystem works. Me and four locals trying to nail a partnership would take years. But just bring in a non-local, we just need to have them in the meeting and then we look more serious. It's a reality.

Because perspectives on the availability of capital for technology start-ups are contradictory, entrepreneurs incur additional (search) costs by, for instance, requiring co-founders to have certain geographical origins.

Simultaneously, innovation hub employees attempt to identify promising start-ups and connect them to capital. However, because interpretations of what constituted a start-up suitable for investments differed between the hub staff and the investors, the investors incurred additional costs by spending time and resources on start-ups that did not meet their criteria. An investor explained:

The teams that were recommended by [an innovation hub], we look at their pitch deck and it's so bad. And we're like, "You're coming from a good reference...but we can't see it." So I did three revisions on a pitch deck for a team because they were recommended to us.

Divergent Perspectives: Business Skills

Although the entrepreneurs, innovation hub staff, and investors agreed that business skills are helpful in the creation of sustainable businesses, we found that they diverged in their interpretations of which business skills were most crucial at the onset of the entrepreneurial journey. The entrepreneurs perceived the importance of strategic planning, the hub staff considered business leadership to be central, and the investors emphasized business administration. This has several consequences for the practices associated with technology entrepreneurship. Although all business skills are likely to be helpful at some point during a start-up's development, skill prioritization is critical, given most ventures' limited time and resources. This prioritization, however, may be skewed toward the interests of innovation hubs and investors rather than the start-up's actual needs for skill development. One technology entrepreneur explained:

They [innovation hub] took us to a training for fundraising, but I didn't find it useful because my business wasn't at the stage for fundraising. At that [idea stage] moment, it's sort of a waste because when my start-up gets to that level, now I'll need that training again.

As a result of divergent views on how to prioritize business skill development, entrepreneurs may be induced to spend time and resources on, for example, attending training programs that do not immediately fit their needs in order to fulfill the expectations of innovation hubs and investors. By doing so, they demonstrate to the hubs and investors their motivation to strengthen various leadership and business administration skills. But they also drain time and resources from the actual technology start-up—meaning that divergent views on business skills become an additional barrier to technology entrepreneurship.

Misaligned Perspectives: Market Readiness

Finally, we found that views on the composition of viable technology consumer markets were misaligned between the entrepreneurs, innovation

hub staff, and investors. This can generate even more ambiguity about market readiness, and thus constitutes an additional barrier to technology entrepreneurship. More specifically, some technology entrepreneurs tended to become trapped in a cycle where initial skepticism among consumers made the nonprofit sector appear to be the more viable market. After initial growth, the start-ups then struggled to switch from serving nonprofits and their beneficiaries to targeting paying customers (in part because investors perceived the business to be “tainted” by its nonprofit endeavors). As a result, start-ups that are designed for donors rather than for customers—that is, social enterprises and not-for-profits—to characterize technology entrepreneurship in Nairobi. This, in turn, can frustrate investors, who have, in some cases, become uncertain about the for-profit market potential in Kenya and have voiced doubts about the market focus of technology entrepreneurship.

Given the prevailing ambiguity of what constitutes a technology consumer market, many start-ups have attempted to address multiple markets simultaneously in order to generate revenue. One informant, for instance, said, “The core [technology] product is not paying enough money right now, so we have other projects — for example, a monitoring and evaluations tool for corporations to measure performance.” However, maintaining a sustained competitive advantage in multiple markets simultaneously requires significant resource and capabilities, neither of which tend to be readily available to new ventures, thus making failure more likely.

Recommendations for Policy and Practice: Connecting Perspectives

In this section, we return to the initial question that motivated the chapter: What are the challenges associated with new forms of entrepreneurial activity in emerging markets? We conducted a qualitative case study of technology entrepreneurship in Nairobi, which constitutes a relatively new form of entrepreneurial activity in the region. Our analysis revealed that key actors’ understandings of technology entrepreneurship do not yet align. Instead, entrepreneurs, innovation hub staff, and investors

expressed contradictory, divergent, and misaligned views about the availability of capital, the prioritization of business skills, and the readiness of local technology markets. This, in turn, promoted the persistence of additional barriers to technology entrepreneurship:

1. Contradictory views on the availability of capital mean that entrepreneurs need additional resources (financial, temporal, and human) to bridge the contradictions and obtain funding.
2. Divergent views on which business skills are crucial at the onset of the entrepreneurial journey distract entrepreneurs from developing their start-up.
3. Misaligned views of what constitutes a viable market for technology innovations make technology markets ambiguous.

To be sure, key actors' perspectives may align over time. However, we conclude that novel forms of entrepreneurial activity in emerging markets are especially hampered by a lack of shared perspectives among key actors. Specifically, our chapter has shown that building successful technology start-ups in Nairobi remains difficult because of the contradictory, divergent, and misaligned perspectives on technology entrepreneurship.

Our analysis has concrete implications for those seeking to facilitate the creation of sustainable technology businesses in Kenya (and possibly those promoting new forms of entrepreneurial activity in other emerging markets), which we detail below. Specifically, our recommendations depart from the conventional approach of defining, measuring, and filling gaps associated with funding, skill training, and market readiness—because our analysis has found that the definitions of these gaps differs substantially between key actors, and simply filling them is therefore unlikely to facilitate technology entrepreneurship in the long term. Instead, we argue that it is important to resolve the contradictory, divergent, and misaligned perspectives among the key actors, and we offer three concrete recommendations on how to achieve this.

1. Encourage reflection through discourse

Greater awareness of others' backgrounds, interests and positions among the key actors, and reflection on one's own biases and expectations may help move the situation toward a middle ground where disconnected

perspectives can in fact be connected. Initially, a handful of individuals championed the nascence of technology entrepreneurship in Nairobi, which sparked the first crucial instances of social interaction around technology entrepreneurship. As our analysis has demonstrated, however, it may now be beneficial to reflect on how the current structures of social interaction seem to perpetuate disconnected perspectives.

Discourse, especially, can facilitate reflection by enabling the various actors to voice their positions and understand those of others. Discourse can take various forms: blogging, engaging with media, events, and even simple person-to-person interactions. Although these types of interactions already occur regularly, they have too often been limited to homogeneous groups that merely reaffirm their agendas instead of engaging with those whose perspectives may be disconnected from their own. Technology entrepreneurs and hub employees, for instance, attend events at innovation hubs—events that, as a hub employee noted, are also intended for investors (though they rarely choose to attend). Meaningful discourse occurs when all actors alike take the initiative to create avenues for frequent interactions that are respectful and can ideally be beneficial to the interests of all involved.

2. Recognize Nairobi's context-specificity

Entrepreneurship tends to be circumstantial and highly context-specific. Specifically, One aspect specific to technology entrepreneurship in Nairobi is the salient mix of local and international actors that we have alluded to in this chapter. Although potentially potent, the heterogeneity of the technology entrepreneurship community in Nairobi has also created significant information asymmetries. Local entrepreneurs, for instance, often complain that the computer science curricula of Nairobi's universities are outdated. Simultaneously, although the international actors tend to be equipped with technology skills, they often lack the context-specific knowledge of how to do business in Nairobi, knowledge that is often second nature to the local actors. A convergence of knowledge bases, by growing the local actors' technology business skills and the international actors' understanding of Nairobi, would reduce information asymmetries and thereby facilitate the alignment of perspectives. A straightforward way of building local technology know-how could be through updating and improving classroom curricula. Increasing the

context-specific knowledge of international actors, however, may require a longer-term shift in mind-sets, as demonstrated by one respondent's frustration that "many investors still think people in Africa live in huts."

3. Articulate a shared objective

In addition, the articulation of a common objective—the creation of a sense of "we're all in this together"—may also help connect the actors' contradictory, divergent, and misaligned perspectives on technology entrepreneurship in Nairobi. Often, the actors' differing backgrounds and interests overshadow their shared common interests. Most saliently, this manifests between local and foreign actors, where the locals' mantra of "This is how we do things in Kenya" stands in opposition to foreigners' stance of adhering to their own ways of doing things. Emphasizing a larger overarching objective, such as the goal of building one of Africa's first sustainable technology entrepreneurship communities, could align the actors under a shared vision and help bridge their differences. Policymakers and technology thought leaders who reflect on the role of technology entrepreneurship in Kenya's economy at large may be especially well positioned to articulate such a shared vision. A more explicit articulation of the specificities and visions associated with technology entrepreneurship in particular might allow the nonlocal actors to root their expectations and perspectives in local realities rather than in unexamined hopes and expectations about what it might have meant to build technology businesses in Nairobi.

References

- Austin, J., Stevenson, H., & Wei-Skillern, J. (2006). Social and commercial entrepreneurship: Same, different, or both? *Entrepreneurship Theory and Practice*, 30(1), 1–22.
- Aidis, R., Estrin, S., & Mickiewicz, T. M. (2012). Size matters: Entrepreneurial entry and government. *Small Business Economics*, 39(1), 119–139.
- Beckman, C., Eisenhardt, K., Kotha, S., Meyer, A., & Rajagopalan, N. (2012). Technology entrepreneurship. *Strategic Entrepreneurship Journal*, 6(2), 89–93.
- Blas, J. (2013). Kenya has big plans for ports, power, rail and road. *Financial Times*. <http://www.ft.com/cms/s/0/babe9838-5049-11e3-9f0d-00144feabdc0.html#axzz3h2z7otB0>. Accessed 19 Feb 2016.

- Coad, A., & Tamvada, J. P. (2012). Firm growth and barriers to growth among small firms in India. *Small Business Economics*, 39(2), 383–400.
- Communications Authority of Kenya (2015). *Second quarter of the financial year 2014/15: Quarterly sector statistics report*. Nairobi: Government of Kenya.
- Cooper, A. C. (1973). Technical entrepreneurship: What do we know? *R&D Management*, 3, 59–64.
- Datta, A., Mukherjee, D., & Jessup, L. (2015). Understanding commercialization of technological innovation: Taking stock and moving forward. *R&D Management*, 45(10), 215–249.
- Fortune. (2014). Why startups fail, according to their founders. *Fortune*. <http://fortune.com/2014/09/25/why-startups-fail-according-to-their-founders/>. Accessed 19 Feb 2016.
- Galera, G., & Borzaga, C. (2009). Social enterprise: An international overview of its conceptual evolution and legal implementation. *Social Enterprise Journal*, 5(3), 210–228.
- Gartner, W. B., Mitchell, T. R., & Vesper, K. H. (1989). A taxonomy of new business ventures. *Journal of Business Venturing*, 4(3), 169–186.
- Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. Chicago: Aldine.
- GSMA (2014). *Digital entrepreneurship in Kenya 2014*. Nairobi: GSMA.
- Honig, B. (1998). What determines success? Examining the human, financial and social capital of Jamaican microentrepreneurs. *Journal of Business Venturing*, 13(5), 371–394.
- Hoskisson, R. E., Eden, L., Lau, C. M., & Wright, M. (2000). Strategy in emerging economies. *The Academy of Management Journal*, 43(3), 249–267.
- Hussey, M. (2015). Silicon Savannah: How start-ups in Africa are taking on some of humanity's biggest challenges. *Huffington Post*. http://www.huffingtonpost.co.uk/matthew-hussey/african-startups-take-on-challenges_b_6416676.html. Accessed 19 Feb 2016.
- InfoDev (2014). *Annual report 2012–13*. Washington, DC: World Bank.
- Jack, S. L., & Anderson, A. R. (2002). The effects of embeddedness on the entrepreneurial process. *Journal of Business Venturing*, 17(5), 467–487.
- Julian, S. D., & Ofori-Dankwa, J. C. (2013). Financial resource availability and corporate social responsibility expenditures in a sub-Saharan economy: The institutional difference hypothesis. *Strategic Management Journal*, 34(11), 1314–1330.
- King, K. (1996). *Jua Kali Kenya: Change and development in an informal economy, 1970–1995*. Nairobi: East African Educational Publishers.
- Kunkel, S. (2001). Toward a typology of entrepreneurial activities. *Academy of Entrepreneurship Journal*, 7(1), 75–90.

- Khavul, S., Bruton, G. D., & Wood, E. (2009). Informal family business in Africa. *Entrepreneurship Theory and Practice*, 33(6), 1219–1238.
- Manske, J. (2014). *Innovations out of Africa — The emergence, challenges and potential of the Kenyan Tech Ecosystem*. Duesseldorf: Vodafone Foundation.
- Mulupi, D. (2013). Kenya's tech industry: Over-hyped or just learning to walk? *How We Made it in Africa*. <http://www.howwemadeitinafrica.com/kenyas-tech-industry-over-hyped-or-just-learning-to-walk/24767/>. Accessed 19 Feb 2016.
- Orser, B., Hogarth-Scott, S., & Riding, A. (2000). Performance, firm size, and management problem solving. *Journal of Small Business Management*, 38(4), 42–59.
- Peci, F., Kutllovci, E., Tmava, Q., & Shala, V. (2012). Small and medium enterprises facing institutional barriers in Kosovo. *International Journal of Marketing Studies*, 4(1), 95–107.
- Peng, M., & Shekshnia, S. V. (2001). How entrepreneurs create wealth in transition economies. *The Academy of Management Executive (1993–2005)*, 15(1), 95–110.
- Pissarides, F., Singer, M., & Svejnar, J. (2003). Objectives and constraints of entrepreneurs: Evidence from small and medium size enterprises in Russia and Bulgaria. *Journal of Comparative Economics*, 31(3), 503–531.
- Quartz. (2014). Nigeria, not Kenya, is about to become Africa's next big technology hub. *Quartz*. <http://qz.com/309891/nigeria-not-kenya-is-about-to-become-africas-next-big-technology-hub/>. Accessed 19 Feb 2016.
- Reuters. (2014, December 31). Kenya's technology push leaves investors cold. *Reuters*. <http://www.reuters.com/article/2014/12/31/kenya-tech-idUSL6N0UE15920141231>. Accessed 19 Feb 2016.
- Rivera-Santos, M., Holt, D., Littlewood, D., & Kolk, A. (2015). Social entrepreneurship in sub-Saharan Africa. *The Academy of Management Perspectives*, 29(1), 72–91.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217–226.
- Thornton, P. H. (1999). The sociology of entrepreneurship. *Annual Review of Sociology*, 25, 19–46.
- Thornton, P. H., Ribeiro-Soriano, D., & Urbano, D. (2011). Socio-cultural factors and entrepreneurial activity: An overview. *International Small Business Journal*, 29(2), 105–118.
- The East African. (2012). Acumen fund gets new director for East Africa. *The East African*. <http://www.theeastafrican.co.ke/business/Acumen+fund+gets+new+director+for+East+Africa+/-/2560/1471310/-/b1m5j5/-/index.html>. Accessed 19 Feb 2016.

- The Economist. (2012). Upwardly mobile. *The Economist*. <http://www.economist.com/node/21560912>. Accessed 19 Feb 2016.
- Wickham, J., & Vecchi, A. (2008). Local firms and global reach: Business air travel and the Irish software cluster. *European Planning Studies*, 16(5), 693–710.
- World Bank. (2015a). *Doing business: Ease of doing business in Kenya*. <http://www.doingbusiness.org/data/exploreeconomies/kenya/>. Accessed 19 Feb 2016.
- World Bank. (2015b). *Real interest rate: Kenya*. *World Bank*. <http://data.worldbank.org/indicator>. Accessed 19 Feb 2016.

Conversation #9

Toward a Systematic Approach to Building Ventures

Jessica Colaço and Ibanga Umanah
of Brave Venture Labs



Jessica Colaço recently co-founded Brave Venture Labs, East Africa's first venture builder, based in Nairobi, with co-founder Ibanga Umanah. In 2010, she co-founded the iHub with Erik Hersman and served in various leadership positions there—as its Founding Manager between 2010 and 2011, as its Director of Partnerships and Community, and, at iHub Research, as its Research Director between 2011 and 2013. She is passionate about innovation, research, mobile and robotics technology, talent, and entrepreneurship in Kenya. She serves as an African start-up evangelist and advisor to various tech startups,

using her position in Kenya to encourage local, regional, and international stakeholders to explore, understand, and adopt Kenyan-made and African-made solutions.

***Ibanga Umanah** partners with leaders to grow new businesses. He recently co-founded Brave Venture Labs to build new ventures from Africa. Earlier, he worked with Jump Associates (in California) to create growth strategies for Fortune 100 companies. He designed new health services for country ministries, launched technology products for logistics companies, and prototyped service innovations for retailers. In addition to Brave, Ibanga develops growth strategies for small businesses, lectures at design and leadership programs, and teaches skiing to anyone willing to fall in love with snow.*

Jessica, why did you decide to start Brave Venture Labs after your six years at iHub?

JESSICA: It is difficult to summarize six years of work at the iHub in a nutshell. But during this period, I came to understand the power of networks and the serendipity effect, meaning the effect of bringing people together and watching the unexpected happen—through collaboration and learning. Every single day, I would get an email with a question that usually went like this: “I have an idea! How can I flesh it out and how can I turn this into a viable tech business?”

Two things to note. First, I am passionate about problem solving. So yes, I am the right person to address with those sorts of questions. And second, it is about talent, nurturing young talent, and unleashing their potential. The iHub provided me with a sandbox where I could experiment with talent and problems in order to solve the problems and mentor young entrepreneurs.

But eventually, six years later, it was time to move on and become more risk-taking. The new challenge that I am tackling now with Ibanga at Brave Venture Labs is matching talent with opportunities to build truly scalable and successful businesses, not just in tech but across multiple sectors—wherever we identify opportunities that are ripe for a business solution.

During my time at the iHub, I came across a lot of talented entrepreneurs and developers as well as striking business opportunities. How do I connect the dots? This thought became the genesis of a longer discovery process, as I like to call it, in which I realized that I am a builder and connector—someone who likes to start and create organizations and build teams in order to make it all grow and last.

A good colleague and friend of mine connected me to Ibanga. While I was in San Francisco, we actually met there and discovered that our interests and values aligned. We both have a deeper interest and motivation in creating scalable businesses and unleashing the potential of people to do the unimaginable!

Ibanga, what is the motivation behind Brave Venture Labs? How did the idea emerge?

IBANGA: In 1995, I lived with my father in Nigeria's Delta. Fights over oil had reached the highest levels and former President Abacha's cruel response left a sharp impression. As an American up until then, I saw money from my country of birth funding a government hell-bent on tearing down the lives of those close to me. I left Nigeria wanting to work on two problems in my life: How can we build organizations that are more beneficial to, and less hurtful for, individuals and society? And how can we position intelligent, ambitious people to lead those organizations?

After experimenting with a few companies of my own, I decided to tackle the first problem, initially with Ed Cohen, building a school for executives in India, and later with Dev Patnaik, creating new ventures for corporates at Jump Associates. Perhaps it is obvious to most folks, but I found corporations filled with people genuinely pursuing what they believe is right. Rare moments of corruption and breaks in ethics were often preceded by a slow erosion of purpose and empathy in leaders. So together with both Ed and Dev, we worked to instill purpose and empathy into leadership decisions and solutions. We developed new methods for understanding and building unique customer insight, for collaborating with peers to make strategic choices, and for continuously generating, prototyping, and learning in the market. Along the way, we found that

continuously grounding ourselves in data all around us—from consumers, teams, and stakeholders—we were able to increase not only impact, but the speed of work. You might call it human-centered problem solving.

Leaders who found a clear purpose, built empathy, and continuously learned, were able to organize their teams to solve what often seemed like impossible challenges. For instance, I recently left a meeting with Ratan Tata [former chairman of the Tata Group of Mumbai] awestruck by his masterful use of purpose, empathy, and learning to solve one challenge after another. Tata's Nano project started as a sketch in his diary of a moped with a shield. Seeing families of four piled together, unprotected from wild traffic in the middle of often harsh Indian weather, was unacceptable. He believed every family should have access to safe transit. Tata took the sketch to his colleagues to experiment on solutions for what would ultimately become the world's most affordable car. His efforts have shocked automotive manufacturing and, more important, improved transportation safety for thousands. The thing is, despite all his success, he spent most of the conversation inquiring about us. I have never met a more humble and curious person. I walked away realizing his practice of humility and curiosity was what actually allowed him to notice his surroundings and continue to learn (at age 77!). Humility and curiosity were the foundation of Tata's personal legacy of success.

Looking back, it seemed nearly all our successes, on seemingly impossible challenges, involved leaders who valued humility and continuously learned. If we were able to apply our skills in problem solving to Africa, perhaps we could accelerate the development of more human-centered problem solvers like Tata—people who seem to do the impossible.

So we founded Brave!

Jessica, why is there such a strong focus on talent? And how do you ensure you match the right talent with the right opportunity?

JESSICA: Let me explain this using some of my own experiences. In my mind, I always thought I would be coding and heavily involved in computer science—basically just writing code and building algorithms all my

life in a lab. It was the people around me who discovered my most innate qualities and abilities. For me, the power of networks and having people around me at the right time were critical. During my time at Strathmore University, there were people like Dr. Sevilla and Edwin Nyanducha who realized I was a really good problem solver and that, at the same time, I had this affinity to organize events and bring people together. At that time, I had no clue—because I was very shy! I also did not know that I had skills in business development until Edwin pointed it out to me and threw me into the deep end of the pool with an actual business client.

Similarly with TED. I applied in 2009, and became a TED global fellow. I could not believe it! I had to go on stage in front of hundreds of people and speak about my mobile project—Wireless Map Service. The event, however, pushed me to the next level of thinking more deeply and taking on bigger challenges. Because of that challenging but positive experience, I believe in the art of unleashing the best in people. Over time, I have been able to spot talent, and by now I know by observing and giving people a few tasks what they are good at and where they need a little push to realize their full potential.

At Brave we were doing two things. On the one hand, we were creating an entrepreneurs' "forensic" map, another word for a systematic overview of their talents, individual qualities, and characteristics. By now, we have auditioned hundreds of entrepreneurs and developers and have built up a solid overview of what is out there. As a side note, we do not believe in job interviews, so we work on some challenges together with the entrepreneurs and, in that way, find out where their capabilities are. On the other hand, we identify—through systematic and rigorous research—business opportunities and work with 20 potential candidates in our challenge days on a joint investment thesis. As we progress, people who are not suitable drop out and a core group emerges.

Ibanga, you want to create leaders with a particular mindset around problem solving. Why is a venture builder the right model for doing so?

IBANGA: We are committed to advancing leaders who take on and solve big problems. Reflecting on our work investing in and supporting

entrepreneurs, we noticed two challenges getting in the way. One, many ideas are not scalable, usually because the original problem itself is too small. Two, teams rigidly focus on building their idea, as opposed to doing whatever it takes to solve their problem.

What do bigger problems look like? When Elon Musk was deciding what to work on after PayPal, he wrote down a list of five issues that will most affect the future of humanity: the Internet, sustainable energy, space exploration (permanent extension of life beyond earth), artificial intelligence, and reprogramming the human genetic code. Tesla and SolarCity were both founded to take on the significant challenge of sustainable energy. And while he initially focused on better electric vehicles, better batteries and solar installation were clear additions.

One of our favorite Kenyan companies, Sendy, recognized the need for access to formal goods within an informal and continuously evolving infrastructure. Most folks do not receive goods at an address, making e-commerce mostly ineffective. And between an inconsistently distributed retail sector and terrible traffic, it is costly to track down the goods you might want. Today, Sendy offers real-time, point-to-point urban deliveries using smartphones and motorbikes. But it is not inconceivable for them to manage last-mile scheduling and logistics for any kind of inventory. The challenge is enormous.

We can refer back to Tata's humility as an example of putting problems above ideas. I mentioned his original sketch was a shielded bike. It looked a bit like a fancy rickshaw. However, after two months of prototyping and testing, his team found that consumers were much more interested in an affordable car. So they shifted. As long as he was achieving affordable, safe transit, the specific idea was not important.

One might look at our challenge of creating a human-centered, learning mindset around problem solving and say, "Obviously you should pursue education for founders or young teams." But what my time spent doing new business creation and transformation at Jump taught me is that people learn through the work. The evidence continues to grow in

this respect. Sugata Mitra showed that kids can teach themselves hard sciences with a computer in a wall. Leading A.I. developers, neuroscientists, and learning theorists like Ray Kurzweil have argued that people's natural sense of curiosity, creativity, and experimentation drive learning.

So rather than teach people to solve problems in a classroom, we will co-build companies with them. We will build to learn.

A venture builder is an ideal mechanism for learning. Generally speaking, a venture builder is a company that creates companies. In our approach, we continuously evaluate and share quantitative and qualitative market data to clarify problems entrepreneurs might tackle, then partner with a potential chief executive officer (CEO) and co-create an idea. Together, we study the market, prototype with customers, and refine our model until we find a fit and potential for scale. We do provide some starting capital, but our CEOs are expected to raise their own funds. Like most accelerators, we have distilled plenty of business-building methods and convened the best resources in the ecosystem. However, rather than run people through a linear, time-bound, task-oriented program where everyone launches a website at the same time, we create an environment where a team can quickly access a wide variety of resources to accelerate toward a broad objective. We create metrics for achieving product-market fit or traction or positive cash flow and then convene the right mix of support for that company to achieve its goal.

In a way we are an institution of co-founders, multiplying our experience by convening the best of the ecosystem. If we are doing it right, we are increasing the level of start-up performance and generating more sustainable solutions for society.

Jessica, can you walk us through the ideation process and how this all leads up to actually starting a venture?

JESSICA: Brave is kind of like a start-up studio, meaning our processes are aligned to fully flesh out and start implementing an idea that addresses a problem. Right now, for example, we are looking at a

specific problem between commercial education and young professionals who cannot afford the education they need. So we came up with a platform idea that matches students with corporates and organizations that will issue a loan and offer future employment once the graduate completes the degree.

The process for this solution looked like this. First, Ibanga and I identify sectors with ripe opportunities. We looked particularly at the middle to upper class in Nairobi. Through industry-sector reports from PricewaterhouseCoopers and Deloitte, we narrowed the focus to particular sectors. In fact, with Brave, we are looking at five sectors at the moment—health, finance, agriculture, tourism, and education. Now we dig even deeper into each sector, conducting market and customer research to understand the dynamics. This process is completely self-funded. In health, for example, we want to focus on preventive health care, in finance on peer-to-peer lending, in agriculture on food trading and food wastage, in tourism on domestic tourism, and, as I mentioned, in education on the commercial side of higher education.

After that we conduct a challenge day with 20 individuals—entrepreneurs and developers—who understand the sector, and we note down all assumptions each business idea has. We formulated a research poster (6 by 4 feet) with all this information and walked each individual through our process to get the thinking started. Picture it as a collective brainstorming session in which we test business ideas in order to come up with a clear overview on the problem, the opportunity, and the “right” business idea.

The next step is a written opportunity abstract, forming an investment thesis that we use as a basis to sources the right talent—these are co-founders with whom we create the business to get the implementation started. Once all the founders are on board, Brave will co-build the business with the co-founders and get to work.

Ibanga, what are some of the tools you use to affect this mindset change and why, in your opinion, are those in particular of value?

IBANGA: We continuously pull principles and practices from as many disciplines as possible, as opposed to following one idea to the letter. And often, several disciplines form a unique approach to achieving the same end.

For example, think of all the different ways we talk about “keeping an open mind” so we can learn:

- Neuroplasticity
- Beginner’s mind
- Growth mindset
- Rapid prototyping
- Vertical learning
- Creative intuition
- Mindfulness
- Mental flexibility

Neuroplasticity proposes that the human brain continues to change over the course of its life. As we age, experience new things, and challenge ourselves, we continue to learn. In other words, you are never done learning.

Beginner’s mind, a concept from Zen Buddhist philosophy, asks that we continue to see the world around us from the point of view of a child. If we look at people or experiences as if we were a beginner, we might notice new nuances and continue to learn.

Carol Dweck teaches folks to look at themselves and their teams as having the potential to learn with practice rather than seeing people as “born talented” or not. Folks with a growth mindset see failure as an opportunity to learn and get better. So we can continue to challenge ourselves and each other to learn something new from any experience.

Rapid prototyping, as applied to solutions beyond 3D models, approaches product design like a science experiment. We make observations and generate predictions about what might work—otherwise known as having ideas! Then we develop tests to see what works and what does not and improve our ideas. By quickly and cheaply gathering data to iterate, we increase our chance of market performance before running out of money. We learn from and improve with every attempt. Said another way, we actively learn from failure.

Information and techniques from every one of these areas will be useful as we go about the work of developing new business ideas. We will use the same multidisciplinary mash-up for how to best research customers, work in teams, optimize systems, and so on.

Jessica and Ibanga, is the venture builder addressing a niche in Kenya in particular or do you see this approach as being useful globally?

IBANGA: Continuous learning and the hybridization of disciplines to solve problems are useful globally. My friends in San Francisco continue to combine the best of social science and data science to construct better ways of working, the best engineering and design to create better experiences, and the latest business strategies and psychology to build businesses models around new behaviors. And although I practiced it there, it is almost certainly happening in every creative economy around the world.

For example, in 1978, Nicholas Negroponte and colleagues at MIT received government funding to create digital tools to familiarize soldiers with remote locations. Building off of some work by early filmmakers, the Aspen Movie Map team built a camera array on a car, drove the streets of Boston, and using the then-new technology of laserdiscs (which could associate a location tag with a specific point on the disc), created a virtual, searchable map of the city. Building on the idea more than 25 years, later Larry Page used the technology to create Google Street view. Basic legal practices and publishing had effectively allowed filmmakers, government, academics, and start-ups to collaborate on creating one of the most widely used products today.

The opportunity for Kenya, and I imagine for most countries, is the ongoing practice of making it easier and culturally “okay” for this kind of collaboration to take place and be fruitful.

JESSICA: Our idea is not to stay in Nairobi. We see our longer-term task as connecting the dots on a pan-African scale. Once the first two companies are up and running, we will move to other cities across the continent, directed by market dynamics and our network’s strength. Right now, the destination for our next set of companies would be Ghana, Nigeria, or South Africa.

Ibanga, what are the crucial ingredients needed to build a venture that can advance society?

IBANGA: There are two parts of a new venture to consider, broadly speaking. First, solve a problem for people with an innovative model, experience, and/or technology. How innovative you need to be really depends on the problem. Second, organize people in an institution to execute. Every business is a structure for a group of people to work together.

You might think of our role in the second part as similar to how US insurance companies manage care networks. Using a combination of real-time data and frequent contact with members, they evaluate performance and negotiate rates with the best mix of services required to quickly address a particular disease. When successful, in addition to reducing prices for patients, they can streamline a care pathway and boost the overall quality of treatment.

At Brave, we work to evaluate and convene new-business ecosystems, including lawyers, accountants, and subject-matter experts, to stand up, operate, and grow companies—faster, smarter, and at lower costs.

Creative problem solving is also systematic in a sense but should be seen more as a continuous-learning model than as a linear flow of activities. On some level, the analogy for us here is the scientific method. We attempt to understand the world, create hypotheses, conduct experiments,

allow our views to evolve based on new information, and continuously update our solutions.

If we stop there, we just get the ventures. So, to the second part: if you want any human system, including entrepreneurship, to advance you need two more things. First, many people experimenting with their own approaches in a variety of settings. And two, previous discoveries documented and shared so the next generation can critique and advance that work.

The truth is, there is no shortage of intelligent, exploratory entrepreneurs in Kenya. The challenge is recording and exposing what they have learned so that how we work can be improved. The faster we can make the learning cycle, the better we can become.

As a normal practice of creating ventures, Brave is deeply involved in both listening to and learning from respected entrepreneurs as well as encouraging experimentation and improvement in every new generation of builders.

Thank you, Jessica and Ibanga!



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10

Organizational Cultural Hybrids: Nonprofit and For-Profit Cultural Influences in the Kenyan Technology Sector

Eleanor R. Marchant

“When you look at the infrastructure here, we should be miles ahead. But there’s so much fluff money, no hard talk, NGOs propping businesses up—it kills it.”

— Nikolai Barnwell, in a Wired article
by Jessica Hatcher, June 10, 2014

“Yes, my good people, I said it. It was NGO ‘fluff’ money that funded what we do today.”

— Sam Gichuru in a blog post, June 10, 2014

Introduction

Back in 2014, a debate swept through the Kenyan tech sector about the value of grant funding for start-ups based on new technology. Swirling around the blogosphere, among Kenyans on Twitter, and entrepreneurs in the thick of it, the debate seemed to boil down to the question of

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whether grants from nongovernmental organizations (NGOs) and donor organizations interested in funding social enterprises in Kenya were a benefit or a hindrance. Put in less secular terms, many asked: Is grant funding a blessing or a curse? Key figures, like Nikolai Barnwell, at that time the manager of the technology business incubator 88mph,¹ and Sam Gichuru, the manager of Nailab (a competing tech incubator), landed on one side or the other of the debate. Even now, more than a year after the debate peaked in social media, its question still lingers over Kenyan entrepreneurs.

Seen through the lens of this debate, the presence of grant funding, or more generally the presence of nonprofit organizations, seems black and white. It is either good for the growth of the sector or it is not; it either spurs innovation or it does not. In this chapter, my goal is to take this debate and reframe it in more constructive, less binary terms. I hope to do this by introducing a new lens through which to look at technology companies in Kenya, the lens of cultural theory. I will use this lens to make the case that the future of Kenyan technology innovation lies in the mixing of nonprofit and for-profit cultures in the sector and not in a battle between the two.

By culture, I refer not to national or ethnic cultures, but to cultures understood more broadly as a set of beliefs, practices, and assumptions of a particular group, whether that group is based around an organization, a nation, or even around an idea. Looking just at the culture of organizations—for good or ill—the Kenyan tech sector is an exceedingly multicultural place. There are large international for-profit tech companies like IBM and Google; international and domestic investors like Savannah Fund, Emerging Capital Partners, and Impact Amplifier; aspiring Kenyans and other East Africans entrepreneurs; donor organizations like the World Bank, Omidyar Foundation, and Hivos Foundation; social enterprises; public–private partnerships; and countless others. For most researchers who study culture (and this group is large and disparate), culture is understood to rarely be stagnant. It is prone to change, to evolve over time (Runciman 2005), and to undergo hybridization,² particularly in multicultural places (Kraidy 2005) like the Kenyan tech sector.

¹In this chapter, I will refer to the organization as 88mph, even though it has been renamed Nairobi Garage, because the name change occurred after most of the research for this chapter had been conducted.

²When speaking about culture, the term hybridization is typically used by academics to refer to the mixing of two separate cultural groups. A good example of this is the case of second-generation

In this chapter, I look at nonprofit and for-profit organizations and approaches to the work of technology development as forms of organizational culture. If we accept that cultures adapt and change in the presence of one another, it becomes easier, more intuitive, to see how changing forms of work and organizational structures are a natural result of the Kenyan tech sector's multiculturalism.

In the remainder of this chapter, I will provide some background on the theories of organizational culture and cultural hybridity. I will lay out what, according to existing research, traditional nonprofit and for-profit organizational cultures look like, drawing in particular from Schein's theory of the levels of organizational culture (Schein 1990). I will use this picture to construct a typology of the two different types of organizational culture. I will then demonstrate how two individual organizations at the center of the Kenyan tech sector are cultural hybrids—whether that hybridity is intentional or not—that to varying extents adopt and adapt underlying cultural assumptions, espoused beliefs, and practices from both traditions.

The two organizations are the technology hub iHub and the technology incubator 88mph.³ As mentors to entrepreneurs, the incubators and tech hubs in Kenya act as role models for fledgling start-ups. Whether these start-ups are successful or not, the example that the incubators and hubs set through the cultural models they themselves adopt could have an influence on how aspiring entrepreneurs approach their work in the future and what future organizations in the industry look like. This is primarily a comparative case-study analysis; the data used in the chapter were drawn from ethnographic fieldwork conducted by the author in Nairobi in the summers of 2013 and 2014, predominantly at iHub but with site visits to and interviews conducted at 88mph. Data are also

members of a diaspora group (e.g., Nigerian-Americans or Somalis living in London) who retain some of their home culture but adopt much of the cultural practices and even beliefs of their new host country as well.

³ Small-business incubators are understood by management scholars to be organizations designed to accelerate the growth of entrepreneurial businesses. Frequently, they offer a physical space and an intense training program, as well as access to capital to help businesses grow. Tech hubs, while less clearly defined, are, like incubators, typically designed to nurture entrepreneurial businesses but in less formal ways. They typically provide communal space and focus on network building in order to foster the generation of new innovative ideas. They do not provide direct funding.

drawn from an analysis of the discourse and rhetoric used by representatives of both organizations publicly and in interviews with the author.

The two organizations chosen are often seen as representing opposite sides of the nonprofit–for-profit debate in Kenya, because iHub was built initially on grant funding from nonprofit organizations, like the Omidyar Foundation, and 88mph was built initially by a pool of for-profit investors. By using these contrasting examples, I hope to demonstrate the different ways that cultural hybridity are manifesting within organizations in the sector. By using the method of in-depth case studies, I will explore some of the internal dilemmas that this hybridity causes and how these two organizations have managed it in very different ways.

The mixing of nonprofit and for-profit beliefs and practices gives the Kenyan tech sector access to more and different resources, resources that must be managed carefully and conscientiously. By looking closely at how existing organizations are managing this hybridity, my hope is that we can develop strategies for taking advantage of the multiculturalism that clearly exists in the Kenyan tech sector rather than fighting about whether it is good or bad.

Theoretical Grounding

Organizational Culture

When we think about the culture of an organization, somewhat vague but emotive concepts like “the way we do things around here” or “the way people interact with and treat one another” might come to mind. Scholars studying culture at organizations, particularly in the management field, have identified four different types of culture in and around organizations: (1) the cultural context (as in the national, geographic, or industrial cultures surrounding it), (2) cross-cutting cultures (as in the different occupational or ethnic cultures of its employees), (3) subcultures specific to the organization (as in the particular cultures of departments within the organization), and, and most important, for this chapter, and (4) organizational culture (the culture of the organization itself) (Gregory 1983). These types of culture are all certainly worthy of

greater investigation in the context of a multicultural environment like the Kenyan tech sector, but it is organizational culture that we are primarily concerned with here.

Andrew Pettigrew, widely considered to be the grandfather of the study of organizational culture, provided a definition that began to clarify what the culture of an organization was. He defined it as an amalgamation of beliefs, identity, ritual, and myths (Pettigrew 1979) of an organization. This definition, and in particular, the inclusion of the themes of beliefs and rituals, has greatly influenced those studying organizations, including prominent scholars like Geert Hofstede and those studying technology organizations, like Kathleen Gregory. In the 1990s, Edgar Schein, a professor at MIT's Sloan School of Management, built on Pettigrew's definition and constructed a useful framework for analyzing and identifying organizational culture. This framework is known as the three levels of organizational culture and includes: (1) basic underlying unspoken assumptions, (2) espoused beliefs and values, and (3) visible artifacts and behaviors (Schein 1990). Within each of these levels, Schein found important evidence of an organization's culture, though each level required a different method of research (e.g., analysis, interviews, and observations).

At the first level, the underlying assumptions often reside in large-scale ideological, philosophical, or theological commitments; they are basic assumptions about how the world is, or more often the case, how it ought to be. Such commitments could be to a particular religion, for example, or to democracy, neoliberalism, capitalism, and so on. Because assumptions are just that—things that are assumed or taken for granted—they can be the most difficult for researchers to pin down and require deep analysis. Yet, according to Schein, they are fundamental to how much of the rest of an organization's culture is determined.

At the second level, the espoused beliefs and values are the views, articulated by members of an organization, that guide its purpose and its structure. This level has received the most attention from scholars, because it is typically relatively easy to identify through interviews or in an organization's manifestos and policy statements. Yet the beliefs and values are often greatly shaped by the ideological commitments and assumptions of the first, and more elusive, level of underlying assumptions.

And at the third level, the behaviors are the manners and customs of interaction between different individuals and departments at an organization or how the organization behaves externally. And the artifacts are, according to Schein, “everything from the physical layout, the dress code, the manner in which people address each other, the smell and feel of the place, its emotional intensity, and other phenomena, to more permanent archival manifestations such as company records, products, statements of philosophy, and annual reports” (Schein 1990). In short, the artifacts are the material aspects of an organization’s culture and are typically understood through direct observation.

Finally, an important part of Schein’s characterization of culture at organizations is that these three levels are not absolutely distinct; they feed into one another and comprise a more organic and ongoing process than the term “levels” can convey (Schein 2010). Underlying assumptions motivate, consciously or not, the central goals of an organization or the motivations of individuals for working there. And in turn, the organization’s core values and beliefs influence how they choose to structure themselves and how everyday operations take place (Greenwood and Hinings 1993). Google, for example, maintains an open-plan office and gives its employees time to work on their own projects (representing the artifacts of the third level) because of the espoused belief that such structural factors encourage more innovation and because of the underlying assumption that innovation is good for society. This interrelationship between the various levels of culture is an important part of Schein’s framework and helps to visualize organizations as the organic fluctuating entities that they are.

Organizational Hybrids

The conceptualization in Schein’s model of organizational culture as organic and fluid is in keeping with a wider body of scholarship about culture and change. Scholars in cultural studies frequently describe culture as constantly evolving and being prone to hybridization, adaptation, and change in a myriad of ways (Gillespie 2010; Kraidy 2005). The evolution of Sheng, the rich and unstructured linguistic hybrid of Kiswahili

and English used in Nairobi, is an example of a hybrid cultural artifact that emerged out of the close quarters in the city that brought many different linguistic cultures into contact with one another. For scholars of organizations, hybrids are organizations that cross sectorial or institutional boundaries or use core beliefs and practices from multiple organizational types (Doherty et al. 2014; Mangen and Brivot 2014). A social enterprise is the quintessential example of a hybrid organization because it has both a social-impact purpose and a drive for financial sustainability (Doherty et al. 2014), meaning that it is motivated by core beliefs from two different sectors, the nonprofit and the for-profit sectors.

A prominent debate among researchers of organizations is whether hybrid organizations are stable and sustainable. For example, Greenwood and Hinings (1993) have argued that organizations tend to move toward a single set of core values and beliefs because of the internal conflict caused by the presence of multiple potentially incompatible beliefs. This view of hybrid organizations as inherently unstable dominates the existing literature on organizations. However, more recent research carried out in countries in the Global South has provided evidence that hybrid organizations may actually be well suited to such environments. In Bolivia, Battilana and Dorado (2010) demonstrated that new organizations that began as some kind of hybrid, like a social enterprise, had greater potential for sustainability than more established organizations seeking to change their organizational culture. For social enterprises in two different African countries, Gupta et al. (2015) made the case that hybrid organizations may actually be useful in resource-constrained environments.

By combining the theories of organizational culture and hybrids described above, I believe it is possible to attain a more holistic and nuanced sense of the construction of hybrid organizations that goes beyond the core beliefs typically examined. In the rest of this chapter, I use Schein's framework of the levels of organizational culture: (1) to identify organizational culture at traditional nonprofit and for-profit organizations and (2) to examine how iHub and 88mph, two organizations in the Kenyan technology sector, are to varying extents organizational cultural hybrids that have adopted beliefs, practices, and even assumptions from both traditional nonprofit and for-profit organizational cultures.

Nonprofit and For-Profit Organizational Cultures

At a basic level, the difference between nonprofit and for-profit organizations may seem self-evident, even tautological—one has the goal of generating profit, and one does not. Right? Going back to the original debate about what is good for the Kenyan technology sector, these two have certainly been painted as contrasting, even oppositional, types. A brief return to the literature here, using Schein's levels of organizational culture, will help provide a more holistic and nuanced view.

Most of the research on organizational culture has been done by management scholars and has focused predominantly on culture at for-profits. The research was typically of the overarching variety, working to build generalized theories that might explain or predict organizational behavior as a whole across many varied organizations. The majority of these studies also focused exclusively on for-profit companies and often on the role of leadership in encouraging the growth of a “strong” organizational culture (Bass and Avolio 1993; Clement 1994; Ogbonna and Harris 2000). However, there have also been a number of narrower studies looking at the particular iterations of organizational culture in unique types of organizations, like family-run manufacturing firms in the USA (Zahra 2003), Japanese firms (Deshpandé et al. 1993), multinational companies (Jaeger 1983), service sector companies (Chatman and Jehn 1994), and Silicon Valley companies (Gregory 1983), among many others.

There have been fewer studies looking at the concept of organizational culture in the particular context of nonprofit organizations. Tierney's study (1988) of higher education institutions is one such example, as is Murta's study (2011) of a nonprofit organization in El Paso, Texas. Many of these studies were intended to advise nonprofits on how to build a more efficient and innovative organizational culture resembling those with the strength that many researchers see in the culture of for-profit organizations (Dartington 1998; Lindenberg 2001). Similarly, although they do not refer specifically to organizational culture, recent studies by Hwang and Powell as well as Watkins and colleagues have addressed many of the cultural elements of nonprofits, including levels of professionalism

(Hwang and Powell 2009) in the nonprofit sector in San Francisco and the organizational goals and material technology employed by international development NGOs (Watkins et al. 2012).

A handful of studies have looked comparatively at aspects of culture of nonprofit and for-profit organizations. One such study was conducted by Hull and Lio (2006) of the Rochester Institute of Technology in New York. They outlined the ways in which cultures differed between the two organizations. They broke down these differences into three core components of the organization: vision, strategic constraints, and financial constraints. Other scholars, like Billis (2010), have contrasted for-profit and nonprofit organizations as follows: private-sector organizations are determined by their market orientation to maximize financial return, with ownership by shareholders and a revenue model based on sales and fees, whereas nonprofit-sector organizations are determined by their social and environmental goals, with ownership by members and the private election of representatives, staffing by a combination of employees and volunteers, and a revenue model based on membership fees, donations, and legacies (Billis 2010).

Table 10.1 uses the information acquired from the studies of culture at nonprofit and for-profit organizations described above and fits it into Schein's levels of organizational culture framework, thus creating a typology of the organizational culture of traditional nonprofit and for-profit organizations.

The first level, that of underlying assumptions, is rarely covered in the literature. As a result, the table draws from underlying assumptions embedded in the literature itself and findings from the author's own ethnographic fieldwork. Underlying assumptions includes an organization's underlying priorities in society and ideological commitments. The second level, that of espoused beliefs and values, has received the most attention from researchers and thus is the most comprehensively represented of the three levels. It includes an organization's goals, scope of impact on society, and grounding in society. Finally, the third level, that observed artifacts and behaviors, includes an organization's strategies for revenue generation, who an organization is responsible to, and an organization's ownership structure. However, it excludes a number of more specific elements of artifacts, such as an organization's layout or the habits of interaction between various departments,

Table 10.1 Organizational culture at traditional nonprofits and for-profits

Levels of organizational culture	Categories of organizational culture	
	For-profits	Nonprofits
Underlying assumptions		
Underlying societal level priorities	Economic growth	Equality and empowerment of disadvantaged
Ideological commitments	Free market economy	Philanthropic economy
Espoused beliefs and values		
Goal/vision	Revolves around how to maximize profits while providing the services they are designed for	To maximize positive social change; vision forms core of organization's work
Scope of societal impact	Societal impact considered to the extent that it affects profit generation	Seeking to bring about social change in society
Geographical grounding	Flexible, able to relocate, or expand of necessary for profit	Committed to the location(s) in which they operate
Observed artifacts and behaviors		
Ownership structure	Shareholders	Donor support, members
Responsible to	Shareholders and, to a lesser extent, employees	Donors, employees, volunteers, intended beneficiaries
Revenue generation	Seeks revenue maximization through sales and fees	Donor support, project revenue goes to improving service

in order to focus on the most salient categories for understanding the differences between nonprofit and for-profit organizational cultures.

Although this composite may seem a tad cumbersome, I believe it to be a worthwhile improvement over existing literature, which rarely looks at organizational culture holistically and instead focuses more narrowly on the level of beliefs and values or solely at an organization's structures.

The core differences between nonprofit and for-profit organizational cultures as outlined here originate at the base level of underlying assumptions. The assumptions about what is good for society and what kind of socioeconomic system is best seem to stand in stark contrast with one another. For-profits typically rely on an ideological commitment to the

free-market economy, where the logic of the market is the best way to build a better, more economically prosperous world. By contrast, non-profit companies are typically built on the assumption that the market is not enough—that there are important aspects of the social world that the financial markets are not designed to improve or support, such as poverty eradication or social welfare.

These contrasting underlying assumptions and ideological commitments trickle down to influence the culture of an organization at the other two levels. At the level of espoused beliefs and values, for example, the goals of a typical for-profit revolve around the maximization of profits, driven by the belief in the free-market system. Even when there is a strong commitment to the particular service being provided (for example, a great search engine or the best mobile taxi application), it is believed that the service cannot be provided sustainably without a profit-driven revenue model. By contrast, the assumption that some social problems cannot be addressed within a free-market system drives nonprofit organizations to put the goal of maximizing positive social change at the forefront.

In turn, both the underlying assumptions and the core beliefs influence the behavior and artifacts of an organization. For the typical for-profit, for example, their stakeholders are largely made up of shareholders (and to a lesser extent, other individuals such as clients), whereas for the typical nonprofit, a large and diverse array of individuals must be kept in mind, ranging from the intended beneficiaries of the nonprofit's social-impact work to the donors who support it and the individuals who give their time freely or for reduced pay.

Case Studies: iHUB and 88MPH

In this section, I use the two contrasting typologies of organizational culture outlined above to illustrate that two key organizations in the Kenyan technology sector, the incubator 88mph and the technology hub iHub, are hybrids of the two cultures and that the hybridity of organizational culture can take quite different forms.

The incubator and hub were chosen for this study because, as nurturers of emerging companies, they are potentially serving as cultural models

for the organizations they are helping to build and for the individuals they are helping to train. I chose 88mph and iHub for the specific case studies to illustrate Kenya's incubators and tech hubs. iHub has been described as the first tech hub in Africa, and its role as a trendsetter makes it an important illustrative choice. 88mph (now called Nairobi Garage) is a start-up incubator that adopted a for-profit model popular in Silicon Valley at the time it originally opened in Nairobi. There are a fair number of other incubators and hubs in Kenya, but, as I will demonstrate, iHub and 88mph serve as useful points of comparison when the topic of interest is the hybridity of nonprofit and for-profit organizational culture.

Artifacts and Behaviors

Beginning with the typologies associated with the third level of organizational culture, artifacts and behaviors (Table 10.1), iHub largely aligns with the nonprofits and 88mph with the for-profits. In terms of ownership structure, iHub was originally founded by Erik Hersman and Juliana Rotich, part of the team that made the software company Ushahidi famous. iHub received initial financial support from donor organizations, such as the Omidyar Network and Hivos Foundation, and is guided by a dedicated local advisory board that includes Bitange Ndemo, the former permanent secretary of Kenya's Ministry of Information and Communication, and Becky Wanjiku, the Kenyan chief executive officer (CEO) of Fireside Communications Limited. iHub's business model at this point relies on partnerships with Internet providers (e.g., Zuku and Safaricom) that have supplied iHub with free Wi-Fi access to help nurture the sector and on international tech companies, like IBM, Microsoft, and Google, that helped finance many of iHub's popular events, including networking events and trainings from experts. Its model of revenue generation has been based mostly on hosting these kinds of events in its large, open-plan space (akin to a Google-style space) on financing from donors, membership dues collected from developers and techies who use the space, and conducting paid research. iHub has been able to keep some of its expenses down through many of its partnerships (e.g., the free Wi-Fi supplied by partners).

As in the case of traditional nonprofits, to whom iHub is responsible is not straightforward, but it is clear from interviews and observations that the core of its commitment is to a community grounded in Nairobi. In an interview, Hersman illustrated the integral role he believes members of the community have played in the origins of iHub and in sustaining its continued success, saying, “Even before there was a space we had an advisory board of people from the community. So we actually knew people from that community. We’re part of that community, so it’s easier. ... Before we even had any paint on the wall, we had dozens of volunteers” (Duarte 2012).

The meaning of community espoused by Hersman and most prevalent among members of iHub has many layers. It seems first and foremost to be a community of techies and developers who use the space to work on their businesses, but more broadly, it can be seen as the many varied individuals who have dedicated themselves to the idea of strengthening the iHub community and strengthening the ability of Kenya to become a hub for tech innovation in Africa. This community includes organizations and individuals from outside of Kenya who have a genuine interest in supporting the growth of the sector in one way or another, including its funders and its many numerous partners. In short, iHub’s commitment seems to be to the success of the community.

The behavior and structure of 88mph is more in line with the for-profit typology. Founded by a European serial entrepreneur, Kresten Buch, who came out of Stanford Business School in the USA, 88mph describes itself on its website as a seed fund that invests in, and connects investors to, particular start-ups nurtured during a three-month accelerator program. It resembles in many ways the incubator programs in Silicon Valley, like Y-Combinator, that provide intensive training and mentorship during their accelerator programs and connect successful entrepreneurs to potential investors. The key employees at 88mph are also shareholders, encouraging a sense of personal stake in ensuring these start-ups grow and profit. When it first opened, Buch and many of 88mph’s initiating staff were new to the Kenyan context and most of their investors were foreigners. Over the next few years, they worked to engage more with local actors, and by 2012, 11 of their 17 investors were from East Africa.

88mph has currently put its accelerator program on hold while it focuses on its existing start-ups rather than diversifying with new ones.

But they still maintain a group of “entrepreneurs in residence” from countries around the world who are intended to serve as mentors for the new entrepreneurs in Nairobi and at its other, newer offices in Cape Town and Lagos. As a for-profit company, 88mph’s model for revenue generation (see Table 10.1) is to invest in the very early-stage start-ups it mentors, including taking 7 percent equity in the fledgling companies. As Buch said in 2012, “The only way we can make money is if the start-up does really well” (CNBC Africa 2012). The company conforms to the model of the majority of incubators in Silicon Valley, that is, for-profit at its core and incorporating the potential for high risk in the short term in the hopes of a high return in the long term.

Again, in keeping with the traditional model of incubators and accelerator programs around the world and with the for-profit typology shown in Table 10.1, 88mph is primarily responsible to the investors who have supported it and who have invested in the start-ups. It also has a second responsibility to help the start-ups build financially successful companies, which feeds back into the goal of helping investors get a return on their investment. 88mph has made a point of bringing in Kenyan investors; the start-ups it nurtures in its Nairobi office are led by Kenyan or East African entrepreneurs, as well as a handful of foreign-led endeavors. Nonetheless, 88mph is not as embedded in the local Nairobi context as is iHub, which is particularly apparent through the multiple offices it has in Africa and in the level of espoused belief in wanting to “invest in technologies that solve problems for emerging markets” (CNBC Africa 2012).

Espoused Beliefs and Underlying Assumptions

The two organizations begin to overlap in notable ways when we look at the organizational culture embedded in their espoused beliefs and underlying assumptions, the second level of Schein’s framework (see Table 10.1). As noted above, in the area of geographic grounding, they remain quite distinct. iHub has a clear commitment to growing the tech sector specifically in Nairobi and is highly integrated into that location, whereas 88mph is more flexible and could shift its attention to another

office, like the one in Lagos, if the potential for a higher return on investment seemed more likely. That said, the involvement of local Kenyan and East African investors in 88mph projects means that many of the individuals in the organization now have a geographic commitment to Kenya. As Buch has said, “We need to understand the local market, so having local people come to advise and local investors is very important. We want to build those partnerships” (CNBC Africa 2012). Beyond the geographic relationship, it is in the other aspects of organizational culture at the level of beliefs and values as well as at the level of the core underlying assumptions that we see the original distinctions between nonprofits and for-profits begin to break down in iHub and 88mph and their organizational culture hybridize.

iHub still fits within the nonprofit type to a large extent within the level of espoused beliefs. Its members frequently use the language of positive social change when talking about iHub’s goal of supporting the growth of the local technology community and locally designed technology in Kenya. More specifically, a number of the projects it helps to nurture and support also have clear social-impact objectives, like AkiraChix, which trains women to use technology and to program, or like the start-up M-Farm, which nurtures growth in the agricultural sector by bringing market price information to farmers. Nonetheless, it is notable that while its own financial model is nonprofit, many of the organizations that have emerged from the iHub space are for-profit companies, some of which have built products that target the business-to-business market—in which nonprofit organizations have rarely been involved. Moreover, on its website, iHub describes one of its goals as creating “the place where seeds are planted and are easily found by the people with the money to help them grow.” This mix of for-profit and nonprofit actors and funders is something that iHub has actively nurtured and that its leaders actively espouse. For example, in a 2014 post on his blog, WhiteAfrican, Hersman wrote clearly defending the role that nonprofit grant funding has played in supporting early-stage development in the Kenyan technology sector (Hersman 2014). But he has also emphasized his belief that many private companies see a “real viable opportunity” in the start-up ecosystem around the iHub space (Design Indaba 2014). Herman’s choice to highlight the role of private companies as well as nonprofit organizations in

his public interviews demonstrates the belief that iHub's mission is not exclusively a nonprofit one.

This goal of supporting the growth of a private sector, albeit a sector that the iHub team believes has the potential to affect social change, is atypical compared with traditional nonprofit organizational culture. It speaks to the important ways in which iHub diverges from the nonprofit type at the level of underlying assumptions (Table 10.1). iHub does resemble the nonprofit type in assuming that the work it is doing will help to empower the disadvantaged and reduce inequality. Where it differs is in its ideological commitment to building a successful and sustainable market economy for technology in Kenya. Many of its individual staff members, including its founders, appear to believe that nonprofit involvement has an important role to play in the early stages of the growth of the sector and of start-ups, but the belief that underlies this is that the growth of a for-profit tech sector can affect positive social change. At this base level of organizational culture, iHub represents a real hybridization of the characteristically for-profit commitment to the free market economy and the nonprofit commitment to philanthropic intervention where needed.

In the case of 88mph, the typology at the level of underlying assumptions (see Table 10.1) is less ambiguous than for iHub. There is a clear underlying commitment to a free-market economy and profit generation akin to the typical for-profit. The way it measure its impact, for example, is a "pure, simple, bottom-line kind of investment" with "really no other impact metrics" (Barnwell 2014). At times, members of 88mph have been outspoken critics of the reliance on nonprofit grant funding in the sector (Hatcher 2014). In a 2014 interview with *The Ideal Space*, Nikolai Barnwell, then the manager of the 88mph Nairobi office, described his vision of where he wanted to see 88mph in the future, summing up up how the organization's commitments to profit and to a free-market economy have translated to the goals that its employees espouse. "In a few years," Barnwell said, "hopefully we will have invested in 100 start-ups across the continent, helped people make some cool start-ups, and our investors have made a lot of money" (Njiru 2014). These goals of creating "cool" technology as well as creating wealth resemble those of many in the tech sector in Silicon Valley. Members of 88mph have also articulated a desire to stay away from purely

social enterprises because they perceive them as “easily dismissed as things around NGOs which are largely ineffective” (Barnwell 2014), a perception that appears to be drawn from an underlying belief that social enterprises are unlikely to lead to any profitable return on investment, in keeping with the assumptions of the for-profit typology.

Nonetheless, there are subtle ways in which social impact has crept into some of the language, or the espoused beliefs (see Table 10.1), used by individuals at 88mph. In describing his own motivation, Buch explained, “I would love to work with people who really want to change the world. Who want to leave the nice corporate job and go down in salary to try to solve a problem” (CNBC Africa 2012). This language of “changing the world” is typical of that employed by many for-profit start-ups and incubators in Silicon Valley, where each is trying to prove that theirs is the next big idea that will change the world and therefore is deserving of support from investors. Nonetheless, 88mph’s decision to focus on the emerging economies of African countries seems to go beyond the work of “changing the world” that many in the American tech sector believe they are doing by creating the next dating app or smart watch. Although employees at 88mph still readily admit that profit generation for their investors is their primary goal, local job creation and regional economic growth are side effects that they routinely acknowledge or even highlight.

For example, when speaking with me, Barnwell acknowledged that while their primary goal is supporting the growth of their start-ups, ideally all of the people those start-ups hire “will be locally located so that it builds jobs” (Barnwell 2014). Local job creation was, in fact, the most frequently cited of the company’s impacts beyond profit generation. Even if 88mph employees shy away from or even criticize the term “social impact” (Mulupi 2012), there is some acknowledgment of the potential for 88mph’s work to have a wider economic impact. And although many for-profit companies are highlighting these kinds of positive externalities, particularly with the rise of the corporate social-responsibility movement, it shows how social-impact language has begun to influence the beliefs that for-profit incubators in this sector, like 88mph, are articulating.

The following figures depict the differences between the two cultural typologies as a continuum for assumptions, beliefs, and artifacts, representing each level of organizational culture described in Table 10.1.

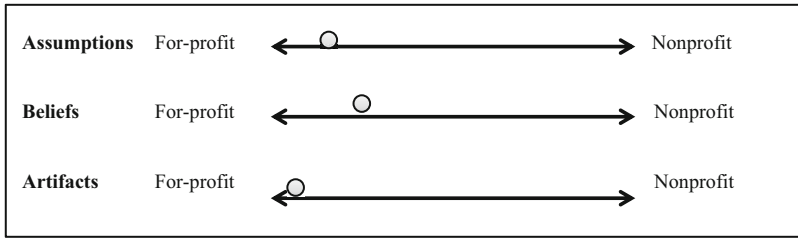


Fig. 10.1 88mph

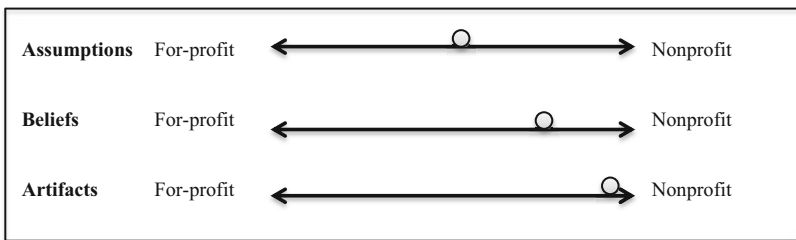


Fig. 10.2 iHub

Based on the above analysis, I have placed iHub and 88mph on these continuums. The figures certainly oversimplify the cultural complexities at both of these organizations, and the positions chosen for them are not hard and fast. Rather, the figures are simply intended to illustrate that although both of these organizations are hybrids, their hybridity takes very different forms (Figs. 10.1 and 10.2).

At the level of behaviors, iHub’s structure makes it responsible to a wide array of actors in the community to which it is committed, while 88mph’s primary responsibility is to its investors. At the level of beliefs, they share the goal of supporting the growth of tech start-ups in Kenya, though iHub’s motivation for that seems to revolve more around the social impact of such growth while 88mph’s lies more in the generation of profit and perhaps also regional economic growth and job creation. And at the level of assumptions, they seem to have more in common with a mutual, unspoken commitment to the growth of a free-market economy around the Kenyan tech sector, a notable area where iHub seems to diverge from the nonprofit typology.

With such a diverse array of organizations present in the Kenyan tech sector, 88mph and iHub are exposed to many organizations that they might draw on for inspiration. In the globally connected ecosystem of the technology sector, they are also connected to organizational cultures from beyond Kenya, including the organizational culture of Silicon Valley to name but one. It may be that some hybrid composite of nonprofit and for-profit organizational culture, combined with some of these other organizational cultures (e.g., Silicon Valley tech culture or Kenyan business culture) not explored in this chapter, may become the norm for the Kenyan tech sector. I believe it is still too early to say. What can be deduced at this stage, I suggest, is simply that these two organizations have decided that adopting cultural beliefs and practices from at least two different organizational cultural types is the best way for them to operate in the current Kenyan tech sector.

Conclusion

In this chapter, I have made the case that in order for progress to take place in the Kenyan technology sector, we need to move beyond the stale debate about whether nonprofit grant funding is good or bad and instead find ways to take advantage of the multiculturalism that exists in the sector. In order to do this, I have drawn on existing theories about culture at organizations to demonstrate that even organizations like 88mph, often associated with the for-profit model that dominates the discourse, are not purely for-profit when they are examined more holistically using the lens of cultural theory. By using Schein's theory of the three levels of organizational culture—underlying assumptions, espoused beliefs and values, and observed artifacts and behaviors—I have demonstrated in a more nuanced way that cultural hybridity exists at key organizations in Kenya's technology sector and that the practices and behaviors of these organizations are shaped by their fundamental underlying assumptions.

The cultural reality at iHub and 88mph is certainly even more complex and more fluid than was presented in this chapter. Organizations are essentially living ecosystems; they have many individuals within them who maintain various kinds of relationships across individuals,

departments, job descriptions, and time. They are also, like the hybrid language Sheng, continuously evolving and adopting to different contexts, needs, and beliefs. The goal of this chapter was not to paint a comprehensive picture of all of the cultural influences at 88mph and iHub but to illustrate that these organizations are more complex than their revenue models might suggest.

Implications

For Kenya

Acceptance of this hybridization could have important implications for the future of technology companies in Kenya. A more hybridized organizational culture at the incubators and hubs—organizations that nurture the newly emerging technology start-ups of Kenya—could lead to more hybridity in the organizational culture at the start-ups themselves. In a sector that is riding on the potential of such start-ups to build the country's future tech industry, the choices that entrepreneurs and start-up managers make about organizational culture early on could have the potential to influence the growth of this promising industry. Accepting that this hybridity already exists is a key step in findings ways to take advantage of it and to work with it creatively and conscientiously.

Beyond Kenya

I would argue that the intermingling of nonprofit and for-profit culture observed at iHub and 88mph is reflective of larger trends of overlap between these two sectors, not only in Kenya, but also in other parts of African and the Global South. Public-private partnerships, micro-finance for development, and social-impact investing have all been growing trends over the last 15 years in many countries in the Global South. In countries like Kenya, Nigeria, and Ghana, not only are nonprofits and international donors investing in start-ups, something that

would have been hard to find five or ten years ago, but they are also adopting some of the language, and perhaps even the beliefs, of the for-profit sector. This may be seen in a focus on “sustainability,” “agribusiness,” or testing new “business models,” like the World Bank’s infoDev project, or in committing to “sustainable economic development” as a core pillar of an organization’s work, as Hivos Foundation has done. Similarly, in ways akin to the experience of 88mph, many for-profits operating in Kenya and other parts of Africa have begun adopting some of the more social-impact-focused goals and visions typically associated with nonprofits into the language they use to explain their work. Multinationals are particularly good examples of this, with some, including IBM, Google, and Microsoft, frequently articulating a desire to help “build local capacity” in Africa, as in IBM’s commitment to “encourage[ing] and strengthen[ing] an innovation culture” in its work in Kenya (citizen IBM 2012).

Furthermore, the review of the theories of organizational culture and hybridity provided in this chapter illustrated the existing literature’s weakness at explaining the behavior and structure of new organizations in emerging economies in the Global South and particularly the role of hybrid organizations in these spaces. The existing literature, largely built from studies in the USA and Europe, sees hybrid organizations as inherently unstable. Work from scholars like Battilana, Gupta, and their colleagues, as well as the case studies provided here, provides early indications that the opposite might in fact be true in countries in the Global South, or at the very least that such hybridity is a potentially more natural part of the development of economies in the Global South.

Recommendations for Practitioners

I want to offer a few recommendations for practitioners working in the Kenyan tech sector and in technology innovation in multicultural environments in general that have come out of the research conducted for this chapter. These recommendations are: (1) to embrace hybridity, (2) to think holistically about culture at an organization, and (3) to consider hybrid individuals for employment.

Embrace Hybridity

In multicultural environments, I would recommend embracing the hybridity that multiculturalism might lead to, but be well-informed about the different kinds of culture that are influencing your work. Are you located in a cultural environment very different from the ones in which you have worked before? Perhaps in such environments it makes sense to adopt some of the cultural practices of the new environment into your organizational culture even if such practices have not been a part of your operations in other environments. Thinking about these practices as an element of fluid, evolving culture helps to embrace such hybridity and change over time as a natural part of organizations. Are there different cultural groups within your organizations that are creating divisions? One reason hybrid organizations are often believed to be unstable is that the hybridity is a result of the attempt to mix different cultural groups in one organization, which often leads to conflict between the groups. Such cultural mixing does not necessarily need to be avoided, but communication between such groups should be proactively managed.

Think Holistically

I would also recommend thinking holistically about the culture at an organization beyond just the choice of revenue model and to embrace the fluidity that comes with looking at culture and not just at the structure of one's organization. Although the debate about whether to accept grant funding or venture capital funding is very much alive among entrepreneurs in Kenya, it focuses on a small piece of the puzzle. Entrepreneurs should consider very carefully the choices they make about not just their revenue model, but also the myriad other aspects of organizational culture that they adopt. When designing the structure of a new company, what templates are being used to influence it? Incubators? Peer competitors? Successful foreign companies? If the latter, how different is the market those companies succeeded in from the one you are in? Purposeful, conscientious attention to understanding why particular elements of culture are being adopted could go a long way to helping fledgling organizations

stay committed to their goals and retain a sense of organizational coherence even when adopting cultural practices from multiple different organizational cultures.

Consider Hybrid Individuals

Once the cultural hybridity in a multicultural sector is embraced, it becomes easier to develop tangible strategies for managing an organization's cultural hybridity, such as hiring hybrid individuals. There is some evidence from the literature that hybrid individuals—individuals who have experience working in more than one kind of organizational culture—are particularly adept at switching between the two cultures or combining them. Think, for example, of individuals with dual nationality and experience living in two or more countries. They are typically able to adapt and blend into each country far more easily than a foreigner who might have to learn a new language or who might falter on even such basic things as the appropriate way to greet an elder. In their work in Bolivia, Battilana and Dorado (2010) demonstrated that new hybrid organizations benefitted from hiring employees with experience in the various cultures that the new organizations represented. Much more research needs to be carried out in order to better understand the roles these individuals might play, but the potential for hybrid individuals within hybrid organizations is one way in which embracing hybridity can have practical consequences.

Recommendations for Researchers

Finally, one of the goals of this chapter was to lay the groundwork for research on culture and organizations in technology sectors in African economies. Recommendations for avenues of research in this area include: (1) examining the stability or sustainability of organizations with hybrid cultures in the sector, (2) studying the ways in which the culture of organizations in the sector are changing over time, (3) problematizing the influence of other forms of culture at organizations (e.g., the cultural

context, cross-cutting culture, and sub-culture), (4) deconstructing the meaning of the culture for an organization's employees, and (5) testing the applicability of theories of intercultural communication to hybrid forms of work.

Such research could help build a more holistic picture by looking, for example, at the change in organizational culture at incubators and hubs over time or at how individuals inside and outside of them construct or perceive their cultural influences. Watkins et al. (2012) have argued that "NGOs are shaped as much by how they are imagined as by what they actually do." How do start-up managers perceive the incubators and tech hubs? How would members of an organization's advisory board characterize it? How might this characterization change depending on whom they are talking to?

Closer examination of the relationship between these organizations and the industrial and cultural context in which they exist could also prove very fruitful. Do the incubators and tech hubs in Kenya, as I speculate in this chapter, really have any power to shape the organizational cultures of the start-ups they work with or the institutional norms being adopted by the country's tech industry as a whole? Is there something theoretically useful to be learned from studying organizations forming in new industries like the Kenyan tech industry that might be applicable more broadly?

Finally, I believe that the study of intercultural communication could provide a particularly fruitful avenue for research on these kinds of hybrid organizational cultures in multicultural environments. Researchers specializing in intercultural communication have typically focused on environments with a mix of national cultures, like foreign language classrooms or among students who study abroad. By taking some of the theories that were developed in these contexts—like cross-cultural competence, cultural intelligence, or code-switching—and applying them to the study of culture at organizations, researchers could help in a number of ways. They could build theory about how hybrid organizations interact with one another or with nonhybrid organizations or test the value of hiring hybrid employees with experience working in various different organizational cultural environments.

Nonprofit, for-profit, and hybrid organizations are likely to be part of Kenya's tech sector for a while. And as in any environment where cultural

groups are forced to live together, there is the potential for conflict. It is my hope that highlighting the areas in which these organizational groups overlap culturally and drawing attention to the fluidity of culture, as this chapter has done, will help individuals in the sector acknowledge the areas of common ground between them and to use them to facilitate easier communication during the many intercultural interactions that take place on a daily basis in this diverse sector.

References

- Barnwell, N. (2014). Eleanor Marchant interview with Nikolai Barnwell.
- Bass, B. M., & Avolio, B. J. (1993). Transformational leadership and organizational culture. *Public Administration Quarterly*, 17(1), 112–121.
- Battilana, J., & Dorado, S. (2010). Building sustainable hybrid organizations: The case of commercial microfinance organizations. *Academy of Management Journal*, 53(6), 1419–1440.
- Billis, D. (2010). *Hybrid organizations and the third sector. Challenges for practice, theory and policy*. London: Palgrave Macmillan.
- Chatman, J. A., & Jehn, K. A. (1994). Assessing the relationship between industry characteristics and organizational culture: How different can you be? *Academy of Management Journal*, 37(3), 522–553.
- citizen IBM. (2012). Smarter cities challenge: Nairobi, Kenya. *Youtube*. <https://www.youtube.com/watch?v=xf1H8dQ2ZB4>. Accessed 12 Dec 2015.
- Clement, R. W. (1994). Culture, leadership, and power: The keys to organizational change. *Business Horizons*, 37(1), 33–39.
- CNBC Africa. (2012). Kresten Buch – Founder of 88mph –Part 1. *Youtube*. <https://www.youtube.com/watch?v=qV5qB4AmME8>. Accessed 1 July 2015.
- Dartington, T. (1998). From altruism to action: Primary task and the not-for-profit organization. *Human Relations*, 51(12), 1477–1493.
- Deshpandé, R., Farley, J. U., & Webster Jr., F. E. (1993). Corporate culture, customer orientation, and innovativeness in Japanese firms: A quadrad analysis. *The Journal of Marketing*, 57(1), 23–37.
- Doherty, B., Haugh, H., & Lyon, F. (2014). Social enterprises as hybrid organizations: A review and research agenda. *International Journal of Management Reviews*, 16(4), 417–436.

- Duarte. (2012). *Erik Hersman Interview with Michael Duarte. Duarte*. <http://www.duarte.com/blog/interview-erik-hersman-ted-fellow-founder-of-ihub/>. Accessed 22 Mar 2015.
- Gichuru, S. (2014). *Before anybody convinces you that NGOs are messing up the tech ecosystem*. <http://www.samgichuru.com/before-anybody-convinces-you-that-ngos-are-messing-up-the-tech-ecosystem/>. Accessed 23 June 2015.
- Gillespie, T. (2010). The politics of “platforms”. *New Media & Society*, 12(3), 347–364.
- Greenwood, R., & Hinings, C. R. (1993). Understanding strategic change: The contribution of archetypes. *Academy of Management Journal*, 36(5), 1052–1081.
- Gregory, K. L. (1983). Native-view paradigms: Multiple cultures and culture conflicts in organizations. *Administrative Science Quarterly*, 28(3), 359–376.
- Gupta, S., Beninger, S., & Ganesh, J. (2015). A hybrid approach to innovation by social enterprises: Lessons from Africa. *Social Enterprise Journal*, 11(1), 89–112.
- Hatcher, J. (2014). Hype around NGO-funded apps is stifling Africa’s innovation. *Wired UK*. <http://www.wired.co.uk/news/archive/2014-06/10/silicon-savannah>. Accessed 23 June 2015.
- Hersman, E. (2014). Builders and talkers: The fallacy of the grant vs investment debate. *White African*. <http://whiteafrican.com/2014/06/18/builders-vs-talkers-the-fallacy-of-the-grant-vs-investment-debate/>. Accessed 16 Dec 2015.
- Hull, C. E., & Lio, B. H. (2006). Innovation in non-profit and for-profit organizations: Visionary, strategic, and financial considerations. *Journal of Change Management*, 6(1), 53–65.
- Hwang, H., & Powell, W. W. (2009). The rationalization of charity: The influences of professionalism in the nonprofit sector. *Administrative Science Quarterly*, 54(2), 268–298.
- Design Indaba. (2014). Inside Kenya’s iHub. *Youtube*. <https://www.youtube.com/watch?v=iVESsquYn64>. Accessed 18 July 2015.
- Jaeger, A. M. (1983). The transfer of organizational culture overseas: An approach to control in the multinational corporation. *Journal of International Business Studies*, 14(2), 91–114.
- Kraidy, M. (2005). *Hybridity, or the cultural logic of globalization*. Philadelphia: Temple University Press.
- Lindenberg, M. (2001). Are we at the cutting edge or the blunt edge?: Improving NGO organizational performance with private and public sector strategic management frameworks. *Nonprofit Management and Leadership*, 11(3), 247–270.

- Mangen, C., & Brivot, M. (2014). The challenge of sustaining organizational hybridity: The role of power and agency. *Human Relations*, 68(4), 659–684.
- Mulupi, D. (2012). Are social impact innovations distracting Kenya from real business? *How We Made It In Africa*. <http://www.howwemadeitinafrica.com/are-social-impact-innovations-distracting-kenya-from-real-business/15968/>. Accessed 15 Dec 2015.
- Murta, M. S. (2011). Exploring organizational culture and leadership styles in El Paso nonprofit organizations. ETD collection for University of Texas, Paper AAI1503739.
- Njiru, T. (2014). 88 Mph on the ideal space. *Youtube*. <https://www.youtube.com/watch?v=XWcHiRaVNrY>. Accessed 12 Dec 2015.
- Ogbonna, E., & Harris, L. C. (2000). Leadership style, organizational culture and performance: Empirical evidence from UK companies. *International Journal of Human Resource Management*, 11(4), 766–788.
- Pettigrew, A. M. (1979). On studying organizational cultures. *Administrative Science Quarterly*, 24(4), 570–581.
- Runciman, W. G. (2005). Culture does evolve. *History and Theory*, 44(1), 1–13.
- Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45(2), 109–119.
- Schein, E. H. (2010). *Organizational culture and leadership* (2nd ed.). New Jersey: John Wiley and Sons.
- Tierney, W. G. (1988). Organizational culture in higher education: Defining the essentials. *The Journal of Higher Education*, 59(1), 2–21.
- Watkins, S. C., Swidler, A., & Hannan, T. (2012). Outsourcing social transformation: Development NGOs as organizations. *Annual Review of Sociology*, 38(1), 285–315.
- Zahra, S. A. (2003). International expansion of US manufacturing family businesses: The effect of ownership and involvement. *Journal of Business Venturing*, 18(4), 495–512.

Conversation #10

Reflections on the Hiring Process: What Happened to Curiosity and Passion?

Conrad Akunga of Innova Limited



Conrad Akunga is an enthusiastic, optimistic cynic, thinker, developer, son of Kenya, and all-round good guy with a keen interest in governance, economics, technology, and human nature. He has worked with technology for more than 15 years and does not see that changing in the immediate future. He is a co-founder of several initiatives, the main ones being Innova Limited, a pan-African software company that develops analytics and tools for the investment and capital markets, and www.mzalendo.com, a digital governance platform that provides nonpartisan insights into Kenya's government and administration.

Why did you start Innova, and what is the story behind it?

Before I started Innova, I worked for a software company that developed supply chain software solutions for almost ten years. We developed client-server applications running on mobile devices before there was Android. Before there was iOS. Before there was even 3G. Or Edge. It got to the point where I felt I knew the space and the issues like the back of my hand. In that capacity, I led a team that won the 2011 Growth Economy Venture Challenge, a million-dollar award from Nokia. But over time, I grew bored working in a space I knew so well and wanted a new challenge. So I partnered with my longtime friend Vincent Ntalami and went into a space I knew nothing about—finance and capital markets. We started officially in 2011, developing a range of financial software and tools for the capital markets. Today, we have 20 full-time staff, and we develop solutions for custodians, fund managers, private equity firms, and insurance and pension managers. We have clients in five countries—Kenya, Tanzania, Uganda, Zambia, and Malawi.

Entrepreneurship in Africa is quite hyped at the moment. How do you see this development?

I feel it is unfortunate. Entrepreneurship is considerably romanticized and glorified. Nothing is hotter and sexier than entrepreneurship. The current ethos is that entrepreneurship is the solution to all our problems. I could not disagree more. I agree that entrepreneurship is important, but entrepreneurship is not the Holy Grail or the solution to all our problems. We cannot all be employers. We also need employees. As a matter of fact, employers and employees exist for the exact same reasons. Take the parallel of the armed forces. You cannot have an army of all generals. You also cannot have an army of all noncommissioned officers. Each element brings something to the table, and the whole is greater than the sum of its parts.

Perhaps this new narrative is a knee-jerk response to the atmosphere we have been brought up in. For generations, kids have been told the following: go to primary school, work hard so you can go to a good secondary school, work hard so you can go to a good university, and finally work hard so you can get a good job. Generations and generations conditioned in this fashion have led to an education system optimized around producing employees, which, in turn, produces graduates who seek jobs. That is the demand side—employment. However, not much used to happen on the supply side—entrepreneurship. Perhaps that is

why the entrepreneurship narrative is getting such a reaction. It is the complete antithesis of the status quo.

The other issue I feel we have with the education system is its outright bias toward science, technology, engineering, and mathematics (STEM). Do not get me wrong—I think STEM is very important. But I also feel that the humanities, arts, and physical education are just as important. Again our kids have been conditioned to grow up to become doctors and engineers. In Kenya, the exit point from primary school is a nationwide examination called the Kenya Certificate of Primary Education. Millions of students appear for this exam around November, and by January, the results are out. There is generally much fanfare, and the highest-scoring students are identified, celebrated, and interviewed. And every year, without fail, these kids are asked what they want to be when they are done with education. They invariably respond with some variation on doctor, surgeon, engineer. I cannot recall ever hearing any of these kids say they want to be poets or dancers or artists. In our schools, a smart kid is one who is good at math or science; a kid who is good at drawing, curiously, is referred to as “talented.” But not smart. For society as a whole to flourish, each of these disciplines brings something to the table. We need STEM. But we also need arts. And physical sciences. And humanities. A holistic approach to our development capacity.

How will more “curious” students graduate from the education system?

I have always felt that the really good teachers can only be truly recognized after they have left their students to themselves. Allow me to explain what I mean by that. Given that our education system is optimized around passing exams, anyone with a good memory can cram facts and dates and regurgitate them at exam time. But knowing facts and understanding and internalizing them is a different kettle of fish. Good teachers plant a seed in your head, and usually you are blissfully unaware of it. They instill curiosity. Curiosity is what will make you go to the library and look for books on how electricity works. Not because there is an exam or because you have been asked to. You have gone on your own because you simply want to know. Things you learn out of curiosity, or genuine passion, stick in your head a lot longer than those bullet points you crammed to pass an exam and almost immediately forgot. This model of a teacher standing in front, rapping out notes, and then students regurgitating the same notes back at them during exams needs to be reviewed. I have interviewed software

developers and architects for almost 15 years now, and I am simultaneously saddened and amused by the number of graduates, masters, and even postgraduate prospects who have no clue about even the most basic fundamentals of computer science. What then does your degree prove other than that you know how to pass exams? What is it worth if you cannot access what you claim you know? It is a tragedy on so many levels.

How do you filter out job candidates that can apply and not only repeat what they have learned?

For starters, I no longer care whether anyone has a degree. As a matter of fact, for some positions, a degree paradoxically seems to get in the way. A degree seems to install some kind of thoughts barriers (justified or not), and I want a mindset that either does not realize there are any barriers or ignores them completely. There is a lot to be said for dreamers and the doggedly determined who are not held back by reality.

Just like our education system, the interview process is also broken. Take the usual hiring situation...

INTERVIEWER: Tell us about yourself.

INTERVIEWEE: My name is Mary. I am a hard-working, God-fearing citizen.

INTERVIEWER: Tell us about your past jobs.

INTERVIEWEE: Currently I work at....

INTERVIEWER: What are your strengths?

INTERVIEWEE: I am a team player. I work well under pressure. I require minimal supervision.

INTERVIEWER: What are your weaknesses?

INTERVIEWEE: I am a perfectionist.

It is as if there were a universal template—literally dozens of interviews where I have heard the same things. At Innova, we used this model for many years until we had some particularly disastrous hires who interviewed well but not only performed poorly, they but actually retrogressed us. We realized that it is impossible to know if someone will be good at their job during the interview. Some people interview well and flounder. What if there were

people who interviewed poorly but would have turned out to be exceptional? So we changed it. We use the interview to get to know you, and vice versa. We sell you our vision and expectations. You do the same. Meet our team and your potential colleagues. What are your interests? What are you passionate about? Convince us to give you a chance, not a job. After this, you work for three months. How good are you at the job? Are you a team player? Are you pleasant to work with? Do you enjoy the work? Can you manage yourself and your time? Are you willing to pull together and pitch in during emergencies? We do not enforce official working hours, so these things matter. After these three months, your colleagues and your head of department vote whether to keep you or not. Any negative votes—no hire. After all, if your colleagues do not want to work with you, how useful can you be in a collective effort? It has worked extremely well for us.

How many people do you find that fit the profile of a creative problem solver?

It is very difficult to find those, because almost all software developers come with the mindset that their primary work is to write code. This is not true. Their primary work is to understand and solve problems. Writing code just happens to be one of the tools at their disposal. The other problem is that they come in as Java guys. Or C++ guys. Or C# guys. They do not come in as programmers. The programming language is neither here nor there. What is important is the knowledge and understanding of algorithms and data structures. Syntax and organization of source code is a book or a google away. Mindset and attitude are the most important things. Are you curious? Determined? Passionate? Driven? If so, most of the war is won. The technical stuff we can teach you. However, we cannot teach you the former. My old boss Francis Kioko once told me that the first thing you should do when you take on a new job or opportunity is to train your replacement. At the time, that made no sense to me, because it sounded like career suicide. But with age came wisdom, and I understood that much as I could try to impart all of my technical knowledge, what I could not impart, even if I wanted to, was my experience—how to apply said knowledge: That is your edge! You cannot study this by cramming and repeating what you have read. You need to start trying and learning by applying knowledge. We are looking for those who know how to put their knowledge to work.

Hustling is very prominent in Kenya. What is your opinion on the “hustling” entrepreneur?

It depends. If hustling is a temporary and reactionary move, in exceptional circumstances, then it makes sense. If it is the end of the month and you do not have the cash flow for payroll, how can you temporarily address that situation? Aggressive negotiation? Overdraft? Short-term consultancy? If, however, hustling is your standard mode of operation, then you have a big problem. It is not sustainable or scalable. You will be spread too thin. You will not be focused. And that is bad for you, your employees, and your company. Here, hustling is a bad thing. Structure, planning, and process are essential for scaling and growth. The dubious badge of honour carried by those who are permanent hustlers needs to be retired. If you are constantly hustling, you have fundamental problems. Fix them.

Let us imagine you could start Innova all over again. What would you change?

I have been asked this several times, and I used to answer, “I should have started sooner.” But again, with age comes wisdom. If I had started sooner, would I have had the experiences and lessons that shaped my thinking and attitude today? Because learning includes both the things you should do and the things you should not. All of these played a part to make me who I am today. And so I can answer confidently that, with hindsight, I would not change a thing!

Thank you, Conrad!



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Part IV

Managing the Fine Details of Doing Business in Kenya

11

Inside a Policymaker's Mind: An Entrepreneurial Approach to Policy Development and Implementation

Bitange Ndemo

Introduction

In 2005, the first day of my new job as permanent secretary (equivalent to a company chief executive officer [CEO]) of Kenya's Ministry of Information and Communications was dramatic. In response to a journalist's question about what I would do about the corruption in the ICT sector, I said, I needed time to study the situation and would do my best to tackle it.

It was the first media interview in my life. I was still trying to understand my new assignment and what it meant to the people of Kenya. The previous night, President Mwai Kibaki had appointed me to work with the Hon. Mutahi Kagwe, who was appointed as minister (equivalent to a nonexecutive chairman of the board). The minister is the political head of the ministry.

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As the top civil servant in the ministry, I was responsible for policy-making and implementation. Everything in the ICT and media sectors ended up on my desk. Corruption issues topped the agenda financially at the ministry. The incumbent telecom, Telkom Kenya, was bleeding financially and losing revenues. Powerful cartels from the private sector in collusion with staff were stealing the company's assets through phony court cases while employees were colluding with international cartels to use the local network without paying (a practice known as the grey market in telecommunications). Publicly owned shares of the new mobile company, Safaricom, had disappeared to a secretive company registered in Guernsey under nominee accounts. Radio frequencies, a public resource, had largely been inappropriately allocated to well-connected individuals and companies, meaning that new entrants could not enter the broadcasting market.

At every function, I faced a barrage of questions from media, donor agencies, and civil society¹ as well as the public about corruption in the sector. I had no answer to any of these questions, but I kept promising that we would soon deal with all the issues. At that time, the Ministry of Information as well as my post in it had a fairly low profile. I quickly realized that the industry had no policy in place. Previous attempts to have a policy in place were always frustrated by strong vested interests.

The elephant in the room was what we would do to open up the industry by subverting corrupt networks. Before I joined the sector in 2005, privatization was a pressing matter. The new minister and I consulted with the industry and concluded that the answers lay in policy changes. We revised a draft policy document (Government of Kenya 2006) that had been developed earlier and formally adopted it through publication in the *Kenya Gazette*, the government legal publication. Thereafter, implementation—though characterized by risk—started in earnest.

On paper, Kenya's ICT sector was liberalized. However, the reality was that the incumbent telecom, a creation from the colonial days, controlled key resources such as the international gateway. This monopoly status made calling costs very expensive, sometimes 70 % more than in countries like India. New firms had no option but to endure exorbitant

¹ In this case, civil society refers to many different nongovernment organizations and public institutions that represent the interests of Kenya's citizen.

prices, which they passed on to the consumer. The incumbent as the gatekeeper for all international connections controlled the emerging Internet resources. The cartels benefitting in this grey market jealously protected the incumbent's monopoly status and obstructed all efforts at liberalizing the sector. This effectively stifled entrepreneurship and innovation.

Quick Wins from the New Sector Policy: Market Liberalization

We leveraged the policy document to build sufficient support from the industry in order to open up the sector. We selected five priority areas from the document, including development of and access to affordable infrastructure, content and innovation, capacity building, public-private partnership, and the creation of employment opportunities. In spite of this open approach to policymaking, we faced challenges. The grey market cartels waged war against our initiatives. We received death threats over the opening up of the international telecommunications gateway (ITG) gateways used to link telecommunications operators to the outside world. However, we were determined, and we went ahead and opened up the industry, enabling competitive environment. Because of the death threats, we had to deploy heavy security as we issued new IG licenses. Some members of the media who had been manipulated into accusing us of destroying the national strategic resource, the incumbent Telkom Kenya, eventually began to realize that our actions would be beneficial to all citizens. This was the beginning of the transformation of the sector. However, because of the technological and other changes, we needed a dynamic public policymaking process to accelerate the sector's entrepreneurial reforms.

This chapter is devoted to an examination of the complex policymaking process and entrepreneurial mindset that led to Kenya's breakthrough in ICTs innovation during President Mwai Kibaki's administration. It is mostly narrative in nature, based on recollections of my participation and observations, but it also attempts to use Dror's general systems theory framework (1969) and Edelenbos and Klijn's interactive decision-making theory (2005) to help explain the process.

It also provides a detailed account of policy development and the institutions that supported Kenya's ICT innovation dynamics, in the process identifying some of the pressing policymaking problems that had to be overcome to facilitate innovative thinking on Kenya's position in the so-called information age. The rest of the chapter is a narration of how innovation policies were made on an ad hoc basis to facilitate development. Three case studies are analyzed using these theories, revealing the two major policy decisions that enabled projects that sparked ICT innovation in Kenya.

The Public Policymaking Process

Policymaking is a dynamic and complex process and one that is necessary in creating a level playing field in any sector. To reflect changing circumstances—and because they rarely address all pertinent issues exhaustively—policies need regular iterations.

The process of public policymaking is a decision-centric and a goal-driven process (Geurts 2014). Decision-centric processes are those that require decisions to be made. Goal-driven processes are those that require a desired outcome. Goal-driven processes are not static, and iterations are performed until the outcome has been produced. The final outcome is thus often a compromise between the targeted result and the constraints encountered. The framework suggested in this chapter is largely decision-centric and perhaps explains why Dror (1969) found systems theory to be a more effective tool to explain the continuous and often ad hoc nature of policymaking. According to Dror's approach, for policy to be sustained, it requires a continuous input of resources and motivation. It is a dynamic process that changes with time and whose subprocesses and phases vary internally and with respect to each other.

In any country, the policymaking process faces several challenges. In developing countries, discourse on policymaking processes is rare and almost nonexistent, a situation that creates room to manipulate decisions in favour of powerful individuals and engenders corruption.

Dror (1969, 1983) recognized that the principal problem with contemporary public policymaking is the constantly widening gap between

what is known about policymaking and how policy is actually made. Despite ever-complex and evolving challenges, contemporary society relies on static policymaking machinery. At the same time, corporations, private institutions, and government organizations need adaptable guidelines to help them make urgent decisions. For Dror, general system theory referred to the relations between public policymaking and behavioral science and is used to facilitate effective policymaking.

In interactive decision-making theory, according to Edelenbos and Klijn (2005), the public actors, faced with the challenge of translating political objective into policy, attempt alternative ways of creating policy. Perceived problems in policy practices are responsible for protracted decision-making process and the resistance of various actors. Proposed solutions are often not inventive enough for policymakers to make real change. Often, there is a large gap between the objectives of politicians and those of civil servants and the citizens that the policy is supposed to serve. This is the case in a country like Kenya, where politicians have no ideological leaning but change policy positions not on account of ideology but out of political expediency.

Nurturing Emerging Tech Entrepreneurs

In their book *Start-up Nation*, Senor and Singer (2009) demonstrated the power of innovation and entrepreneurship to propel an economy to unimaginable growth levels. They detailed how Israel nurtured technology start-ups by investing in research and development to become one of the major global players in technology, even rivaling Silicon Valley. In 2008, Israel, a country of 7.1 million people with no natural resources, attracted “close to \$2 billion in venture capital, as much as flowed to the U.K.’s 61 million citizens or the 145 million people living in Germany and France combined” (Senor and Singer 2009). The success was largely due to the “government’s macroeconomic policies that played an important role in speeding up the country’s growth, reversing it, and then unleashing it in ways that even the government never expected” (Senor and Singer 2009).

However, start-ups do not just grow; they are nurtured. Technology entrepreneurs get advice from a variety of sources, including directors,

advisory board members, friends, and informal advisors (Choi and Stark 2005). These advice networks serve as important sources of information about business, technical, and social issues for the entrepreneurial community.

Applied to policymaking in the Kenyan context, this means that a combination of an enabling policy environment, investments in research and development, and good advisory networks are necessary for nurturing a successful technology entrepreneurship start-up program. And in fact, sustained government interventions contributed to the success of several start-up support systems in Kenya, such as iHub, iLab, M-Lab, and 88mph.

Two of the policy interventions discussed below were instrumental in putting Kenya on the global ICT map.

Policymaking in the Kenyan Context

Public policymaking in Kenya in the decade under review was made more complex by the fact that it was happening in an environment of emergent technologies—and of policymakers with limited experience in the subject matter and even less of the skills necessary to build bold, innovative policies.

As in other countries, most public policies are the result of a change in political leadership. In Kenya, the ministries or departments develop a policy statement in line with the vision and political agenda of the incoming administration and pass it on to the cabinet—composed of the president and the cabinet secretaries. Once the cabinet has approved the policy statement, it is then shared with stakeholders for comments to reflect the demands of the Kenya Constitution (Government of Kenya 2010), which demands that policymaking be consultative, participatory, collaborative, and transparent.

This constitutional requirement notwithstanding, achieving meaningful consultation is a core challenge of policymaking in Kenya. This is because leaders often assume that the public participates meaningfully and agrees with the proposed agenda when, in

reality, the opposite is true. In many cases, there is lack of incentive for the public to meaningfully contribute to the policies that affect them. Additionally, in most public consultation hearings, Kenyan civil society actors highjack hearings and turn them into avenues for political debate on other issues.

Once the consultative period has ended, public views are incorporated into the policy document, which is then sent back to the cabinet for the final approval. If no existing legislation exists on which the policy can be underpinned, the policy is accompanied by a new draft bill.

If a policy goes through these stages successfully, it is then forwarded to the Attorney General's office to ensure it does not conflict with other policies or laws. If it requires legislation, it is then forwarded to Parliament for deliberations as a bill before it become an Act (law) after receiving presidential assent. Policies that do not require any legislation (i.e., where a legal framework exists but there are no regulations) are published in the *Kenya Gazette*. After publication, implementation of the policy starts.

The time it takes for any policy document to go through all these stages can range anywhere from six months to ten years, mostly depending on the commitment and influence of the sponsoring ministry and of the cabinet. When a policy contains contentious issues that politicians do not want to deal with, it might even take longer. For example, an attempt to develop a Freedom of Information Law, which seeks to ensure that every citizen has a right to information, encountered resistance. This bill has taken more than ten years and has yet to be passed by Parliament simply because politicians think that citizens will gain access to their sensitive data. With this kind of highly politicized policymaking process, it is no wonder that development in most developing countries becomes paralyzed.

Fortunately for us, before the the promulgation of the 2010 constitution, the president had powers to bypass the cabinet and have a policy in place within a week. The minister and I, working closely with the president, exploited this opportunity in executing our ICT projects in record time. However, presidential discretion was a double-edged sword.

Using the presidential powers, we were able to push through other policies that, although lying outside our purview, were necessary to the success of our sector. The five policy objectives we identified—development of and access to affordable infrastructure, content and innovation, capacity building, public–private partnership, and the creation of employment opportunities—each required its own several sub-policies or its own policy statement. Public–private partnership, for example, was a broader policy that fell within the purview of the Ministry of Finance but was an important policy for my department’s goals in ICT development.

Problem Statement

Innovation precedes policy in emerging areas such as ICTs. This, however, should not happen if significant resources are committed to research and development. Until 2007, Kenya was among 22 Eastern Africa countries grappling with the challenge of linking the region to the rest of the world through undersea fiber optic cables. The challenge centered on whether it was commercially viable to lay such cables and if the governments required development assistance to build the infrastructure. At the time, no relevant policy existed, and so, naturally, focus turned to the legal guidelines that were required to see the project through to completion.

A steering committee comprising mostly nontechnical government teams from each participating country wanted a policy framework spelling out operations of the proposed project before infrastructure development began. Embedded in some of the engagements were government interests, all of which had engaged experts to help them in the policy negotiations. This was in contrast with the team I led, which took the view that, because we had the political will, all that was needed was the creation of a general policy statement that could be modified and updated as construction went on. In my view, it was premature to formulate a comprehensive policy statement in a technical area in which many of the participants had limited subject matter expertise. It would be more effective to develop a general policy to help guide those involved gain more experience and exposure to the technologies being proposed.

Was Existing Knowledge Sufficient to Address Future Demands for Policy Guidelines?

The policymaking process under review was happening in the context of rapid dynamic technological advances. The Kibaki administration aimed at minimizing the risk of investing in an area whose contribution to economic development was unknown.

Three subquestions therefore guided our research on the topic: (1) How could new ideas be accepted in the absence of a comprehensive policy? (2) Could an alternative and more dynamic policy environment give us the desired results? (3) Without a comprehensive policy document, how could investors be convinced that the management of the infrastructure would be fair?

What follows is a policymaker's reflection on the policy process that changed Kenya's ICT landscape.

Three cases (projects) that required constant policy revision will be discussed using Dror's general systems theory framework (1969) and Edelenbos and Klijn's (2005) interactive decision-making theory to help explain the rationale of the policy interventions.

The cases illustrate the difficulty of creating a dynamic policy environment owing to personal vested interests as well as scant technological knowledge by some government officials.

General Systems Theory: A Recapitulation

Dror is an acknowledged contributor to policy literature. In *The Capacity to Govern* (2001), one of his more remarkable works, he argued that a distrust of government has caused a brain drain from elected political positions. Other stakeholders in the political process—industry, *civil society*, and nongovernmental organizations—however important, he argued, cannot compensate for government's role in defining policy, which it is democratically empowered to do. Dror argued that radical improvements in governance were urgently needed but noted the scarcity of salient policy proposals to achieve this.

The Capacity to Govern diagnosed contemporary governments as obsolete and proposed changes in values, structures, staffing, public understanding, and political culture to equip governance for the radically novel challenges of the twenty-first century—and, as such, provided an appropriate lens through which to understand ICT policy development in Kenya. The framework of Dror’s systems analysis involved three main elements:

1. Looking broadly at problems and alternatives, taking into account many of the relevant variables and of the probable results—in other words, taking a “systems” view;
2. Searching for an optimal, or at least clearly preferable, solution among the available alternatives, without being limited to incremental changes; and
3. Rationally identifying the preferable alternative (or alternatives) through comparison of expected results.

However, in my experience, policy rarely followed such a linear path. The political agenda of leaders is obfuscated by vague and conflicting statements and undefined national goals, and the policymaker has to abstract the real political intentions from such statements, translate them into detailed and actionable targets, and attach appropriate policy interventions to them.

Policymakers frequently delegate policymaking to technical staff, a fact that can widen the gap between intent and actual policy. Standing alone, the general systems approach does not always yield the desired results. There is a need to supplement systems theory with one that describes the consultative nature of policymaking—that is, interactive decision-making theory.

Interactive Decision-Making Theory

Edelenbos and Klijn (2005) argued that proposed solutions are often not inventive enough for policymakers to create effective and actionable policy and that there is a large gap between the objectives of politicians and those of civil servants and the citizens they were elected to serve.

According to Pröpper and Steenbeek (1998), it is imperative to close the gap between government and its citizens, increase commitment to handling challenges, and create support for an interactive and consultative decision-making process. This involves understanding that the basis of the state–society relationship is that citizens and their leaders have the responsibility and commitment to realize goals in the public's best interest. Klijn and Koppenjan (2000) suggested that the closure of the gap between the government and its citizens typically has a positive impact on the legitimacy (in terms of support and acceptance) of the government.

Research carried out by Van der Veen (1999) in the Netherlands on local governments that have experimented with interactive and consultative decision-making found that the influence of citizens and interest groups on public policymaking was enhanced. The main motivations for involving stakeholders in interactive decision-making are to diminish the veto power of various societal actors by involving them from the start, thereby improving the quality of decision-making by using the information and solutions of the various actors as well as to bridge the perceived growing cleavage between citizens and elected politicians.

These two theories are useful in looking at, and explaining, the level of feedback loops and interactivity that enabled a dynamic policy development process in Kenya, without which much of the success we have seen in the ICT sector would never have happened. To illustrate the policymaking dynamism already alluded to in the foregoing discussion, three cases are discussed below. Two were successfully implemented, and one failed.

The East Africa Marine Systems (Teams)

When I joined the Ministry of Information and Communications, there was an initiative to provide high-speed connectivity and lower the cost of accessing the Internet by linking East Africa to the rest of the world through a fiber optic cable. More significantly, the cable was expected to bring closer the dream of having universal broadband connectivity.

For six years, the 22-country project had remained at the planning stage. The amount of money countries had spent in meetings almost

surpassed the actual cost of building the infrastructure. Clearly, some of the countries were resistant to the project.

Ultimately, after numerous discussions, it became clear that forging ahead with the project successfully was going to require a unilateral approach. Our Ministry decided to abandon the regional initiative in favour of a Kenyan-led project—a difficult decision to make in light of the politics (local and regional) as well as the vested interests.

The long process from multilateralism to unilateralism started with convincing of our minister, Mutahi Kagwe, of the need to abandon the common initiative, which was characterized by political machinations. Next, the minister convinced the then-Minister for Finance, Amos Kimunya. Three of us met with the president and convinced him that the decision we had taken was good for the country. Within three days, we developed a temporary policy document and a cabinet memorandum (the first step in any policymaking in Kenya).

We then sought the direct intervention of President Kibaki, who, having concurred with our assessment, agreed to search quickly for a partnership to develop an alternative to the regional initiative.

We faced a policy challenge. In 2008, Kenya did not have a policy to govern public–private partnerships. Yet, such a policy was necessary to convince stakeholders that Kenya would lead the project. To save time, we proceeded to get Etisalat Telecommunications Corporation in the United Arab Emirates as a junior partner (15 %). Once we had secured this initial deal, we came back and mobilized local operators to invest in the remaining 85 % of the project. I was sure to modify the original cabinet memo to reflect the partnerships.

Once more we approached the president, and his intervention enabled us to obtain financial allocation from the government for the initial investments in the TEAMS project. To fast-track the project through the rigid procurement procedures, I had incorporated a provision in the cabinet memo allowing for the creation of a steering committee.

This committee included Esther Koimett, the investment secretary who in Kenya is responsible for overseeing government investments and public enterprise, John Waweru (representing the Communication Commission of Kenya [CCK], the telecommunications regulator), and Robert Hunja (director-general of the Public Procurement Oversight

Authority, the entity that oversees public procurement in Kenya). The committee also included Samuel Kirui (the then-CEO of Telkom Kenya).

With this team mobilized, we quickly developed a memorandum of understanding with Etisalat of United Arab Emirates and sought price quotations to survey the cable route from the two principal global operators, Tyco and Alcatel. Tyco won the USD3 million and immediately started work. Tyco's timely implementation of the project won the confidence of the local operators that we wanted to partner with.

Ordinarily, tenders of such magnitude are published internationally for a period of 28 days, and the whole procurement process can take up to six months. It took us one month. Director General Hunja, seconded by the World Bank to the Kenya government, quickly understood the project's benefits and appreciated our high level of commitment. A forward-looking Hunja guided the committee in navigating through the 2005 Procurement Act, Kenya's newly launched procurement law.

There were still policy challenges around this public-private partnership project. To calm investors, I created a board consisting of all of those who had expressed interest in being part of the process—largely local telecommunication companies. And with that TEAMS was born. The TEAMS board created an escrow account to use as a vehicle to mobilize the resources required to build the cable. This enabled us to proceed with the tender to construct the cable. Technically, TEAMS was a government outfit that was subject to procurement rules, but the project was new, and some of the procurement processes of building undersea cables had not been anticipated in our laws. This forced us to rely on the United Arab Emirates' procurement processes as per agreement with Etisalat and eventually with Alcatel, which became the contractor.

Headwinds

The process moved at a remarkable speed, but not without challenges. By the time the local media were beginning to question the logic of abandoning a regional initiative, we were close to starting the actual construction. We encountered hostile media. Around that time, the government had introduced a Media Bill requiring self-regulation of the media industry.

Because the media perceived it as an attempt by the state to control media, we concluded that this was main reason for the media hostility.

In addition, the Eastern Africa Submarine Cable System, the regional cable we had abandoned, and another private initiative put pressure on us to abandon the initiative. The media accused us of flouting procurement rules. This prompted the Ethics and Anti-Corruption Commission, the African Center for Open Governance (Africog), the Efficiency Monitoring Unit, the auditor general's office, and a host of other civil society investigative agencies to start probing the project.

Adding to the challenges was the post-election violence in Kenya after the disputed presidential elections of 2007. From my 11th-floor office at Teleposta Towers, I watched anti-riot police patrol Nairobi's streets. The project contractor, Alcatel, wanted legal and financial guarantees in order to start the work. And Parliament, which approves such guarantees, was not in session.

I consulted Joseph Kinyua, my counterpart at the Treasury Department and an optimist like me who shared the dream of bringing ICT to Kenya. He suggested that I approach the CCK, the then industry regulator, or Kenya's biggest telcom, Safaricom. Both these entities had the financial capability to provide a guarantee.

Michael Joseph, Safaricom's CEO at the time, was sympathetic to my request but said it would require Safaricom board approval. I concluded that selling the idea to the Safaricom board would be a tall order and decided to pursue other means. I approached John Waweru, the director-general of CCK. Here too we needed board approval. I pushed the agenda through, because I was a board member at CCK. That evening, I lobbied the board members one by one, and by the time the board met, I had sufficient support, and they approved the provision of the guarantee. This did not go down well with Patrick Musimba (now the member of Parliament for Kibwezi) who, shortly thereafter, resigned from his board position. Permanent Secretary Kinyua then gave confirmation to CCK's bankers about the deal, Citibank, which needed confirmation from the Treasury before it could give the guarantee.

We secured the guarantee a few days before the March 2008 signing of the National Peace Accord, which brought peace to Kenya, and within days Alcatel moved ships to the United Arab Emirates to begin laying cable.

At the time, many political changes were occurring. My very supportive minister, Mutahi Kagwe, had lost the local election. Unlike today, under Kenya's old constitution this meant that he could not be appointed as a cabinet minister. President Kibaki appointed Samuel Poghio as the new minister and retained me in the same position as permanent secretary. The new minister, Samuel Poghio, was a former university teacher like me, and we developed a good working relationship.

Probes

Criticism against the project was unrelenting. More than seven different investigative agencies demanded information. The majority of the investigators had little knowledge of the undersea fiber optic cable. One investigator demanded, "Do you really think the entire country is foolish enough to believe that a 5000 kilometer wire can be laid under the sea?" Africog had hired expert investigators whose sound and objective analysis was invaluable in helping us explain the project. I convened a press conference and stated that I would take full responsibility for any impropriety in the project. This reassured the public, but it is noteworthy that we spent close to USD1 million dollars making copies of everything, including thousands of A2-size marine survey documents for transmission to the phalanx of investigators.

Just as we were beginning to see progress, the Privatization Commission was created to provide a legal framework for public-private partnerships and other privatization projects. TEAMS had been a shell company registered as a government entity, which came with a number of repercussions. In order to meet the tight deadlines of the commission, we had to allocate shares to investors. This meant hiring an accounting firm to value the "assets," a highly bureaucratic task. The investors grew agitated as I argued that the law could not be applied retrospectively while maintaining that it was useless to bring in an accounting firm when we had been making payments through a jointly owned escrow account, of which all members of the consortia were signatories. Fortunately, some commissioners began to understand my case. The chairman of the Commission was a professor of economics and a colleague from the university who

explained the intricacies of the matter to his commissioners, and they eventually approved the partnership.

The benefits of the cable were felt from the start in 2009. Eric Hersman, for example, an American-Kenyan tech enthusiast, asked me to provide at least 40 megabits for an open space he was developing to enable young people to access broadband for free. I embarked on establishing subsidized connectivity to the space, which was later known as the iHub. I gave directives that Telkom Kenya, one of the operators that had been acquired by Orange, a French conglomerate, was to provide the needed broadband. As I waited to hear the good news that iHub had been connected, Telkom sent me an invoice for USD200,000—money my ministry did not have. Clearly, few people had understood the concept of subsidized broadband to stimulate innovation.

Hersman later secured development assistance and raised capital to deliver broadband to iHub, which later became a hotbed of innovation. Kenya's journey as a center for tech start-ups had begun.

The experience of developing TEAMS was a turning point in the development of the current public-private partnership policies and legal frameworks that are now used in implementing ICT policies in Kenya. Its dynamic policy development process enabled the project to be realized in a timely manner. Other aspects that led to the success of the project were having the courage to take entrepreneurial risks and, even more important, collaborating with industry through an online policy dialogue platform known as the Kenya ICT Action Network KICTANet, which has a global membership that shares best practices and seeks to have them implemented locally.

M-PESA: A First-of-Its-Kind Money Transfer Tool

As we pursued our infrastructure development goals, another innovation with profound implications for monetary transactions emerged: M-PESA. Like TEAMS, it called for policy that did not exist and that needed to be created. In 2006, Michael Joseph, the CEO of Safaricom, a leading telecommunications provider in Kenya (partly government-owned) sought my ministry's approval for this new application, to be used to transfer money via mobile phone.

The application required approval from the Central Bank of Kenya, which Joseph found difficult to obtain without my ministry's support. After seeing a demonstration, I concluded that M-PESA was easier to use than Posta Pay, a government-owned money transfer app used by the Postal Corporation of Kenya and so I promised to support the project.

I contacted the Central Bank in order to get support, allowing Safaricom to test mobile money transfer in Kenya. The then acting governor of the Central Bank, Jacinta Mwatela, was extremely cautious and understandably so. In the 1990s, Kenya had lost about USD600 million through false claims to the government's export-compensation scheme. The Central Bank had paid out these monies to a company called Goldenberg International Limited, ostensibly as an incentive to boost exports of gold. Investigators later found that no gold was exported or that it was gold smuggled in from Congo.

Because of her negative experience with Goldenberg, Mwatela declined to support M-PESA and advised me to do the same. She doubted the novel project and eventually asked me to put my request in writing. In response to my letter, Mwatela sent four members of her staff to meet with Safaricom executives and me. They were clearly impressed by the presentation, although they made no promises. The bank directed that our ministry, which was responsible for both Posta Pay and Safaricom, take the responsibility for the oversight role. I accepted.

At the same time, I decided to seek the bank's formal approval through the Treasury. I wrote a letter that I hand-delivered to Permanent Secretary Kinyua, who by virtue of his position also sat on the bank board. At the time, there existed neither a policy nor a legal framework for the M-PESA kind of technology, which informed my decision to hand-deliver the letter. Had I simply mailed the letter, he would have marked it for a senior official to look into existing policy—and naturally, because the policy was nonexistent, my request would have been rejected.

I explained to the permanent secretary that Kenyans needed a quick and efficient way of sending money and that the existing Posta Pay transfer could not possibly deliver the efficiencies implicit in the M-PESA model. As an economist, the permanent secretary wondered whether M-PESA could affect the money supply and cause disruptions. However, the plan was that Safaricom would work with the banks to execute the

project so it would not affect the money supply. The permanent secretary agreed to help.

In the meantime, I asked my policy team, led by Dr. James Kulubi, to draft an electronic transactions bill and a policy document. In addition, I briefed Ambassador Francis Muthaura, Secretary to the Cabinet and the Head of Public Service, about the new concept and its enormous positive implications for the economy.

Ambassador Muthaura encouraged us senior servants to take measured risk and inject new ideas into the public service. M-PESA was a gamble, and if it failed my career was on the line. I lobbied parliamentarians, especially the ICT–energy subcommittee that oversaw the operations of our ministry. Much of my lobbying consisted of “market education” to try to help ensure that the members understood the new product and its potential to revolutionize the money transfer industry in Kenya.

At the Central Bank, a new governor, Prof. Ndung’u Njuguna, was appointed. He was an open-minded academic who soon after his appointment declared that the M-PESA concept would not pose any danger to the Kenyan economy.

With that, Safaricom’s Michael Joseph proceeded to implement M-PESA in 2007, establishing Kenya as a world leader in mobile money transfer technology.

Clearly, M-PESA is a classic case in which innovation preceded policy. In such cases, policymakers take the risk and, through systemwide consultations, push for supportive policies.

Posta Land Development: A Failed Policy for the Public Good

In 2009, after paying a courtesy call to Kenya’s President Mwai Kibaki, the presidents of two giant global corporations said they wanted to invest in a social enterprise in Nairobi that would create 10,000 business-process-outsourcing jobs. In return, Kenya was to provide at least five acres of land where the two communications giants would build their enterprise. President Kibaki requested that I find the land and report back to him.

Although our policy to develop a technology city at Konza was on track, this was an urgent opportunity. After a futile search through the Ministry of Lands, we identified land owned by the Postal Corporation of Kenya at an upmarket area near the well-known Yaya Shopping Center, 15 minutes from Nairobi City Center. The government assessor valued the land at Ksh 460 million (USD4.6 million).

I directed our legal teams to find out how we could legally transfer it to our new investors. They quickly came back with the laws on public land disposal, which had very detailed procedures, including approval by the board, the minister in charge, and finally the finance minister, who is the custodian of all government property. The legal team went through these steps very carefully.

Despite following the law to the letter, we encountered resistance. The Ethics and Anti-Corruption Commission suspected that the land was being acquired unlawfully by a large multinational corporation. This triggered a letter from the Commission warning that if I proceeded with the process, I would be charged in court. I called the Commission's Executive Director Prof. P.L.O. Lumumba and carefully explained the matter.

A few days later, however, Prof. Lumumba gave a public lecture in which he censured permanent secretaries for being complicit in corruption. Specifically, he insisted that the procurement of land must be consistent with the procurement law. In this case, the eloquent Prof. Lumumba was wrong, because the procurement law had no provision for land disposal.

Prof. Lumumba and the Commission as well as the Postal Corporation officials failed to appreciate that, given the rapid decline of postal services, we needed innovative technologies such as the business process outsourcing for job creation.

The challenge was that the public procurement and disposal law did not adequately address the sale of land for such developments. The disposal that was allowed by law was for minor equipment. The law did not bar disposal of land but required a much more elaborate process to be executed for the sale of public land.

Land values in Kenya have greatly appreciated, and land cannot be disposed of without valuation. I sent the details of the process we had followed to the Commission. Once again, it insisted that we follow the

procurement law. By this time, one of the giant corporations had gotten wind of the fact that we were subjecting the matter to the procurement law and offered to pay the valuation price. Posta immediately tried to scuttle this new development by failing to effect board decisions. The Commission wrote again, insisting that the land should be sold to the highest bidder. The risk from our perspective was that the highest bidder might turn out not to be the companies that caused us to embark on the project in the first place.

I briefed Ambassador Muthaura, who issued a directive that the land be sold at the valuation price. The Commission ignored the directive and wrote to me saying it would hold me personally responsible. To complicate matters, the management of Posta refused to sign off on the land. We contemplated a disciplinary action against management. However, if such a recourse got into the media, it would be costly to the corporate image of the two global giants that just wanted to create job opportunities through ICT development.

Later, I discovered that some employees in Posta were enjoying a monthly income from leasing the land in question to informal motor vehicle dealers. Out of self-interest, they may have looped in some junior Commission officials in destroying a deal with a huge potential to create much-needed jobs in Kenya and thwarted an important step toward advancing ICT innovation.

The Posta case is significant in policymaking, because it illustrates how policy of any kind cannot work where personal interests obscure decision-making. It also shows that, although the upper echelons of government might formulate a policy, middle-level managers can ultimately sabotage the policy out of personal interest. Both the general systems and interactive decision-making theories work on the assumption that there is transparency among all players. The reality is that often there is none.

Implications for Policy

The TEAMS and M-PESA cases related here are two projects that sparked ICT innovation in Kenya. In hindsight, the risks were worth taking. They illustrate how dynamism in policy development can lead to greater

development by creating an environment where entrepreneurship and innovation can flourish.

The success of the TEAMS project was largely due to the fact that decisions were made interactively and transparently, with the involvement of many stakeholders. We facilitated the timely completion of the project by giving information when it was needed, and the investors deliberated on issues internally before making decisions openly.

Through the 4000-member-strong industry portal KICTAnet, I responded directly to the public's questions, enabling us to enrich the content and advance it toward the usage policy we aimed to create. This process of interactive and consultative decision-making, as described by Edelenbos and Klijn (2005), lent the much-needed support to the project, enabling its completion in record time.

M-PESA became the enabler of e-commerce in Kenya, which had hitherto stagnated because of low credit-card penetration. Virtually every month following the introduction of M-PESA, I taught online start-ups about M-PESA's application program interface, which specifies how software components should interact to create smooth payments between two different firms. Many more developers in Kenya were inspired by what M-PESA could achieve and tried to emulate it. A few have succeeded. Nevertheless, the motivation had been established, leading application developers to bring their expertise to other sectors, mainly agriculture, health, and education, where they have helped create massive efficiency improvements.

For this project, the theoretical approach that fit its execution was Dror's general systems theory, because those involved in pushing the policy through attempted a structured, rational way of enabling a new innovation to go to market. There was a degree of interactivity, too, especially when convincing certain players of the merits of a particular approach or perspective. My intentions were to get both the Treasury and the Central Bank to look at the problem in a broader sense. Although there were not many options, they could at least agree to a pilot program. My desire was to get to rational identification of the preferable alternative—in order to allow Safaricom to proceed. And in the end, this is what actually occurred.

The failed land acquisition was a major setback. Business process outsourcing was the main reason we sought to build ICT infrastructure in

the first place. The project would have sparked off a new service industry. However, it was derailed by the self-interests of a handful of public servants. They were veterans of the system and were able to ignite squabbles between the two public service departments and continue with their “business as usual.”

However, all of this offers a great lesson, in that when there is resistance to change and innovation, one must be flexible and react accordingly. One mistake we made in executing a presidential policy was the fact that we dealt with those at the strategic level, ignoring and hurting the feelings of the mid-level managers who usually execute policy.

Self-interest and other ulterior motives are often responsible for creating paralysis in policy formulation and implementation. In retrospect, there are many things that we ignored and that led, as a result, to our policy failure. We should never have assumed there would be no resistance from Postal Corporation. Had we applied interactive decision-making theory to the Postal case as in the other cases, we might have succeeded. Without making any assumptions, we should have involved many more stakeholders, who would have prevailed on the officers to let go of their personal motives. And we should at least have involved not just people at the strategy levels but the senior officers and other field staff.

Conclusion

This chapter has revealed that there is benefit in a continuous review of policy to facilitate the emergence, commercialization, and monetization of new technologies. The chapter focused on three case studies in Kenya: the TEAMS project, the development of M-PESA, and the Posta land development project.

From the case studies, it is clear that in any policy implementation, a mechanism for involving as many stakeholders as possible is critical. Such mechanisms might include leveraging known theoretical foundations, such as interactive decision-making, which seeks to create a collaborative setting where stakeholders deliberate on a policy to reduce the gap between political proposals and what the citizens expect.

Other mechanisms involve general systems theory in order to arrive at a rational decision after taking all of the issues into consideration. Our two successful projects were successful because they applied strategies based on these theoretical foundations. Our failure in the third case study was caused largely by the wrong assumption that a direct policy pronouncement from the head of state would result in automatic implementation. The opposite was true—a lesson that any policy needs some process to succeed.

If we fuse the analytical frameworks of general systems theory and interactive decision-making theory, we can use them to understand ICT-related policymaking in the Kenyan context. Using this approach, it becomes evident that a combination of the right policy environment, strong political will, smart investments in research and development, and good advisory networks led to effective policymaking and laid the foundation for Kenya's ICT boom.

For all its worth as an examination of case studies in policymaking, this chapter is still a personal narrative whose aim was provide the perspectives of three distinct cases of policy development in the context of emergent technologies in a developmental and democratizing setting. It is therefore not a generalizable view of policymaking. The insights from the chapter, grounded in theoretical analysis, however, might serve as a starting point for other policy practitioners seeking to understand the birth of ICT in Kenya.

References

- Choi, D. Y., & Stark, M. (2005). Who adds value to ventures? Understanding the roles and relative contributions of key advisors in high-technology startups. *The Journal of Entrepreneurial Finance*, 10(3), 75–87.
- Dror, Y. (1969). *Systems analysis for development of administration: Some problems and requisites*. Santa Monica: The Rand Corporation. Presented at the national conference on public administration, Miami, Florida, May 19–21, 1969.
- Dror, Y. (1983). *Public policy-making re-examined*. New Brunswick: Transaction Publishers.

- Edelenbos, J., & Klijn, E. (2005). Managing stakeholder involvement in decision making: A comparative analysis of six interactive processes in the Netherlands. *Journal of Public Administration Research and Theory*, 1–30 (Advance Access published July 6).
- Geurts, T. (2014). *Public policy making: The 21st century perspective*. Be Informed. Lulu.com.
- Government of Kenya (2006). *National Information and Communications (ICT) Policy*. Nairobi: Government of Kenya.
- Government of Kenya (2010). *Constitution of Kenya*. Nairobi: Government of Kenya.
- Klijn, E. H., & Koppenjan, J. F. M. (2000). Politicians and interactive decision-making: Institutional spoilsport or playmakers. *Public Administration*, 78(2), 365–387.
- Pröpper, I. M. A. M., & Steenbeek, D. A. (1998). Interactieve beleidsvorming: Typering, ervaringen en dilemma's'. In: *Bestuurskunde*, jrg. 7, nr. 7, 1998. Translation by van der Veen available at: <http://cfpm.org/firma/Documents/Interactdecmaking.htm>. Accessed 22 Feb 2016.
- Senor, D., & Singer, S. (2009). *Start-up nation: The story of Israel's economic miracle*. New York: Twelve Publishers.
- van der Veen, A. (1999). *Interactive decision-making: A review report to the FIRMA project* Enschede, the Netherlands: University of Twente. <http://cfpm.org/firma/Documents/Interactdecmaking.htm>. Accessed 22 Feb 2016.

Conversation #11

Why Policy Matters for Entrepreneurs

Ory Okolloh of Omidyar Network Africa



***Ory Okolloh** is a well-known commentator on technology trends and governance in Africa. She has worked with organizations like Omidyar Network, Google Africa and the World Bank. She is also a co-founder of Ushahidi and Mzalendo. In 2014, she was recognized as one of Time Magazine's 100 most influential people in the world.*

Ory, you have been involved in Mzalendo and Ushahidi, you have worked for Google, and you are now in the investment space with Omidyar. You are also an active blogger and trained lawyer. How do all these different roles fit together?

I consider myself an active citizen of the world, and if something bothers me enough, then I will do something about it. I got into technology because it allows me to reach out to a number of people at once. Primarily, my efforts are directed less at solving issues but rather aimed at creating a platform that can enable citizens to solve the problems they deem relevant. Mzalendo, for example, was created to give citizens access to vital information on relevant government issues. The basic idea behind Mzalendo was to create awareness about the role and work of Members of Parliament in Kenya and increase the accessibility of such information. For Ushahidi we developed a similar idea, with a different spin to it. At Ushahidi we built a platform that allowed people to crowd-source information directly without intermediaries. My work at Google continued in a similar vein. Few things scale better than Google initiatives and at Omidyar, I am concerned with identifying the tools that entrepreneurs and innovators in our region require to succeed and scale beyond national borders. In sum, I am motivated by how I can put my skills to use most effectively—that is, providing a platform so that problems become visible and get solved.

How would you describe your work at Omidyar?

My task is to bring an African perspective into the investment opportunities. We need more investments into ventures that make sense for the region and its entrepreneurs. This simply requires a thorough understanding of both the region and the investment opportunities. For example, on the entrepreneur side, we need to demystify the art of pitching and marketing. By the same token, we need to make sure as investors that we are staying close to the trends and to how African economies are evolving. All in all, I believe that by being more connected to the region and its entrepreneurs you will identify the hidden jewels that can have an immense impact.

Why are many entrepreneurs likely to disengage with the government, or “fly under the radar,” as it is often called?

Not just in Kenya but in the whole of Sub-Saharan Africa you find very young democracies that suffer from high unemployment rates

and incapable governments that are failing to provide basic services. As a consequence, the perception that you should not rely on public goods has become the status quo—up to a point where the rule of thumb has become that the less you deal with government the better. We have become very creative and innovative in developing entrepreneurial solutions that work around public goods failures. However, at some point, you will notice that you are stuck, and you will have to engage with public policy. I believe that this idea—not expecting anything from your government—is harmful. Entrepreneurship and government are not two separate issues. They are interdependent right from the start.

There is a reason why industry lobbies in Europe and America are so powerful. Yes, they are entrepreneurs but they also leverage public policy to raise issues that are of concern to them. There is a reason why Obama and any presidential candidate in the general elections in the USA has to engage with the Silicon Valley lobby. All the government chief technology officers at the current White House, for example, have been former employees of big technology companies like Google or Facebook. Engagement with the government, as entrepreneurs, is absolutely common and needed. If this is the norm in the West, then why are we being asked to ignore the government?

Let's take procurement, for example. Why are African governments not procuring more from local technology entrepreneurs if they have the capability? How do we expect the local tech sector to grow if there are no policies in place to support it? Issues like this need to be put on the table and require a solution for the benefit of the region's ICT sector.

Who are the kinds of entrepreneurs that tend to get more involved in channeling information to policymakers?

We are starting to see more senior entrepreneurs become involved. Engaging the government is hard work and requires persistence. You cannot expect to knock on their door and see the change immediately coming through. Long meetings with policymakers where you move one step backward to go one forward are exhausting, especially when you know

that you could be using this time for your business and get way more done. However, when the new solution that you crafted with policy-makers becomes national and permanent, meaning a law, then you have achieved something for everyone else as well. Entrepreneurs should see this as a different kind of hack.

Let us say entrepreneurship also has a flavor of being an activist for society. Then what should the role of the government be?

The role of the government should be to create an opportunity for entrepreneurs to thrive. That is it! I am not pushing toward the other extreme, in which government will have to do everything. I am advocating for an enabling environment.

If we step back, reflect, and realize that the Kenyan population is in general quite entrepreneurial then we can start shifting some of the responsibility to them rather than shifting it even further away from them. Governments and policymakers do not need to do everything by themselves. What if we created an environment where we can act out our entrepreneurial nature for society as a whole? If you ask someone now for a short list of items that need to change, they will tell you that they do not want to deal with the Nairobi City Council every two days as they pass by the shop or that they need a streamlined business registration process—one unified license—or that access to financing needs to be addressed. An interest rate of 25 % is not really very conducive to doing business.

However, when we disengage completely, then there is no pressure for people on the other side to do their jobs.

What are some solutions you have observed to get the government involved?

I am interested in the recent revival of residence associations, which was mostly driven by security concerns that are by now evolving into other issues. I am fascinated by the Kilimani Project Foundation, as an

example.² It was formed by businesses and residents in the Kilimani area and provided a forum of vital exchange in the community. The idea goes back to a famous book, *Bowling Alone: The Collapse and Revival of American Community*, which analyzed the decline of in-person social interactions and how this basically undermines democracy. So you have to understand your neighborhood as a community where you have clear responsibilities as residents or business people and, on the other side, figure out who is responsible for doing what in government. For example, if there is a blocked drain on your street, it is more effective for you to complain collectively to the right local government entity than to solo on social media.

All in all, we need to think about ways to keep the government involved, rather than thinking of ways to stay under the radar. If we do not bring forth the issues that matter to those that can change them, then we will end up, if we are unlucky, with solutions that are only a temporary fix—or with no solutions at all.

Thanks you, Ory!



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² See <http://kilimani.co.ke/>

12

The Art of Managing Worldviews in Kenya's International Technology Sector

Tim Weiss and Klaus Weber

Introduction

We have all seen them, widely shared inspirational quotations that come in tweet length and deliver general wisdom to our glimmering screens about what it takes to be a successful technology entrepreneur. In fact, these tweets are everywhere, and for one reason or another, their messages are extremely powerful. Think of a tweet-sized quote from Jeff Bezos (founder of Amazon and Blue Origin and owner of *The Washington Post*): “I knew that if I failed I wouldn't regret that, but I knew the one thing I might regret is not trying.”

The core element of his message is the deeply held belief that failure is an inevitable part of a technology entrepreneur's journey—and indeed that the entrepreneur should embrace rather than avoid the power of

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failure. This positive attitude and the inherent glorification of failure has become a mantra that surfaces again and again in many similar quotes. While in theory, we might all agree with Bezos, the question is whether the mantra holds true in the everyday life of a technology entrepreneur in, say, Kenya? Put more bluntly, are you really willing to fail? Usually, the answer is a little more complex than a simple yes or no.

To judge from the opinions and convictions that linger in such tweets and similar statements you hear at conferences and on pitch nights, it seems as if there is a rule book, a recipe, that if followed will lead to success. If there were only a single recipe, success as an entrepreneur would indeed be easy. Reality is, however, a little messier. In Kenya's diverse and multicultural technology entrepreneurship sector, everyone is exposed to a multitude of these recipes for success. Here, domestic advice mingles with international mantras about what successful technology entrepreneurs ought to do. The problem arises once you try to put the recipes into action. When you add them all up, you discover that some recipes are contradictory, others are not easily applicable, and some just do not make sense.

Think about it: Are you really a true technology entrepreneur only if you want your digital solution to change the world? Or is it okay to make incremental improvements? Can you call yourself a serious technology entrepreneur only if you focus on a single venture? Or what about your next employee? Are you making the right decision if you hire a referral from a good friend—Or is it a grave mistake? Implied in these and many more unanswered questions is a quest for a formula that works—a holy grail for becoming a successful technology entrepreneur in Kenya.

We wanted to find out what this holy grail looks like, if it exists. We sifted through many different opinions, perspectives, and convictions in Kenya's international technology sector¹ in order to do two things. First, zoom out and from a bird's-eye perspective, organize the diverse statements into understandable big-picture themes²—best described as

¹This chapter is based on an academic article. For more detailed information about our methodology, the underlying theory, and a closer look at our findings, see Weiss and Weber 2016.

²There are different ways to investigate how participants in Kenya experience technology entrepreneurship. De la Chaux and Okune, for example, in Chap. 9 of this book, take a participant-centric approach and sort entrepreneurs, innovation hub staff, and investors into groups in order to expose

worldviews. Worldviews are deeper holistic systems of beliefs, norms, and values that motivate the variety of opinions, perspectives, and convictions that we see in Kenya's international technology sector.

We found a Kenyan worldview and an international worldview that each prescribed unique characteristics an entrepreneur ideally ought to have and the strategies he or she ideally ought to follow to become successful.³ Consider, for example, the question of whether technology entrepreneurs should or should not pursue side hustles. The Kenyan worldview favors multiple ventures under management at the same time as the right approach, best embodied in the idiom "A true hustler chases the buzz!" In contrast, the international worldview takes a fundamentally different position and favors one venture under management at a time as the ideal route to entrepreneurial success, meaning that business opportunities should be pursued serially. Such conflicting worldviews in a community pose problems for the entrepreneur in managing expectations, aligning aspirations, and taking into account the demands and requirements of those who subscribe to the opposite worldview. Just like the two poles of a magnet, opposing and conflicting worldviews can cause confusion about what is right or wrong, and hence create tensions, as seen, for example, when an entrepreneur negotiates with an investor.

Given the diversity of the sector, what is the "right way to do it in Kenya" today? The question motivated us to zoom back in and try to understand those involved in Kenya's Silicon Savannah in order to find out how they deal with differing worldviews in their everyday work life.⁴

divergent views about the groups' prescriptions for overcoming barriers to flourishing technology entrepreneurship. In Chap. 10, similarly, Marchant proposes that nonprofit and for-profit values influence participants' actions in Kenya even though they are commonly perceived as incompatible, arguing that drawing on both logics can in fact be a great resource for technology enterprises. In the current chapter, we follow a similar line of thought, though with a different analytical approach.

³Note that the beliefs, norms, and values of each worldviews are idealized features of becoming a technology entrepreneur.

⁴Our argument is based on two insights. First, seeing worldviews as a cultural toolkit moves us away from seeing culture as a constraining force heading in one direction and allows us to see it as a resource and toolkit from which community member can select various elements to act (Swidler 1986). Second, cognitive psychology has developed the concept of mindsets, which brings to the fore the various ways that individuals collect and processes information and develop knowledge structures that are essential for navigating through reality (Walsh 1995; DiMaggio 1997; Eggers and Kaplan 2013). Taken together, these insights allow us now to explore how individuals deal with

Imagine a conversation between an entrepreneur who adheres to the Kenyan worldview and a venture capital fund manager who adheres to the international worldview. They will enter the conversation with particular mindsets—guides to using information and action (Walsh 1995)—about how to deal with the worldview of their counterpart.

Does the venture capital fund manager know that the entrepreneur runs a car wash and a consultancy on the side? Is the entrepreneur prepared to tell the fund manager about *all* of his or her side hustles? If the fund manager and entrepreneur both adhere to their worldviews (the “Defender” mindset [see below]), we can imagine a scenario full of misunderstandings and frustration. However, with another mindset at work, the fund manager and entrepreneur can use the worldviews openly to come up with a solution that works for both sides (the “Blender” mindset [see below]). During our work, we found six mindsets that offer different approaches for navigating such tricky situations. In the following pages, we will sketch out, first, the five layers of each worldviews and then describe the six mindsets in detail. The art of managing worldviews leads to new, at-first-sight counterintuitive solutions that can help in finding a unique and collective Kenyan recipe for successful technology entrepreneurship.

Zooming Out: Two Conflicting Worldviews in Kenya’s Tech Community

We conducted 156 interviews⁵ in Kenya’s international technology sector, all with the aim of holistically understanding the Kenyan and international worldviews.⁶ Worldviews are deep cultural structures that

and make use of culture, manifested here in worldviews. Different mindsets emerge with which community members manage the conflicting worldviews.

⁵The interviews were done in 2013 and 2014 with technology entrepreneurs (49 Kenyan, 10 Kenyan repatriates, and 22 expatriates), investors (2 Kenyan, 1 Kenyan repatriate, and 23 repatriates) and industry representatives (17 Kenyan, 4 Kenyan repatriates, and 28 expatriates).

⁶Our research used a grounded theory approach (Charmaz 2011; Suddaby 2006; Glaser and Strauss 2012), understood Kenya’s international technology sector as a case study, and applied techniques of inductive theorizing and semiotics (Chandler 2007; Barley 1983). We used

undergird, in this case, business activity with systems of beliefs, norms, and values related to the shoulds, should nots, rights, and wrongs of becoming and being a successful technology entrepreneur.⁷ They provide an in-itself coherent and encompassing view of the world that lays out which behavior is ideal, desirable, or undesirable (Koltko-Rivera 2004). A worldview matters! That is why, like a compass, a worldview holds out an often unreachable reference point—an *ideal*—against which to benchmark and align one's entrepreneurial mentality, strategy, relationship management, firm evaluation practices, and image of the self.⁸ In our study, all of these five layers of technology entrepreneurship were significantly affected by worldviews.

The presence of two different worldviews is comparable to using two different navigation instruments at the same time—say, a compass and a map. If you can read only one of the two but need to use both, then your entrepreneurial journey has just become seriously more complicated. Confusion can be immense, and the likelihood of getting lost is real. However, if both instruments are properly understood, they can, together, lend real clarity and direction. Similarly, a profound comprehension of the worldviews held by other people in Kenya's international technology sector has the potential to serve as part of a powerful personal formula for entrepreneurs navigating the domestic and global tech scene.

Entrepreneurial Mentality: Hustling versus Single-mindedness

In general, two distinct entrepreneurial mentalities are at play. In the Kenyan worldview, the distinct hustling mentality is a ubiquitous behavioral pattern

MAXQDA software (VERBI Software, Berlin, Germany) to code the final dataset of 77 interviews. The set was selected based on the richness, quality, and clarity of the interview materials.

⁷Note that the beliefs, norms, and values in both worldviews presented here are not prescriptions about what those involved in Kenya's international technology sector should believe but rather a representation of what they believe to be an ideal state.

⁸This is not an exhaustive or fixed list but rather a reflection of the dominant components that interviewees were talking about—meaning there might be components that could be added. We encourage our readers to engage in a debate with us in an effort to further revise and refine the worldviews.

that cuts across income levels, religions, ethnic lines, and industry sectors.⁹ In its ideal form, it is best described as a proactive and outcome-focused mentality that seeks to generate income through finding fixes for many different problems or business opportunities. Think of an *askari* (Swahili for “guard”) who is involved in far more than guarding a building. Picture an office employee who also has a chicken farm and, as a side hustle, runs a car wash and a consultancy. Or think of an entrepreneur who grows more than three businesses simultaneously. In the Kenyan worldview, this mentality is the norm rather than an exception. In the international worldview, by contrast, a different dynamic is at play. The technology entrepreneur, also known as techpreneur, has established a unique approach toward doing business. Think of Bill Gates, Mark Zuckerberg, or Jack Ma—working in a professional community of co-entrepreneurs. Their actions and successes are compared against each other’s rather than those of real estate moguls, for example, or tycoons in the construction business. Indeed, professional techpreneurs champion a particular mentality. They make single-mindedness a discipline and are known for having a focused and experience-oriented mentality moving along a path toward self-fulfillment that seeks to develop a business solution for a single, fundamental problem.

The conflict between an outcome-focused mentality that seeks to generate income versus an experience-oriented mentality on a path toward self-fulfillment stands out. The hustling mentality in the Kenyan worldview is deeply rooted in Kenya’s history and an art brought to perfection in dealing with market and government inefficiencies. Arguably, without the hustling mindset, many day-to-day problems in Kenya would not find a fix, and many business opportunities would remain without that special someone who makes use of it. Although grounded in an entrepreneurial nature, hustling is in essence a means to pay the bills that are waiting at home. Put differently, in the mind of the hustler, entrepreneurship is a job more than anything else. The focus is on getting the job done. In the international worldview, a different belief reigns. Ideally, techpreneurs are not only involved in growing a business, they are also thought to be on a

⁹For more details, see Chap. 13 Eskor John and conversation #13 with Mikul Shah and Ritesh Doshi, in this book.

personal mission. They are expected to be enmeshed in a profound personal process toward self-fulfillment and realization. Entrepreneurship is meant to be far more than just making ends meet, it is a deeply personal journey to find one's true calling and what one was meant to do in life. Embarking on this journey is therefore not supposed to be solely driven by a need for money but rather by a passion for creating value for customers and society.

Taken together, these worldviews reveal fundamental differences in the purposes of entrepreneurship. In one view, entrepreneurship is mostly a pragmatic approach to make ends meet, and in the other view, entrepreneurship is supposed to be part of a broader, personal exploration. This can cause misunderstandings and tensions. Through the lens of the hustling mentality, it seems irrational and foolish to focus on only a single problem. What if the problem becomes irrelevant? How do you generate income and create wealth? Through the lens of the single-mindedness mentality, it seems untrustworthy to be always ready for the next job. Are you serious in anything you do? And will you ever be successful?

Entrepreneurial Strategies: "Hedge Your Bets" versus "Exploit One Niche"

The entrepreneurial mentality is inextricably linked to the entrepreneur's interaction with the market and larger environment. The hedge-your-bets strategy seeks to exploit multiple business opportunities in unrelated industry sectors at the same time. This diversification strategy makes business creation in multiple industry sectors a well-respected and recognized business norm in Kenya. To an outsider, the accumulation of businesses may follow no particular rationale. In the Kenyan worldview, however, the strategy is a logical next step in, for example, seizing the abundant opportunities Kenya has to offer and it is one of the necessary evils hidden in starting businesses in general. For entrepreneurs who adhere to this worldview, a look abroad is a welcome and comfortable source of inspiration and usually helps to identify business opportunities

and solutions that do not seem apparent at first glance in Kenya. This leads to the importation of foreign business solutions to tackle market inefficiencies (see Chap. 4 by Marissa Drouillard). However, each imported solution also comes with a perception fallacy. Although a business may thrive and flourish in another market, it can easily suffer from significant downsides once put to work in Kenya. The reason for this is that the fundamental assumptions built into the business model can turn into flaws¹⁰ if not addressed. A business clone must be carefully examined and assumptions need to be questioned to develop adequate adaptations for those that prove flawed in Kenya. A prominent topic, for example, is functional integration. Often times, the creation of a new business is accompanied by the need to establish peripheral businesses in order to successfully realize the primary business' aim. Here is why: Think of an e-booking site that first has to push hotels into the digital age (i.e., leading to the creation of a peripheral business such as a consultancy or a separate business entity for hotel software development and marketing) before turning to the primary business endeavor that sought to aggregate and offer hotel bookings on the World Wide Web. If there is no one who does it for you, then an additional business is needed to solve these peripheral problems, pushing entrepreneurs into seizing multiple business opportunities in parallel.

Quite the opposite holds true in the exploit-one-niche strategy, which seeks to seize a single business opportunity in a market niche, one opportunity at a time. Ideally, the techpreneur meets multiple opportunities sequentially, addressing a new business opportunity only after an earlier opportunity has been fully exploited. To an outsider, this international worldview may seem odd. But it is based on the strongly held conviction that in order to be successful an entrepreneur should identify and pursue only one market niche and contract out peripheral business problems to third parties. The rationale for this is that a focus on one particular market niche allows the techpreneur to holistically comprehend the market, develop specialized expertise and experience, craft an adequate solution to the underlying problem,

¹⁰ See www.livemint.com/Companies/9MS2eZjmYwcC040ktsu5JP/The-fault-in-our-startups.html for an extensive discussion of clone flaws in India's start-up scene.

and develop strategic capabilities so that a copycat can't drive the techpreneur's venture out of business. The fundamentals of the exploit-one-niche strategy are clear: The techpreneur is supposed to create a specialized enterprise, and peripheral problems are supposed to be contracted out to other businesses, allowing strategic partnerships to rise. This functional integration creates the notion of a well-connected business landscape whose elements rise and fall together.

In sum, the Kenyan worldview promotes the simultaneous creation of multiple enterprises in order to generate substantial income and build up wealth in a complex environment. Expectations built on this worldview regard people who do not seize the many opportunities as careless and suggest to those who propose the contracting out of peripheral problems as a little far removed from reality. In contrast, the international worldview offers a blueprint for a highly specialized enterprise that focuses on developing core competencies in order to realize a comparative advantage and pave the way for an exponential growth trajectory in a highly competitive environment. Viewing the world through this lens causes community members to wonder how a competitive edge or market dominance can ever be realized by spreading yourself thin, because doing everything yourself seems like you are not doing it right!

Relationship Management: Relations versus Contracts

How do you hire employees you trust? How do you select partners you want to team up with? And how do you ensure they deliver? The Kenyan worldview has a clear answer, in which trust in one's contacts and loyalty stand on an informal network-driven approach to business. Business collaborations that matter are therefore not merely a function of aligned business interests for mutual gain; in their ideal form, they rather reflect an outcome of longstanding and deeply trusted relationships with family, friends, and colleagues that reach back to joint secondary school or university attendance. Social is first, business comes second! Business relationships are embedded in a social network and need to be cultivated and protected. Not only "who you know" matters (i.e., status and reputation) but also "how well you know someone" (i.e., quality). An entrepreneur

who, for example, hires a referral from a trusted network contact over someone who is more adequately trained for the job is following the preferred reliance on social safeguards—favors and obligations ensure that the referral delivers on the agreed goals. This may mean that the start-up's performance is overall lower than if a fully qualified person were on the job. But the referrals and recommendations from trusted sources ensure the start-up's functionality and protect the employer from adverse employee behavior.

In the international worldview, incentive schemes and contracts stand on trust in formal business relationships. Ideally, a business relationship becomes trusted and sealed with a formalized contract. Contract violations are seen as a breach of trust. As a consequence, the hiring of employees circles around aligning interests between the start-up's goals and the employees' capabilities. Here, the start-up's goals and objectives are of primary importance. They come first and are, in general, the main driver behind forming business relationships. Detailed incentive plans, performance-based salaries, or equity-based compensation plans are seen as well-suited instruments to ensure alignment and performance of employees. If needed, judicial measures protect the company from adverse employee behavior.

Both worldviews rely on different arrangements. In the Kenyan worldview, the entrepreneur is part of a social network who—depending on the quantity, quality, and status of her or his contacts—may be able to unlock important resources and thereby help ensure the continuing performance and success of the start-up. Proponents of this view perceive the excessive use of formal contracts as a killer of the dynamic nature of business, primarily because it is not practical to try to pack all eventualities into a contract. In the international worldview, the primacy of company objectives coupled with the reliance on contracts creates a dynamic in which compliance with detailed contracts and individualized incentive schemes matter for start-up performance and success. This perspective sees informal business arrangements as highly suspicious, opaque, and secretive, suggesting involvement in nepotistic business activities. A cooperative or investment deal with community members who bank on informal relationships is highly unlikely for someone who believes in the primacy and power of contracts.

Firm Evaluation: "Bricks and Mortar" versus "Strategic Value"

A company's evaluation is probably one of the most contested issues during an entrepreneurial journey. It not only determines the cost of capital and informs contractual negotiations, it also sets the stage for the future relationship between the entrepreneur and financiers. In short, there is a lot that can go wrong.

In the Kenyan worldview, company evaluations are based on assets and revenue, and investors use brick-and-mortar businesses as a reference to assess the potential of new investment options. Imagine a technology venture that developed a digital solution and a committed investor offered a take-it-or-leave-it deal for a huge slice of equity—say, USD100,000 for 85 % of equity. This seems like a high equity price, yet it is indeed a realistic valuation. Why? The Kenyan worldview provides an answer—namely, that real estate, land, and property development represent a secure, desired, and representative investment destination, with more or less guaranteed returns. These investments are low-risk and offer moderate returns, pushing investors to focus exclusively on tangible brick-and-mortar businesses. They form the dominant reference category against which any other investment is judged, compared, and evaluated. Put differently, technology businesses are in competition with brick-and-mortar deals, where evaluations are based on business fundamentals such as market share, assets, profit margin, existing revenue, and projected revenue. In addition, the absence of realistic exit routes¹¹ underlines the belief that a conservative investment and entrepreneurial philosophy, in which a business should grow based on generated revenue, paves the way to success.

In stark contrast lies the international worldview, in which evaluations are based on growth potential, strategic value, and investors assess and compare the value of new investments in technology enterprises with those of ventures that have the same or similar characteristics. Ideally, high-risk technology enterprises should mingle in a dedicated investment category. This allows investors and entrepreneurs to use industry-specific measures

¹¹ See Chap. 14: Venture Capital in East Africa: Is There a Right Model? by Stephen Gugu and Wilfred Mworira.

to evaluate and compare high-risk companies with each other. Traction, unique user visits, and the conversion rate are just a few among the many metrics that are specifically designed to grasp the business realities and future potential of technology ventures. In an environment where early-stage ventures offer little information, highly specialized investors pick up the latest industry trends, and their investments serve as proxies for perceived entrepreneurial success and future performance. These investments are normally publicly reported and believed to be an essential stepping-stone to building a recognized and successful company. A vibrant exit market where buyouts and initial public offerings represent viable avenues for liquidating investments enables creative pricing strategies that determine potential market or strategic value. This affects business strategy in turn and allows a start-up to rely on investors' fuel to keep the engine running. In an equity-financed growth trajectory, revenue generation is secondary.

Taken together, the Kenyan worldview on firm evaluations is deeply anchored in brick-and-mortar businesses and favors a conservative investment philosophy. Through this lens, an investment deal of USD100,000 for 85 % of equity in a technology venture that owns a few laptops and generates almost no revenue is a reasonable and good offer. Anything else would be irrational, if not lunatic, and completely out of context. In the international worldview, high-risk technology ventures are a legitimate asset class and represent the norm rather than an exception. Through this lens, an early-stage investment deal of USD100,000 for 85 % of equity is irresponsible and toxic and can only be met with sarcasm in order to retain what little sanity is left! Technology entrepreneurs who hold the international worldview are therefore unlikely to find an investor among those who hold the Kenyan worldview.

Self-Image: "Catching up" versus "Leading the Way"

Self-image answers the question of how we view ourselves, our sector, and our country in relation to other countries on the globe. For example, in times of uncertainty and of many unknowns, where do you turn for advice and solutions? Do you seek outside help or rely on your own capabilities?

The self-image inherent in the Kenyan worldview is a mark of a complex and deeper-lying historical cause.¹² In its contemporary nature in Kenya's technology sector, it is best captured by an outward looking logic in which advice and solutions from abroad are largely seen in a positive light. These are believed to be the adequate source of inspiration and learning. In particular, foreign business ideas and management philosophies are introduced and adopted with high authority. Caused by a constant comparison and benchmarking with nations that are regarded as "advanced," a sense of "catching up with the rest of the world" lingers in this worldview and provides a source of inspiration, motivation, and at the same time, frustration.¹³ The role of foreign aid, for example, attracts continuing attention because grant capital and donor-driven projects are a ubiquitous remedy used to try to address economic, social, political, and cultural problems. Not only is foreign aid prevalent in the nongovernment-organization landscape and political sector, but it also mingles in the private sector, creating multiple approaches to doing business (see Marchant, Chap. 10). Despite all this, foreign commitment to Kenya is eyed critically¹⁴ and characterized as hesitant, ambiguous, and largely provisional.

The international worldview offers a strong contrast, in which the belief dominates that advice and solutions from within are superior and that internal capabilities produce state-of-the-art solutions. "The solution lies within you!" Solutions developed within a start-up, community, or nation are inherently superior and cutting-edge. They will set new standards and lead the way toward progress, change, and development. This inward perspective creates a view of the world that others will inevitably start making reference and comparison to in order to learn from

¹² For a thorough understanding of the historical causes, the current global economic order that reproduces them, and the dynamics of colonialism and post-colonialism, turn to the many famous philosophers who have analyzed the African condition in rich detail. To name just a few: Asante 2015; Fanon 2005; Mazrui and Wondji 1993; Mazrui 1974; Mbembe 2003; Mudimbe 1988; Ndlovu-Gatsheni 2010; Thiong'o 2009.

¹³ See in this book, conversation #1 with Jimmy Gitonga.

¹⁴ See in this book, conversation #3 with Anne Shongwe.

and imitate. It is entrepreneurship and business activity that take a key role in addressing today's problems, be they societal ills, environmental hazards, or market inefficiencies.

In a nutshell, because of profound historical developments, those that adhere to the Kenyan worldview in technology entrepreneurship favor foreign solutions. In fact, foreign solutions are largely perceived as superior. From this angle, local solutions are disregarded from the start as inferior, considered to have a high likelihood of failure, or seen as being merely a recombination of already existing solutions—reflected in a “We’ve been here before” attitude.¹⁵ The international worldview takes an opposite stance with a strong inward perspective in which solutions from within are superior. Through this lens, adapting foreign ideas and copying business models puts into question the true innovation potential of the Kenyan technology sector and its seriousness about disruption, change, and exponential growth.

Zooming In: Mindsets Getting to Work

These two worldviews have provided a bird's-eye perspective on the beliefs, norms, and values in their ideal form that mingle in Kenya's international technology sector. Arguably, the reality is not as stylized and nicely separated. Rather, the two conflicting worldviews blend in a diverse and international community. This leads to substantial problems in expectation management if members base their expectations, visions, understandings, and aspirations on opposite worldviews. The dynamic will lead to profound misunderstandings and frustration. However, there is a way out! Once the worldviews are fully understood, they provide rich information—a resource—that members of Kenya's tech community can use to build their start-ups (Swidler 1986; DiMaggio 1997). The

¹⁵ See also prominent Kenyans critiques that go against this grain and are in favor of local solutions. Among them are Thiong'o 2009, Mwalimu Ali Mazrui's BBC radio Reith Lectures at www.bbc.co.uk/programmes/p00gg1wn for a phenomenal start into his way of thinking about the African condition and James Shikwati's critical reflections on “donor economics” at <http://tinyurl.com/Stop-aid-it-is-killing-Africa> and http://www.nytimes.com/2006/11/18/us/politics/18thinktank.html?pagewanted=all&_r=0

challenge is to adequately put this knowledge to work. We zoom into the minds of Kenya's tech community members to showcase how to deal with and make use of the two different worldviews.

A mindset is an individually held point of view that lays out how the world works and helps in dealing with the complexity reality has to offer. It drives how we collect, analyze, and interpret information from the environment and is a product of past experience (Walsh 1995). Think of a filter. In principle, our mindset filters information and puts it in a particular frame so it can be interpreted. In day-to-day situations, our mindset comes in handy and guides us in understanding a situation and responding to it (see Eggers and Kaplan 2013 for a comprehensive overview). However, a narrow mindset can also limit us to familiar ways of thinking and acting (Dhanaraj and Khanna 2011; Hill and Levenhagen 1995). Ambiguous, uncertain, or entirely new situations challenge our mindset and require a shift or change to achieve a desired outcome. The more subconscious, hidden, and taken for granted a filter, the more difficult it is to create awareness and create change and versatility. In other words, if we cannot change our mindset, we will remain stuck in old behavioral patterns, repeat mistakes, and continue on the already beaten path without making use of the full potential a different perspective can offer. Ignoring the diverse resources that Kenya's international technology sector has to offer may well turn out to be a costly mistake.

Each dimension of the worldviews showed us the tensions and problems that those involved in Kenya's international technology sector face. Now we can move on to see which mindset is best equipped to deal with and make use of the worldviews. While reading through the following pages, it is best to ask yourself when you apply which mindset and whether it gives you the desired result. If not, you might want to consider developing another one.

Mindset #1: The Defender

"I do it my way or no way!" describes a community member who adheres to one worldview only and insists on its principles with

astonishing persistence. You will realize that you are logged into a Defender mindset if you face difficulties in understanding the rationale of your counterpart and keep insisting that your way is the only way. You will consider behaviors that bank on the other worldview as inferior.

Think of an entrepreneur in Kenya who criticizes and labels any advice from someone whose self-image is best characterized by “leading the way” as cocky accompanied by the expression “they don’t understand the fundamentals of our market.” Or think of an investor who is confronted with a hustling entrepreneur. By adhering to the single-minded techpreneur ideal, the investor will attribute a lack of seriousness and focus to the hustler, coming to the conclusion that, if the hustler does not quit his or her side hustles, an investment will be impossible. What the Defender does not see is that this mindset misses out on opportunities to learn profoundly from the market and work with rather than against the diversity of Kenya’s international technology sector. The mindset may work in the short run, but in long run, the Defender will run into problems because new partners to work with will be hard to come by.

Mindset #2: The Pretender

A champion in signaling, the Pretender has a vague, superficial understanding of the opposite worldview. All in all, the Pretender follows the worldview that is closest to the heart, paying only lip service to the opposite view. For example, a deep understanding of the meaning behind labels and metrics matters. Using CEO, UX, KPI, disruptive growth, and market trends too loosely or starting a clone with tags like “This is the Ebay of Kenya” would not help an entrepreneur in building credibility or unlocking new resources if the underlying meaning of these labels is only vaguely known or if the metrics cannot survive a thorough check.¹⁶ Instead, it creates false expectations, and the Pretender will run into the

¹⁶ See Mbwana Alliy’s post at <http://savannah.vc/2012/12/19/10-deadly-mistakes-and-pitfalls-african-startups-should-avoid-in-2013>

perception trap—signaling proficiency and commitment when a closer look reveals ignorance.

Similarly, it is by now evident that networks drive business in Kenya. Relationships are “social first and business second.” Paying lip service to the social-first component would not create trust. A blog post best illustrates this mindset. Malaika Judd (2013), a former investment manager at Savannah Fund, outlined prominent expatriate failures in East Africa. Among them, having no long-term plan for East Africa, having no Kenyan co-founders, staying inside the expat bubble, and not learning Kiswahili are behaviors that raise questions about the intentions of a Pretender. An investor should double check before sealing a deal.

The Pretender fails to understand the underlying meaning of the opposite worldview and thus lacks the authenticity and deep knowledge needed to build important connections that can facilitate access to finance, high-quality employees, and other business contacts necessary to run a successful business sustainably.

Mindset #3: The Pleaser

The Pleaser integrates both worldviews at the same time—but at a cost. In attempting to harmonize both of them in one start-up, she or he can then become occupied with pleasing multiple audiences. The Pleaser's focal task becomes managing stakeholder expectations in order to draw on a larger resource pool. This runs the risk of unraveling into a schizophrenic identity with two entrepreneurial mentalities.

An example of a pleaser can be a founder who draws on both grant and equity capital. Nested in the self-image, the Kenyan worldview understands foreign aid as a source to tackle grand challenges and finance market activities, and the international worldview regards business approaches as the superior solution to societal ills. Now, a Pleaser will combine both and simultaneously write grant proposals and compile pitch decks—selling the same idea with two different stories to two different audiences. The tension between both worldviews is thus imported into the start-up, most likely leading to a for-profit and non-for-profit

entity, also known as a hybrid social business.¹⁷ Although it creates access to both worldviews, it also engenders a double management burden on individuals—multiple board meetings a year, numerous update reports, reapplication for funds, and harmonizing grant-capital-provider interests with those of equity financiers. This can be a viable strategy, but it is best reserved for those with high cultural competence, an extensive management skill set, and a gift for speaking with multiple audiences.

The Art of Managing Worldviews

Understanding worldviews alone is not enough. A personal openness is also needed to challenge the status quo, look for viable alternatives, and get community members enmeshed in a dialogue in order to replace old thinking patterns with new ones (Dhanaraj and Khanna 2011). Pushing beyond the status quo requires a deeper understanding of the rationales baked into each worldview—a form of cultural competence that reads the similarities, differences, and compatibilities in order to craft something “new” that will both be of collective value to Kenya’s international technology sector and benefit the venture.

We have found three mindsets that do exactly that. They incubate novelties that have the potential, if widely adopted, to push Kenya’s tech space to the next level—a unique Kenyan form of technology entrepreneurship that works and leads to high-level exits that benefit all. Admittedly, these mindsets do not come without downsides. Hence, they are not for everyone. But they are of central importance in attempting to develop Kenya’s tech scene further.

Mindset #4: The Blender

Combining the best of both worldviews into something new is the analytical focus of the Blender. Arguably, novelty emerges amidst experimentation and exploration. Let us look back at grant and equity financing. Although

¹⁷ See also fascinating research on this topic by Battilana et al. 2012, Battilana and Lee 2014, and Battilana and Dorado 2010.

the integration of both instruments at the same time causes coordination challenges, a sequenced approach may well be the way ahead—that is, start with grant funding where it makes sense and then test and mature your prototype, well knowing that grant capital would not last. The goal is not to become the “donors’ darling,” it is rather to create a product within the confines of the foreign aid logic with the ultimate goal of acquiring intensive market knowledge, increasing the company’s valuation and, once the pilot has been tested, approaching debt or equity investors to get to market. The entrepreneurial strategy would be to first test and experiment using grants and then to embark on a growth trajectory using equity capital.

Another example is skillful translation, also known as “Africanizing it.” This expression gets at the combination of the foreign and local. Rather than attributing absolute superiority to either foreign concepts or the local context, it makes sense to see truth in both of them and acquire competence in skillful translation. This holds true for any community member. Question the consequences of your behavior, such as, What are the implications if I strictly do not invest in a hustler? Yes, you remain true to your principles; however “Africanize your principles!” would mean to step out of your current mindset and think of a middle ground where an investor or mentor helps entrepreneurs find their way while growing a company. Investors and mentors should get obsessed about finding out new ways how that can be done rather than drawing up contracts to best ensure that the hustler does not launch into something new on the way.

Similarly, rather than idealizing and glorifying what the technology gurus from abroad have to say, it makes sense to put on a lens that africanizes their advice. Why does failure matter so much to Jeff Bezos? What does failure mean for an entrepreneur in Kenya? Obviously, for many in Kenya, putting all their eggs in one basket comes close to suicide, but opening up to the possibility of failure detaches you from your business idea, frees you from overly conservative business approaches, and allows you to accept defeat if something does not work out. “Failcons” or “Fuck-up Nights,”¹⁸ emanating from Mexico, are innovations that came from such a mindset.

¹⁸This movement is about sharing business failures publicly, serving to demystify failure, and enhancing its general acceptance. For more information, see <http://fuckupnights.com/>

As familiar practices are left behind, new patterns emerge. They are inherently unstable and may lead to a new practice that actually works—or to one that fails. The mindset comes with a caveat. Potential downsides are nested in the absence of the familiar, the instability of the new, and an overly strong focus on the novel that can divert your attention away from the operational business.

Mindset #5: The Educator

The Educator, also known as the friendly guru, possesses the gift of deeply comprehending both worldviews, intuitively reading individuals, and seeing the worldview others adhere to. He or she is in a unique position to create awareness for both sides, lifting those stuck in their narrow mindset out of their own boundaries. Without the Educator, there would be no reflection on what is happening or, more importantly why it is happening. The Educator introduces reason and structure into what is happening and connects history with the present in order to show options for the future.

During our research, we were fortunate enough to meet a handful of these community members who have become role models in Kenya's international technology sector. It is impossible to draw up a conclusive list that does justice to all of them, but this short list combines tremendous wisdom with a strong sense of community that Ken Njoroge, Mike Macharia, Joseph Mucheru, Isis Nyong'o, Carey Eaton,¹⁹ Jimmy Gitonga, Ory Okolloh, Erik Hersman, Juliana Rotich, and Bitange Ndemo all share in common.

Pitfalls of this mindset are that you become a highly visible go-to person, meaning you will get enmeshed in highly political and contested issues, will have to play multiple roles, and may easily get sidetracked into a political agenda that would not allow you to fully focus on business.

¹⁹Carey Eaton was cherished as a genius with his heart at the right place. He died recently in a tragic incident. See www.whiteafrican.com/2014/06/06/remembering-the-genius-and-grace-of-carey-eaton/ for more information.

Mindset # 6: The Innovator

Taking unresolvable differences and creating innovative solutions characterizes the Innovator mindset. The Innovator looks for the counterintuitive. Rigid boundaries and huge areas of tension and contestation in the community become particularly good grounds for novel solution development. We will outline three such solution strategies that deal with contested issues in Kenya's tech community—hustling, adequate financing, and cultural differences. Some have already been launched and put into action; others are mere inspirations.

Financing the Hustler

Hustling versus single-minded entrepreneurship has received mostly informal attention. Lingering underneath the surface of discussions and reports, it seems as if the front lines are clearly demarcated without much movement. An ideal ground for a new solution! While one side believes that side hustles are a necessity to grow a tech enterprise in Kenya, the other side strongly advocates for a focus on only one venture. It seems as if an “either–or” approach is the only solution. Yet there is another way. A possible solution for incubators, accelerators, and investors can be to deliberately select parallel entrepreneurs, as they are known, that have the *most* businesses in their portfolio. After all, championing the “hedge your bets” strategy suggests a well-connected, seasoned, and diversified entrepreneur with at least three different businesses along with a deep knowledge of Kenyan business trends and dynamics. The task of the incubator, accelerator, and investor is then to assess, analyze, and work through all the side businesses with the entrepreneur in an effort to create synergies, introduce new strategy concepts, and work on a venture together.

This solution focuses on two aspects—on the one hand, respecting the entrepreneurial reality and accommodating the entrepreneur in an open collaboration in which disclosing all the side-business activity is positively valued. On the other hand, the solution seeks to grow both the entrepreneur and a focal business. Taking parallel entrepreneurship as a given rather than an abnormality demands entirely new strategies for working with the entrepreneur that are aimed at streamlining business activities. As one of our interviewees said, “There is a time and place for hustling. You got to know when you have to let go.”

Combining the Chama and the Venture Capitalist

The chama and the venture capitalist are well-established and highly sophisticated institutions. Both were created to deal with financial assets, though in diametrically opposite ways. The chama is primarily a local, bottom-up social vehicle and selects its members based on social networks. In a chama, collective saving or investing in personal or low-risk assets among family, friends, or colleagues is in the foreground. Venture capital funds are primarily a nonlocal, top-down economic vehicle—a financial intermediary—that channels capital from diverse and geographically dispersed investors into high-risk businesses. Infusing the lean, voluntary, and trusted management structure of a chama with the spirit of a venture-capitalist-style economic vehicle would direct the chama's investment targets toward high-risk businesses.

This solution does two things. On the one hand, it draws on the social network function that business relationships are built on and gathers medium- and high-net worth individuals into an investment group geared toward investing in Kenyan businesses outside of the regular investment targets. It leverages the networks, experience, and capital of the chama members in order to help verify and grow new businesses. On the other hand, it shifts the focus of the chama to an economic function, using the joint capital pool to invest in high-potential and high-risk investments rather than making the safe bet. This solution provides a Kenyan alternative to the high cost structures current private equity and venture capital funds face in the East African market (see Chap. 14).

On-Arrival Training for Newbies

Imagine you are new to a country; you will most likely dive into the Net or buy a *Lonely Planet* in order to gather some information about the new place you in—and you will be able to gather quite a lot of information. But you will miss some of the unwritten rules—the cultural nuances. This holds true for foreign techies coming to Kenya and for Kenyans venturing into the world of technology entrepreneurship. In each case, the language, norms, and the way you interact are new. For a foreigner, being fluent in Kiswahili, knowing how to eat *ugali* skillfully, or knowing why East African Breweries dubbed a beer “Senator” matters. The same holds

true for Kenyans. Not only is the language of techpreneurs with all its buzzwords completely different from that of other sectors, but also what is considered to be “hip” and “cool” differs. The devil is in the details!—and admittedly, learning the details is difficult and time-consuming.

A training program for both Kenyans and foreigners, however, could facilitate a controlled exposure to the culture of one's counterpart—a unique opportunity to learn how the game is played. Not everyone picks up these peculiarities right from the start. Rather than going through a painstaking six-month period in which everyone only scratches the surface, this solution can be a unique opportunity to learn the meaning of and reasoning behind each others' behaviors and terms.

As always, there are also downsides to this mindset. The Innovator is met with opposition, resistance, and a small peer group to work with. Counterintuitive and inherently new solutions face an uphill battle until they become recognized and fully accepted. The bearers of this mindset will therefore find only few supporters who fully understand and support the solution. So being able to take a long breath when working through potential failures and to bear with comments such as “I told you it ain't worth it!” are assets.

Concluding Remarks

How do we move forward from here? In our opinion, the co-existence of two different worldviews in Kenya's international technology sector—the Kenyan worldview and the international worldview—is a blessing. It opens up novel ways to practice technology entrepreneurship, ways that take domestic conditions seriously and see the future in a skillful blending of domestic and international wisdom—because narrowing the scope to only one worldview dramatically reduces access to the financial, human, and organizational resources locked behind the other worldview.

We do not subscribe to the idea that one worldview is superior to the other. Rather, we believe that the two worldviews together can be a great resource to help create a Kenyan understanding and definition of technology entrepreneurship that creates truly innovative products. All this comes with an important caveat. We are not pushing diversity at all cost;

we are aware that it creates a new set of problems that require both community members who are willing to explore the art of managing world-views and an audience that is ready to listen and try new approaches. Given the historical trajectory of Kenya's tech scene, we believe that this is the "hotbed of innovation" that will not only bring forth remarkable product innovations but can also infuse technology entrepreneurship with its unique Kenyaness.

References

- Asante, M. K. (2015). *African pyramids of knowledge*. Brooklyn: Universal Write Publications LLC.
- Barley, S. R. (1983). Semiotics and the study of occupational and organizational cultures. *Administrative Science Quarterly*, 28(3), 393–413.
- Battilana, J., & Dorado, S. (2010). Building sustainable hybrid organizations: The case of commercial microfinance organizations. *Academy of Management Journal*, 53(6), 1419–1440.
- Battilana, J., & Lee, M. (2014). Advancing research on hybrid organizing – Insights from the study of social enterprises. *The Academy of Management Annals*, 8(1), 1–44.
- Battilana, J., Lee, M., Walker, J. & Dorsey, C. (2012). In search of the hybrid ideal. *Stanford Social Innovation Review*, Summer.
- Chandler, D. (2007). *Semiotics: The basics* (2nd ed.). New York: Routledge.
- Charmaz, K. (2011). *Constructing grounded theory*. London: Sage Publications Ltd..
- Dhanaraj, C., & Khanna, T. (2011). Transforming mental models on emerging markets. *Academy of Management Learning & Education*, 10(4), 684–701.
- DiMaggio, P. (1997). Culture and cognition. *Annual Review of Sociology*, 23(1), 263–287. doi:[10.1146/annurev.soc.23.1.263](https://doi.org/10.1146/annurev.soc.23.1.263).
- Eggers, J. P., & Kaplan, S. (2013). Cognition and capabilities: A multi-level perspective. *The Academy of Management Annals*, 7(1), 295–340. doi:[10.1080/19416520.2013.769318](https://doi.org/10.1080/19416520.2013.769318).
- Fanon, F. (2005). *The wretched of the earth*. New York: Grove Press.
- Glaser, B. G., & Strauss, A. L. (2012). *The discovery of grounded theory: Strategies for qualitative research* (7th ed.). New York: Transaction Publishers.
- Hill, R., & Levenhagen, M. (1995). Metaphors and mental models: Sensemaking and sensegiving in innovative and entrepreneurial activities. *Journal of Management*, 21(6), 1057–1074.

- Judd, M. (2013). Top 10 failures expat entrepreneurs make in East Africa. *Savannah Fund – Waterhole Blog*. <http://savannah.vc/2013/12/16/top-10-failures-expat-entrepreneurs-make-in-east-africa/#.Vma2rmPTpBo>. Accessed 19 Feb 2016.
- Koltko-Rivera, M. E. (2004). The psychology of worldviews. *Review of General Psychology*, 8(1), 3–58.
- Mazrui, A. A. (1974). *World culture and the black experience*. Seattle/London: University of Washington Press.
- Mazrui, A. A., & Wondji, C. (Eds.) (1993). *UNESCO general history of Africa. – Abridged Ed. Volume 8 Africa since 1935*. Berkeley: James Currey and University of California Press.
- Mbembe, A. (2003). Necropolitics. *Public Culture*, 15(120003), 11–40.
- Mudimbe, V. Y. (1988). *The invention of Africa: Gnosis, philosophy, and the order of knowledge*. Bloomington/Indianapolis: Indiana University Press.
- Ndlovu-Gatsheni, S. J. (2010). Do 'Africans' exist? Genealogies and paradoxes of African identities and the discourses of nativism and xenophobia. *African Identities*, 8, 281–295.
- Suddaby, R. (2006). What grounded theory is not. *Academy of Management Journal*, 49(4), 633–642.
- Swidler, A. (1986). Culture in action: Symbols and strategies. *American Sociological Review*, 51(2), 273–286.
- Thiong'o, N. (2009). *Something torn and new – An African renaissance*. New York: BasicCivitas Books.
- Walsh, J. P. (1995). Managerial and organizational cognition: Notes from a trip down memory lane. *Organization Science*, 6(3), 280–321.
- Weiss, T., & Weber, K. (2016). Globalization in action: Templates, tensions and strategies of action in Kenyan technology entrepreneurship.

Conversation #12

How to Be a Rebel and Build a Business at the Same Time

Ken Njoroge of Cellulant Corporation



***Ken Njoroge** is the co-founder and group chief executive officer (CEO) of Cellulant, one of Africa's leading mobile commerce companies. He has led Cellulant from being a dream he and his co-founder Bolaji Akinboro sketched on a napkin in 2003 to an organization with a staff of more than 240 spread across 10 countries. Unwavering in his pursuit of excellence, Ken is dedicated to seeing Cellulant achieve its goal of connecting more than 100 million consumers with digital payment services that are relevant to their daily lives.*

What is the story behind Cellulant?

Cellulant is a payments business serving the mobile commerce market segment. Mobile commerce is a familiar segment to people who have heard about M-PESA, for example, and about mobile banking in Africa. However, we did not start out, 14 years ago, in mobile commerce. We started as a mobile content provider, selling music downloads over mobile phones. At the time, we knew there were going to be a big opportunities in mobile, but we did not know what shape or size they would come in.

After about three or four years of selling digital content, we noticed a couple of things. First, notably, that our early adopters were rural or near-urban and slightly older, in their early 30s and mid-30s. This was interesting—and very different from what we had expected. We had gone into the business thinking our customers would be urban, slightly younger, more tech savvy, and richer. Second, we noticed that when we offered music and ringtones on credit, so that customers could pay the one-dollar cost in three or four chunks, then our sales generally quadrupled. The basic thinking began to form around the fact that a lot of the services on mobile were really mass market, meaning that if you could build useful services they could reach large numbers of consumers and that if you could find a way to innovate on the payments model then you could actually charge fair value for services—a dollar for a ringtone, for example, even though the average top-up value at that time was just slightly over half a dollar.

This triggered a new thought process on the mission of the business. The goal was very clear since our founding: We wanted to build a billion-dollar enterprise. We set out on a plan that suggested we could get there if Cellulant had 100 million customers using our services and made USD1 per customer per month. By 2008, it had become clear that mobile payments and mobile money were going to be a big space, and we began to look actively at these as a potential future for us, thinking we could basically leverage the payment innovation we had developed for music and ringtones on credit into a mainstream payment system.

In 2009, we became a business that was building a future on the back of mobile commerce. We ended up developing a couple of products for payments and banking and sold these to quite a large number of banks over time. This marked the second phase of our growth, in which went from being a music and ringtone business in Kenya to being a mobile commerce company in Kenya, Nigeria, Tanzania, Malawi, Uganda, Zambia, Ghana, Zimbabwe, Botswana, and Mozambique.

Today, we are a business that is running a shared payment ecosystem, powering services for about 71 banks, including some of the large multinationals across the region. We also serve other nonbank customers, including major utility companies and governments that are looking to provide services and get paid digitally over mobile phones or the Internet.

You initially started out to study pharmacy at a university but discovered your passion for computers and the Internet along the way. Do you think it was the right decision to switch to computers?

Yes, it is one of the best decisions I have made in my life—although I have to admit I got into computers almost purely by accident. Immediately after high school, I was admitted to a pharmacy school. I think it was quite an elite school in those days, admitting only about 25 students at a time. But there was going to be a two-year lag between high school and actually entering the university—and my mom, a single parent, just did not like the idea of me hanging around and doing nothing for two years! She came across a newspaper advertisement saying that one of the other universities, Strathmore (traditionally an accounting and business school), had started a computer program and was calling for students to apply for scholarships. So I applied, luckily got a scholarship, and went off to Strathmore for the time being.

I, of course, fell in love with computers extremely fast. But also I fell in love with the schooling and the teaching culture of the university, because we had lecturers who were practitioners in the industry. One in particular, who is today the CEO of Uchumi (one of Kenya's

largest supermarket chains), would bring the Times and Newsweek magazine articles about Bill Gates and Steve Jobs and all the cool things they did in the early days of Silicon Valley.

As a result, I got socialized, not just on computers but also on entrepreneurs who were doing interesting things. The cutting-edge technology of the time and the entrepreneurs globally who were not much older than I was made a powerful impression on my mind. So when I went to the pharmacy school after the two years were up, I saw that my mind had started to develop in a completely different direction from that of the medical school culture. This was a very significant culture clash for me. I only lasted about a year and a half and came to the conclusion that this was not going to work. So I and went back to Strathmore for another year!

You started working for several Internet service providers (ISPs), and in 1998, decided to make the transition and start 3Mice. Why was it the right time?

By the time I left Strathmore, the desire to become an entrepreneur—like Steve Jobs, Bill Gates, and the Netscape founders—had already settled in my mind to a point of no return. The basic direction, the highest level where one could go in terms of ambition as a technology person, had settled.

What does it mean for you to be an entrepreneur?

I think I am a rebel—self-directed maybe, but a personality who likes to have his own mind about things. For me, it was never about the money, but rather about the fact that you could, almost from a blank sheet, create and build something, out of your own thoughts, and shape it into whatever it could become. That was a very powerful idea for me. It still continues to drive me today. It is just an innate personality trait. Then seeing other entrepreneurs and what their companies were doing gave this trait a shape and a form of expression. It is like an artist—except that an artist expresses himself or herself in, say, a painting. I figured that you could express rebellion, sort of your view of the world, in the ability to create something new and great—and that you can do that with a business as well. This desire was deeply ingrained in me by the time I left Strathmore.

When you say rebel, what do you mean? Rebelling against what?

In our society, we were socialized to go to high school, get extremely good grades, go to university (and, in my case, go to the top course), excel in the university, and then be successful. Breaking away from that mold—coming to terms with the realization that “Hang on, this particular path that has been prescribed doesn’t actually make sense for me and doesn’t fit with my interests and passions”—was quite a clear departure from the norms of our society at the time.

Of course, my dropping out of the university was difficult for my mom, because it is not what people do. Saying, “Well, this doesn’t make sense for me; I’m going to do something different” is a form of rebellion. And the way you then express it—and it was not rebellion for rebellion’s sake—is a very specific reflection of why this was not going to work for me and why there ought to have been a much better, much more exciting path to pursue for my career.

What were some of the main learnings you took with you from 3Mice?

3Mice (a Web hosting and design company in Nairobi) was a fantastic learning opportunity because it was the first business I set up. The most important thing I took out of 3Mice is that one can actually do these things and do them well. I think the fact that, from nothing, we set up a business that became reasonably well known in the country was a very powerful lesson. The other lesson unfolded when we became an Africa online company, witnessing a Pan-African business in the making very early on in my career and to see, again, that it can actually be done.

The other more practical lessons were on the “how-to” side, like how to get products to market and how to build teams. What really matters are people. 3Mice was a partnership of three people, and what got us all excited was creating a company very early on. However, it was a common motivation, a common vision, and a common purpose that kept the partnership alive as the business model changed and evolved. What innately drives entrepreneurs is essentially their purpose and vision—“How big do you want this to go?”—and they are important in keeping things

together. I learned the value of having them aligned very early on and applied it to my future partnerships. So when I moved on to Cellulant, my co-founder Bolaji and I spent a lot of time making sure we were aligned on those things. To a large extent, our extremely successful partnership at Cellulant is a result of those early learnings.

What was the effect of 3Mice on Kenya's tech-ecosystem?

The 3Mice journey was a very short one when you look at how long it typically takes to have large impact. I certainly can say that a lot of today's big, more experienced industry people came from within or around 3Mice. Paul Kukubo, for example, who became CEO of the Kenya ICT Board, was one of the co-founders of 3Mice. We certainly created a strong foundation for the belief in technology and in start-ups. The spirit still lives on. And of course, I too have been a significant beneficiary of coming from 3Mice. It built a lot of my credibility. When I say that I was involved in 3Mice, everybody always lights up and says, "Oh, 3Mice!" They can see that, "Okay, this guy is a serial entrepreneur — and not a shabby one!"

Would you consider yourself more of an "ideational" entrepreneur, the kind who launches an idea and, once it matures into a business, moves on to the next idea?

I would say that to some extent this is true. I think I am an ideas guy. But then, I am a bit of a boring guy too. For instance, for 13 years, I have now been with Cellulant, and I have this relentless focus to achieve a mission. What is common to both my journey at 3Mice and at Cellulant was a relentless mission to build a business on the scale of the ventures in the early days of the Internet: the Netscapes, the Microsofts, the Apples.

So what I have done is change my role as the business grew. I am still with Cellulant. I am not going to leave Cellulant anytime soon, because I have an almost dogged commitment to building a business of scale and achieving the mission of making Cellulant a billion-dollar enterprise.

I enjoy building ideas. What happened was that instead of leaving Cellulant to go and start another company, I just changed my job within Cellulant. Recently, we got a new COO who takes away a lot of the day-to-day operational activities and makes sure that projects are delivered on time and that sort of thing. This gives me a lot of time with the product guys to create the new ideas of tomorrow, within Cellulant—a very interesting configuration for me. I do not see myself starting another business after Cellulant, but I do see a lot of job changes coming my way so that I continue to be an ideas man within Cellulant.

In a nutshell, what would you say are some of the key fundamentals that make an entrepreneur successful?

There are at least two ways to look at it.

There is what I call an innate, almost intangible driver that gives one the motivation to succeed. It has to be very deeply rooted in a person, because it basically serves as the fuel to pursue an original path and gives you the strength to push for success. In my case, it gave me an extraordinary drive to succeed. I come from a single-parent family, as you know, and we are always driven and drilled to succeed despite the odds. I also come from a continent that I believe requires this kind of mindset to lift itself and reach its potential. Another fundamental trait found in entrepreneurs is ambition and motivation. This has to come naturally for entrepreneurs to succeed. I consider myself generally ambitious and motivated. Otherwise, why aim for a USD1 billion Pan-African company?

You will also hear entrepreneurs described as focused, resilient, and committed to a mission. These qualities translate into the business in various ways. So looking at focus, I once asked myself, “What do I know about real estate? And what do I know about all this other stuff?” Nothing, really! But in technology, because I have been at it for such a long time, I can develop very specific, deep insights that are scarce. And as a result of that, I can spend time creating opportunities and ideas because deep knowledge puts me in a reasonable position to succeed. That is why I have been in technology and a technology entrepreneur

since September of 1998, when I co-founded 3Mice. I have followed the same path of building a technology business at scale ever since. I have been on that journey, I have not wavered, I have not given up. And even today, I do not allow myself to get into distractions that seek to take me away from the journey. So to me, that is focus! I am also resilient. It does not really matter how difficult a situation is—I wear it down! I always say I feel sorry for problems that come my way, because there is only one way it is going to end. I am going to wear the problem down! (LAUGHS.) The problem has no chance. I will look at it, I will turn it around, I will go home, I will sleep. Tomorrow, I will wake up and think about it and push it, and push it, and push it, until it breaks. (LAUGHS.)

What was your biggest “Aha!” moment during your entrepreneurial journey?

It must have been sometime in 2001 or so when I saw the pace at which mobile phones were growing. Before then, I used to look at the Internet in a PC mindset. I used to work in the ISP world, and we saw the Internet in sort of computer, PC, server ways. But when I saw the growth of mobile phones—I think, there were projections for Kenya for two million mobile phones by the year 2004, and Nigeria would have eight million—now that was a big “Aha!” moment. It struck me like a thunderbolt, “Wow, this thing we call the Internet might actually make its way to the African mass market over the mobile phone.” It was a real epiphany—an epiphany that started my journey with Cellulant.

Thank you, Ken!



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13

Developing Strategies to Harness the Power of Parallel Entrepreneurship in Africa

Eskor John

Introduction

Entrepreneurship is an omnipresent phenomenon in Africa. Everyone wants to use his or her zeal and creativity to develop monetized strategies for engaging with the continent's opportunities and challenges. The success of entrepreneurs such as Kenya's Chris Kirubi (Nkem-Eneanya 2015) in harnessing economic potential on the continent have been celebrated both domestically and internationally. Less is written about, however, is the entrepreneurial culture from which these successes have sprung. One hears anecdotally instead of the teacher who, outside of the classroom, runs a tourism business, electronics distribution center, and hair salon or of the musician who sets up a language center, art studio, and bakery. What may seem like the sporadic pursuit of a random assortment of business ventures to many in the West is, in fact, evidence of the fruitful and distinctively African business phenomenon of parallel entrepreneurship.

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Early entrepreneurship studies often regarded entrepreneurs as a homogeneous group. More recently, scholars have recognized that entrepreneurs have different ownership propensities. Parallel entrepreneurship, a sub-type of the habitual entrepreneurship, is entrepreneurship in which the actors are involved in a number of businesses simultaneously (Fierro and Noble 2013). Known also as concurrent entrepreneurship, it is found around the world and is particularly evident at the international level, in the form of conglomerates. Parallel entrepreneurship in Africa is unusual in the way it permeates the business culture of the continent. The propensity to own and operate a number of businesses simultaneously does not appear to be influenced by gender, age, or wealth.

The motivation behind this chapter is to identify some of the most salient factors related to parallel entrepreneurship—factors that, if better understood and supported, have the potential to make a significant contribution to the economic transformation of the region. By their very nature, entrepreneurs owning multiple ventures are more experienced than their peers operating single businesses, and studying them can enhance understanding of entrepreneurship more generally. This chapter explores the contextual factors contributing to the growth of entrepreneurship in Africa and the prevalence and implications of parallel entrepreneurship in particular. The chapter also recommends ways of supporting and developing parallel entrepreneurship in the future.

Parallel Entrepreneurship in Africa

Africa's contemporary culture of entrepreneurship has flourished as a consequence of two broad factors—the improvement of economic conditions and the change in social attitudes.

Thanks to improved political stability and economic reform in many countries, Africa's growth rate in the twenty-first century so far has been unprecedented. Average annual growth on the continent increased from 1.81 % in 1980–1989 to 5.28 % in 2000–2010 and has remained 2 % above that of the world economy in the 2008–2012 postfinancial crisis period. Many African countries have posted strong average growth rates of around 6 %; some have even reached double digits (UNCTAD 2014).

Among the beneficiaries of Africa's economic renaissance are entrepreneurs who have been presented with a plethora of revenue-generating opportunities. Whether it is tapping into the buoyant weddings market, setting up affordable boutique hotels, or providing micro-credit programs, countless business activities are being explored. Such an abundance of opportunities has led to a burst of new entrepreneurial activity on the continent. A recent Global Enterprise Monitoring (GEM) report evaluating the health of entrepreneurship globally found that the Sub-Saharan Africa region has the highest number of people involved in early-stage entrepreneurial activity in the world. In particular, Nigeria and Zambia had the highest representation of entrepreneurs, with approximately 40 % of those between the ages of 18 and 64 owning a company less than 3.5 years old (GEM 2015).

As to the change in social attitudes, throughout the twentieth and early twenty-first century, formal employment was the overwhelming preference for African citizens. In recent times, however, entrepreneurship and, in particular, opportunity-driven entrepreneurship (versus necessity-driven entrepreneurship) have become increasingly popular career choices. According to a report on entrepreneurship in Africa by Omidyar Network and Monitor Group (ONMG), 49 % of Nigerians, 76 % of Kenyans, and 78 % of Ethiopians believe becoming an opportunity-driven entrepreneur is a desirable choice (ONMG 2013). This finding highlights the fact that, because of the level of economic potential in Africa, people are increasingly seeing entrepreneurship as a way to capitalize on opportunities, and their efforts are being positively received by their communities.

As entrepreneurship has flourished, so has parallel entrepreneurship. A number of entrepreneurs are taking advantage of improved economic conditions by exploiting different opportunities simultaneously, leading to the emergence of parallel entrepreneurship in new areas. A 2012 study by the IMANI Center for Policy and Education focusing on Ghanaian, Nigerian, and Kenyan entrepreneurs found that the surveyed entrepreneurs owned an average of six businesses each (The Economist 2012). This finding requires one to look beyond the factors that have contributed to the rise in entrepreneurship in general in the region—the improved economic conditions and shifting social attitudes—to identify the more

specific factors and challenges that are influencing African entrepreneurs' decisions to operate a number of businesses simultaneously.

Unpredictable Business Environment

The African business environment is vulnerable to a number of destabilizing factors that can interfere with strategic plans and operations. In particular, political violence is once again a pressing matter in the region, with the number of deaths from political violence rising sharply since 2010 to approximately 40,000 over the period (Bugnacki 2015). The recent phase of violence is highly concentrated in a small number of high-profile conflicts—the Boko Haram insurgency in Central and West Africa, the Second Libyan Civil War in the northern Sahara, and the al Shabaab insurgency in the Horn of Africa, to the east. These conflicts serve to increase the perception of risk in the region among entrepreneurs, and as a result, parallel entrepreneurship serves as a way to diversify from a single company's revenue.

Furthermore, whereas the stop-go policies that typified Africa's post-colonial period have abated, corruption is still a pressing issue that scars Africa's entrepreneurial landscape. According to Transparency International, five of the top 10 and nine of the top 20 most corrupt nations in the world are in Africa (Transparency International 2014). Because an entrepreneur has no way of predicting when or how a corrupt practice or action will undermine his or her business, it is unsurprising entrepreneurs seek to diversify their income away from a single revenue source.

Lack of Quality Middle Managers

Africa's meteoric growth in the last decade has not generated the number of large businesses that might have been expected. One of the biggest challenges to building scalable businesses is the absence of skilled middle-level managers. Adcorp, a South African labor market specialist, reported in 2013 that the middle-management issues in South Africa, which are also relevant across Africa as a whole (Rigoglioso 2011), can be attributed

to three causes—the emigration of high-skilled workers, the immigration restrictions placed on high-skilled foreigners, and a dysfunctional education system. Adcorp also reported that, at the time its study was conducted, 244,400 management positions were unfilled in the South African private sector (Adcorp 2014). One impact this skills shortage has on entrepreneurs is potentially to limit their ability to truly scale a business. In order to adapt to this factor, many entrepreneurs may instead choose to grow and maintain their businesses at medium-size levels (Bindra 2012).

Unemployment

A lack of jobs and poor job security are two of the biggest contradictions in Africa's growth story (Mead 2012). The continent is known for being home to more than half of the world's 20 fastest-growing economies in the last 5 years (Hauge 2014). However, a number of these countries have relied on capital-intensive and mineral-extractive initiatives to turbo-charge their growth, and job creation has not grown at a similar rate (Taylor 2015). In addition, the scarcity of jobs is most pronounced in the youth population (ages 15–25 years). The young represent more than 60 % of the continent's total population and account for 45 % of the total labor force (African Economic Outlook 2008). However, Africa has been unable to realize the benefits of having such a sizeable working population, because of the gulf between the skills this population possesses and the skills employers require. As a result, the World Bank estimated, youth account for some 60 % of all unemployed Africans (Filmer and Fox 2014).

The interconnections between unemployment and parallel entrepreneurship are represented by the concept of necessity entrepreneurship—which refers to entering into entrepreneurship primarily as a means of survival versus exploiting a business opportunity. In particular, when full-time employment is not a viable option, identifying and pursuing a business opportunity become the best alternative. Survival instincts and entrepreneurial zeal have resulted in Africans using entrepreneurship as a partial remedy to youth unemployment. These entrepreneurs are working aggressively to generate lifesaving income versus exploring a profitable market opportunity.

Implications for Entrepreneurial Action

The prevalence of parallel entrepreneurship in Africa has significant implications for the shape and behavior of businesses on the continent. Successful parallel entrepreneurs are inarguably experienced business founders. As such, they are expected to have acquired the knowledge and skills necessary to develop strategies to overcome common problems in new venture and thereby be more successful business starters. Below are some of the issues of particular concern to parallel entrepreneurs that require more attention in policy, research, and practice.

Legal Structures

Entrepreneurs need to have a good understanding of the legal structure available to them when establishing a business portfolio. In general, entrepreneurs can opt for one of two choices—they can create a corporation or limited liability company (LLC) for each venture, or they can form a holding company that owns the individual corporations and LLCs constituting the entrepreneur's multiple ventures. Evaluating the pros and cons of both options is beyond the scope of this chapter. But it should be noted that African entrepreneurs need to be aware of the way these structures can affect the operation of their portfolios, especially with regard to their implications for taxes and profit distribution. Given the fact some foreign investors see the complex ownership structures of some African businesses to be a deterrent to investment (The Economist 2013), it would appear that selecting the appropriate legal structure might not only facilitate the operating of a portfolio of businesses but also entice investors looking to provide growth capital.

Hedging

The issue of hedging is of particular relevance to a parallel entrepreneur. Instead of owning a collection of related businesses, parallel entrepreneurs looking to circumvent company-specific risks in Africa's business environment often choose to own a portfolio of unrelated businesses—a

strategy related to the old adage “Don’t put all your eggs in one basket.” This notion resonates strongly with African entrepreneurs, who know they must always have an alternative, or a plan B. Regulatory uncertainty and other forms of instability mean that one’s revenue forecasts can be exposed to significant variability. Consequently, owning an additional one, two, or three businesses becomes particularly appealing, because these other businesses may be able to help balance out the health of one’s overall portfolio. This strategy is most effective when the businesses in question are in unrelated fields, as is the case with, for example, the Muguku family in Kenya (with businesses in real estate, education, and poultry farming), where a decline in a particular industry’s profitability probably will not affect the other businesses in one’s portfolio.

Synergies

Managers of parallel businesses need to seriously think about how resources across their businesses are shared. Whether operating a large- or small-scale collection of companies, a parallel entrepreneur can transfer resources directly between operations in order to insulate a business from a sudden shock. This is particularly useful in the African business environment, where unforeseen catastrophes are common, and bank lending rates tend to be punitively high.

At the same time, however, cross-subsidization can result in an inefficient allocation of resources across a business portfolio when, for example, failing businesses continue to receive support from stronger-performing entities in the portfolio. This phenomenon has been well covered in the Western context through research on the behavior of conglomerates (Almeida and Wolfenzon 2006) and has been cited as one of the major drawbacks of these types of business endeavors. And although its intentions as a business strategy are understandable, the effect of suboptimal cross-subsidization can be to prolong the life of a subpar entity—as scarce resources are repeatedly diverted from a promising entity to a laggard, thereby ensuring that the promising entity is unable to use the resources to strengthen its own position. Furthermore, the prolonging of a failing business also has the potential to be a counter-productive measure if

management is disincentivized from making meaningful changes thanks to the guarantee of funds irrespective of performance.

Recommendations

Parallel entrepreneurship is an omnipresent aspect of Africa's business landscape that has been shown to be a key driver of wealth creation (Rosa 1998; Westhead and Wright 1998). It has also been shown to be an important component of Africa's economic development (Balunywa 2009). Given the importance, then, of parallel entrepreneurship in the African economic landscape, following set of recommendations aim to provide suggestions to key stakeholders in the community for making parallel entrepreneurship more effective.

Entrepreneurs

Entrepreneurs must consider what kind of organizational structure is most appropriate for their portfolio. The traditional hierarchical model of organization is derived from European military practice (Short 2008), in which a clear chain of command and authority travels vertically downward from a chief executive officer (CEO) to department managers and thence to individual workers. In this model, all employees have a clear understanding of their roles and responsibilities, and the organization is able to operate in a predictable and unified way. This kind of structure is useful for some of the strategic considerations a parallel entrepreneur must face.

However, when dealing with a collection of diverse operations, as is the case in parallel entrepreneurship, flexibility is required because of the complexity of running the multiple ventures and the need for a wider range of expertise. In such a situation, an individual is unlikely to have sufficient knowledge to make key decisions about all ventures in his or her portfolio or to be aware of all the consequences a decision about one venture might have for the other ventures. Consequently, a hierarchical structure may be unsuitable for the kind of mixed decisionmaking

required by the portfolio in various situations. A parallel entrepreneur may therefore want to develop a “flat” structure for his or her organization—a structure that to some extent shares decisionmaking power and influence across the workforce. The structure is intended to remove layers of bureaucracy in a business, allowing individuals to come together in informal and autonomous clusters and allowing key decisions to be made at local levels in faster and better-informed ways—and it may be appropriate for the kinds of strategic decisions that require creativity and innovation, such as those pertaining to incubation and recognizing synergies as well as those that require rapid responses to local market signals, such as hedging and sharing resources across a portfolio.

In addition to determining the appropriate organizational hierarchy for one’s business, the parallel entrepreneur also needs to identify optimal ways of managing a number of businesses simultaneously. One model that is growing in prominence in the tech world—because of the success of companies like Idealab and Betaworks, in America—and that is worth consideration in the current context is the start-up studio model, which involves setting up a company that builds several companies in parallel via reusable infrastructure and resources.

Proponents of the model have cited focus and collaboration as key benefits (Nesta 2014), with entrepreneurs bringing together a team that focuses intensely in the product development stage while collaborating and using existing knowledge obtained from developing other products. In the African context, the studio model could be used as a way to hone in on pressing problems faced by the community. This approach has been adopted by Foresight Ventures, a Kenyan-based start-up studio aiming to create and commercialize products that solve pressing problems in the region.

Although the start-up studio model is an exciting prospect, there are certain challenges that an aspiring parallel entrepreneur should consider before going down this path. First, the approach is capital intensive, because funding is required to build the necessary infrastructure and recruit a talented cross-functional team. Second, if the entrepreneur is unable to use internal resources to meet the required capital target, then pitching the business to an investor might be a challenge, because the entrepreneur would need to convince the investor not only

of the viability of the product(s) in question, but also of the merits of funding a special team in a co-working space. (The latter requirement is a particular challenge, because very little data exist on the track record of the studio model.)

Investors

A consideration that investors should give to parallel entrepreneurship in Africa is how the prevalence of simultaneously owning a number of businesses affects the traditional concept of holding an equity ownership stake in a company. Given the myriad of interconnected entities owned by entrepreneurs on the continent today, investors should consider more unorthodox approaches to investing. For example, rather than take an equity stake in a company per se, investors may wish to identify a continuously successful parallel entrepreneur and take an equity stake in his or her future earnings. This model, known as a human capital contract, has long been advocated by a number of leading economists, including Milton Friedman (Friedman and Kuznets 1945) and has the potential to provide much-needed capital to capable parallel entrepreneurs.

However, until now, past attempts to explore human capital contracts in the West have proven unsuccessful. In the 1970s, Yale University attempted to replace traditional student loans with human capital contracts under its Tuition Postponement Option but ended up canceling the program. Other attempts to use human capital contracts in the education sector have also proven to be a failure, primarily because of the issue of adverse selection (NYT 1999), meaning that students who opt into human capital programs can tend to be the students who expect to pursue low-income careers and consequently are less likely to repay their full share of the loans. Another issue that has affected the performance of human capital contracts is moral hazard, meaning that the borrowers can tend to be discouraged from maximizing their income and are instead encouraged to focus on non-wage-based forms of compensation, such as better benefits (Simkovic 2011).

Although the issues of adverse selection and moral hazard could still arise if the human capital contract approach were applied to parallel

entrepreneurs, a key difference between the students and the parallel entrepreneurs is that it would be the entrepreneurs with a proven record of successfully running businesses who were the ones selected for funding. These entrepreneurs, who have demonstrated a willingness and ability to succeed, would be unlikely to deliberately underperform after receiving funding. However, a challenge investors would face would be to enforce the contract, because of the underdeveloped nature of the regulatory framework around human capital contracts.

Government

Government policy needs to tackle some of the obstacles that currently restrict the potential of parallel entrepreneurs, including lack of access to financial capital and human capital (in the form of quality management).

A large number of Africa's parallel entrepreneurs are micro- or small-scale operators at the early stages of business development who struggle to obtain capital in the form of affordable loans. Currently, in several African nations, including South Africa, Nigeria, and Tanzania, governments have tried to increase the volume of credit channeled to small- and medium-size enterprises via credit lines and partial credit guarantees (PCGs) (Berg and Fuchs 2013). However, the success of these schemes has been limited because of the terms and conditions applied as part of PCGs. Issues including coverage ratios, fees, payment rules, and collateral requirements have limited the potential of government efforts. In Tanzania, for example, a PCG that began in 2005 was disbanded in 2008 because of excessive bureaucracy. Financial institutions felt that the PCG duplicated other loan assessment processes and was slow to pay out.

One country that appears to have increased lending to small- and medium-size enterprises via PCGs is Rwanda (Berg and Fuchs 2013), where take-up by banks to lend was positive. One of the key reasons for this success was the fact the scheme was developed in close cooperation with the private sector, which suggests that other nations in the region would do well to adopt a similar approach when developing their schemes.

In addition to providing financial capital to parallel entrepreneurs, government policy should also focus on addressing the lack of quality management expertise through the development of context-specific training. Currently, the small number of organizations focusing on developing management capacity—such as the African Management Initiative (a joint venture of the Association of African Business Schools, the Global Business School Network, Canada’s Lundin Foundation, and the Lagos-based Tony Elumelu Foundation) (Furlonger 2012) are non-profits. Another problem is that management training in Africa continues to be Western-oriented, with students encouraged to develop business plans for single businesses in a way that reflects teaching styles of US and European business schools and the profiles of most US and European entrepreneurs. However, as this chapter has tried to make clear, the profile of an African entrepreneur is often very different. African entrepreneurs would therefore benefit immensely from being exposed to culturally relevant and customized training programs that advise them on how to manage multiple businesses, often at the level of micro- and small-size operations, and how to function in the unique and often unpredictable African business environment. Developing these kinds of courses is a complex and location-specific task, and as a result, governments should strongly consider partnering with consulting firms, academia, and relevant firms in the private sector.

Research

The quality of management training in Africa would benefit from targeted research. In recent years, there has been a gradual increase in academic interest in parallel entrepreneurship (Sieger et al. 2011). Research has concentrated on highlighting the reasons entrepreneurs have adopted a portfolio approach to capitalize on business opportunities. At this stage, the general consensus from the likes of Alsos and Ljunggren (2006), for example, is that there are three types of parallel entrepreneurs—opportunity-motivated, income-motivated, and employment-motivated. The next step, driven by the likes of Antonio Fierro, has been to explore the field of parallel entrepreneurship outside of the

Western context (Fierro and Cornelius 2013) and in the context of the developing world. Fierro, in particular, discovered through research that selecting a parallel entrepreneurship approach can result in the ability to take advantage of opportunities that otherwise have limited potential in terms of scale and scope.

However, despite these efforts, there is still much more work to be done. To begin with, the research done in the field (e.g., exploring the motivations behind choosing the path of simultaneous ownership) needs to collect more data from Africa, beginning perhaps in countries that have a strong entrepreneurship culture, such as Nigeria and Kenya. This step will allow key stakeholders to gain a customized understanding of what drives African entrepreneurs to stretch themselves to their limits while providing greater insights for governments and education institutions keen to support parallel entrepreneurship. This research should be directed toward answering the question “Who are the leading parallel entrepreneurs in Africa, and what policies can support them in ways that further their growth and lead to the elevation of smaller firms along the supply chain?”

Research also needs to be conducted on the prevalence of parallel entrepreneurship in other regions of the world. Surely the conditions that exist in Africa that promote a culture of owning numerous businesses simultaneously must exist in other parts of the world. Parallel entrepreneurship is widespread in India, for example, and as in Africa, many entrepreneurs in India are trying to capitalize on the multiple moneymaking opportunities in their country. Researchers and practitioners need to better understand the reasons parallel entrepreneurship is so common. How do these entrepreneurs perform compared with their more focused peers? And what are the ways that knowledge transfer could be initiated among like-minded entrepreneurs in the region and perhaps farther afield?

Finally, further research needs to be conducted on the interconnectivity between parallel entrepreneurship and the continent’s informal sector. Extensive research on Africa’s informal sector has yet to be done. However, the African Development Bank recently released a report saying that 55 % of Sub-Saharan Africa’s gross domestic product (GDP) and 80 % of its labor force can be attributed to the informal sector (African Development Bank Group AFDB 2013). These numbers cannot be

ignored. The suggestion that individuals operating numerous businesses are unregistered has wide-ranging implications across the economy, from lost tax revenue to the promotion of corruption. The report also cites three core issues as the underlying causes for the proliferation of the informal sector—inflated taxation, a sub-optimal regulatory environment, and a lack of property rights. Interestingly, these same conditions also contribute to entrepreneurs taking the parallel entrepreneurship route. It seems apparent, therefore, that before one can look to optimize the performance of the continent's parallel entrepreneurs, more needs to be done to ensure that they feel comfortable enough to step out, moving from the shadow economy into the formal economy.

Conclusion

Parallel entrepreneurship is one of the most defining aspects of Africa's entrepreneurship landscape. In today's world, where entrepreneurship is the "in thing" and entrepreneurs are seen as quasi-revolutionaries, parallel entrepreneurship acts as a striking differentiator between Africa and much of the rest of the world.

A combination of push (unpredictable business environment, unemployment, and lack of quality middle managers) and pull (positive societal attitudes and increased economic opportunities) factors have contributed to the prevalence of parallel entrepreneurship on the continent. However, after spending time on the ground in Africa, whether it be in Nigeria, South Africa, or Kenya, for example, one cannot help but feel that even in the absence of these push and pull factors, parallel entrepreneurship would still thrive—because it is highly apparent that parallel entrepreneurship is embedded in the minds of Africans. Improve management standards and curb corruption, and parallel entrepreneurship would still thrive. It is simply the way business is done, and this fact needs to be appreciated by all observers.

This chapter has explored the key implications of parallel entrepreneurship for how business is conducted in the region. From identifying unique challenges, such as moral hazard, that arise when looking to share resources across business holdings in a portfolio to selecting an

optimal legal structure that will be tax and investment efficient, the parallel entrepreneur has quite a lot of unique challenges to think about. And this entrepreneur would be in a stronger position to circumvent these challenges if he or she were better supported by two key stakeholders—government and researchers. Government support is needed to help alleviate financial and managerial constraints (through grants and sponsored management training programs), and research is needed to help deepen our understanding of parallel entrepreneurship in Africa. The topic matters—yet little is presently known about this social and business phenomenon that characterizes virtually the entire continent of Africa. When one considers the fact that this innovative approach to entrepreneurship has, if properly managed, the potential to materially advance the living standards of millions of the continent’s citizens, then it becomes even more apparent that much more needs to be done to realize its potential.

In summary, parallel entrepreneurs are an undeniable force in Africa’s entrepreneurial landscape. These multitasking workhorses are driving economic activity across the continent and are one of the most distinctive indicators of Africa’s increasing prosperity. However, for these individuals to elevate their performance and take the continent even further, much more needs to be done to increase all stakeholders’ understanding of this exciting phenomenon. It is through collective understanding and action that positive steps can be transformed into giant steps toward economic prosperity.

References

- Adcorp. (2014). Adcorp employment index. *Adcorp*. <http://www.adcorp.co.za/Industry/Pages/Adcorp'sEmploymentIndex.aspx>. Accessed 23 Feb 2016.
- African Development Bank Group (AFDB). (2013). Recognising Africa’s informal sector. *AFDB Blog*. <http://www.afdb.org/en/blogs/afdb-championing-inclusive-growth-across-africa/post/recognizing-africas-informal-sector-11645/>. Accessed 23 Feb 2016.
- African Economic Outlook (AEO). (2008). Youth unemployment. *AEO*. <http://www.africaneconomicoutlook.org/en/theme/developing-technical-vocational-skills-in-africa/tvsd-in-specific-contexts/youth-unemployment/>. Accessed 23 Feb 2016.

- Almeida, H., & Wolfenzon, D. (2006). A theory of pyramidal ownership and family business groups. *Journal of Finance*, 61(6), 2637–2680.
- Alsos, G., & Ljunggren, E. (2006). Types of portfolio entrepreneurs: Motivations, characteristics and performance. *Frontiers of Entrepreneurship Research*, 26(6), 10.
- Balunywa, J. W. (2009). *Portfolio entrepreneurs and economic growth: The case of Uganda: PhD dissertation*. Stirling: University of Stirling.
- Berg, G., & Fuchs, M. (2013). *Bank financing of SMEs in five Sub-Saharan African countries: The role of competition, innovation, and the government* (Policy Research working paper no. WPS 6563). Washington, DC: World Bank.
- Bindra, S. (2012). In Africa, it's not enough to run one business, ask 'parallel' entrepreneurs. *Business Daily Africa*. <http://www.businessdailyafrica.com/In-Africa-its-not-enough-to-run-one-business/-/539444/1441270/-/6pnshb/-/index.html>. Accessed 23 Feb 2016.
- Bugnacki, J. (2015). Critical issues facing Africa: Terrorism, war and political violence. *American Security Project*. <http://www.americansecurityproject.org/critical-issues-facing-africa-terrorism-war-and-political-violence/>. Accessed 23 Feb 2016.
- Fierro, A., & Noble, N. (2013). Directions for a new African entrepreneurship research agenda: Parallel entrepreneurship as a solution to Africa's impending employment dilemma. *Frontiers of Entrepreneurship Research*, 33(17), 233–234.
- Fierro, M., & Cornelius, A. (2013). *Portfolio entrepreneurs in Malawi: The role of risk and the environment in the process of portfolio creation and growth*. Edinburgh: University of Edinburgh Press.
- Filmer, D., & Fox, L. (2014). *Youth employment in Sub-Saharan Africa, Africa development series*. Washington, DC: World Bank.
- Friedman, M. and Kuznets, S. (1945). Income from independent professional practice. *National Bureau of Economic Research*. <http://www.nber.org/chapters/c2325.pdf>. Accessed 23 Feb 2016.
- Furlonger, D. (2012). Africa needs more managers. *Financial Mail*. <http://www.financialmail.co.za/business/2012/09/28/africa-needs-more-managers>. Accessed 23 Feb 2016.
- GEM (2015). Global Entrepreneurship Monitor 2014. <http://www.gemconsortium.org/report>. Accessed 23 Feb 2016.
- Hauge, J. (2014). Africa's economic 'rise' does not reflect reality. *The Guardian*. <http://www.theguardian.com/global-development/poverty-matters/2014/sep/03/africa-economic-rise-does-not-reflect-reality>. Accessed 23 Feb 2016.

- Mead, N. (2012). Youth unemployment takes shine off Africa's economic growth. *The Guardian*. <http://www.theguardian.com/global-development/2012/may/28/african-economic-outlook-2012-youth-unemployment>. Accessed 22 Feb 2016.
- Nesta (2014). Startup studios – A better model to build startups? *Nesta*. <http://www.nesta.org.uk/blog/startup-studios-better-model-build-startups-1>. Accessed 23 Feb 2016.
- New York Times (NYT). (1999). Yale to erase alumni debts in 2 loan plans. *New York Times*. <http://www.nytimes.com/1999/04/13/nyregion/yale-to-erase-alumni-debts-in-2-loan-plans.html>. Accessed 23 Feb 2016.
- Nkem-Eneanya, J. (2015). How a poor orphan boy from Kenya became a mega tycoon, meet Chris Kirubi. *Rising Africa*. <http://www.risingafrica.org/success-stories/business/meet-the-man-who-relaxes-by-working-even-harder-chris-kirubi/>. Accessed 23 Feb 2016.
- Omidyar Network and Monitor Group. (2013). Accelerating entrepreneurship in Africa. *Omidyar Network*. <https://www.omidyar.com/insights/accelerating-entrepreneurship-africa-report>. Accessed 23 Feb 2016.
- Rigoglioso, M. (2011). Despite shortage of management talent, Africa a good investment. *Insights by Stanford Business*. <https://www.gsb.stanford.edu/insights/despite-shortage-management-talent-africa-good-investment>. Accessed 23 Feb 2016.
- Rosa, P. (1998). Entrepreneurial process of business clusters and growth by habitual entrepreneurs. *Entrepreneurship Theory and Practice*, 22(4), 43–44.
- Sieger, P., Zellweger, T., Nason, R. S., & Clinton, E. (2011). Portfolio entrepreneurship in family firms: A resource-based perspective. *Strategic Entrepreneurship Journal*, 5(4), 327–351.
- Short, J. L. (2008). *From command-and-control to corporate self-regulation: How legal discourse and practice shape regulatory reform*. Ann Arbor: ProQuest.
- Simkovic, M. (2011). Risk-based student loans. *Washington and Lee Law Review*, 70(1), 527.
- Taylor, I. (2015). Dependency redux: Why Africa is not rising. *Review of African Political Economy*, 43, 1–18.
- The Economist. (2012). African entrepreneurs – Parallel players. *The Economist*. <http://www.economist.com/node/21557373>. Accessed 22 Feb 2016.
- The Economist. (2013). Africa rising – A hopeful continent. *The Economist*. <http://www.economist.com/news/special-report/21572377-african-lives-have-already-greatly-improved-over-past-decade-says-oliver-august>. Accessed 22 Feb 2016.

- Transparency International. (2014). Corruption perceptions index 2014: Results. *Transparency International*. <https://www.transparency.org/cpi2014/results>. Accessed 22 Feb 2016.
- United Nations Conference on Trade and Development (UNCTAD) (2014). *Catalysing investment for transformative growth in Africa*. Geneva: UNCTAD.
- Westhead, P., & Wright, M. (1998). Novice, serial and portfolio founders: Are they different? *Journal of Business Venturing*, 13(3), 173–204.

Conversation #13

The Hustling Entrepreneur on Trial

Mikul Shah of EatOut and
Ritesh Doshi of Naked Pizza



***Mikul Shah** is the founder of Africa's online restaurant guide EatOut and a self-proclaimed foodie and travel buff. Born and raised in Mombasa, he spent over a decade in the UK before returning to Nairobi to join his family business. In 2010, over a dinner conversation with friends, he realized there was a gap in the market for a comprehensive online restaurant guide for the city. What started out as a hobby financed by a US\$1000 investment is now an award-winning portal, seating thousands of diners at hundreds of restaurants a month. Over the years, EatOut has added several innovative brands to its portfolio, including a monthly*

free-distribution print publication called Yummy Magazine, the annual Nairobi Restaurant Week event, and the Taste Bar & Restaurant Awards. In 2013, EatOut raised capital from the Netherlands' Africa Media Venture Fund to expand into the East African region. Beyond EatOut, Mikul plays an active role as a mentor, advisor, and investor for several businesses. He co-founded SleepOut.com, which was named as one of CNN's top African start-ups in 2014, and has invested in brands such as Ghafla, Nairobi Garage, OkHi, and Naked Pizza. He also serves as an advisor to Safaricom's Spark innovation fund.

*On a visit home to Nairobi in 2011, **Ritesh Doshi**, a Kenyan financier living in Jordan, was frustrated that he could not get a pizza delivered in under an hour. So unlike most financiers, he quit his day job and decided to do something about it. Ritesh, a self-proclaimed "serial entrepreneur stuck in a financier's body," studied at the London School of Economics and launched his career working for financial institutions such as Credit Suisse, HSBC, and Probitas Partners, a private equity firm. In 2012, Ritesh founded Naked Pizza, Nairobi's premier fast-delivery all-natural pizza restaurant. He is also an active angel investor in the Kenyan start-up scene, having made investments in OkHi, BookNow, and EcoPallets. In addition, he is an independent director of Tropical Heat, a popular brand of snacks and spices, and is the President of the Kenya chapter of the Entrepreneurs' Organization. In May 2016, Ritesh successfully sold Naked Pizza to Pizza Hut.*

How would you describe the Kenyan "hustling" culture and its link to entrepreneurship?

RITESH: The Kenyan culture of hustling is rooted in doing anything and everything to make the extra buck or, in extreme cases, to make ends meet. Many professionals, from bankers and lawyers to entrepreneurs and doctors, have a side hustle, with the aim of generating additional income, ideally passively. Sometimes, these hustles turn out to be much larger opportunities than an individual's main business or career and become his or her primary business.

MIKUL: *Biashara*, as it is termed in Kiswahili, has a deep root in our culture, and many Kenyans have an almost built-in spirit of entrepreneurship. Most Kenyans have a side hustle mainly to help them afford an aspirational lifestyle, whether it is to purchase a car or a mobile phone or to provide access to better education and health care for their families.

What is your opinion of hustling? Is it a useful strategy for doing business in Kenya? What are the pros and cons from the entrepreneurial, employee, and investor perspectives?

MIKUL: Having a side hustle is great in some aspects because it allows you to generate a substantial additional income. However, building a significant brand presence and a scalable business models takes dedication and tenacity. As an investor, I would not be willing to finance an entrepreneur who is not willing to dedicate all of his or her time and efforts to their main business. From an employer's point of view, this entrepreneurial spirit can be very detrimental to the success of a business. No employer would be willing to waste company resources and paid time on an employee's hustle unless they had something to gain, too. *Yummy* has several team members who earn extra income through their own food blogs—and we have managed to set out a symbiotic relationship that benefits both parties. *Yummy* gains additional traffic through back links, and the bloggers build their knowledge and experience in the hospitality industry. But it is important to be candid and lay the ground rules from the outset.

RITESH: I actually think hustling is a distraction. It usually ends up meaning that you try a whole bunch of things until something works—often without focus on anything except the short-term income generated. By nature, entrepreneurs have a lot going on in their heads with all they are doing. A side hustle, or business, if it can even be called that, is a distraction. For an employee, I think there are actual ethical issues with it, unless you are doing it 100 % in your free time—but in reality, we all know that never happens. If I am paying someone to be at work, I want their mind, body, and heart 100 % committed when they are at work. From an investor's perspective, I would actually not invest with someone who had a side hustle, because to me, it means they are only thinking short-term.

Would you also describe yourself as a hustling entrepreneur?

RITESH: If it is the Kenyan definition, then yes. But if by hustling you mean doing whatever it takes to get something done—which is what is required of an entrepreneur focused on his or her business—then yes. Start-ups require focus and 150 % of an entrepreneur's time. Trying to

do a few things half-heartedly would mean that I would not be able to get anything done well. Having said that, I have been involved in a number of start-ups but have limited my involvement to the initial idea and ongoing advice, and have let the other co-founders run with it.

MIKUL: I would say yes. But it has always been important to me to ensure that a competent team and strategy are in place before moving on to a new opportunity. Fairly early on, we realized that EatOut needed to achieve two main goals. The first was to ensure that we were seen as the market leaders and were able to sustain our position. This meant diversifying our product portfolio to include offline activities such as Nairobi Restaurant Week, the Taste Awards, and *Yummy*. All these activities helped cement our position as an authority within the industry while increasing our revenues and profits. The company's general manager oversees these projects, with little or no input from me—which has allowed me to concentrate on our second goal, introducing a more scalable transactional revenue model and expanding to new countries, starting with Rwanda and Uganda. We have recently launched a gift-voucher solution in Kenya and are actively working on pilots with several banks for mobile payments at restaurants.

How did you get into starting and investing in new (side) businesses? Would you consider those side hustles?

MIKUL: One of the key challenges that many start-ups face in Kenya is developing trust. EatOut's early success and its reputation as a market leader and innovator allowed me to build a considerable network in the hospitality and technology sectors over the years. I therefore saw an opportunity to be able to “open doors” for other start-ups, giving them access to investors, partners, and collaborators. However, I am not actively involved in these businesses on a day-to-day level, so I do not consider them to be side hustles.

RITESH: Once an entrepreneur develops credibility, opportunities flow toward you—though this can also be the beginning of the end if your focus is diverted too much. In my case, building a successful business in a short timeframe meant lots of opportunities coming my way. But I have been judicious and have only ever invested in businesses to which there was some connection to my core business and where I could really add

value with my knowledge and network. I will never take an operating role, and I always wear the hat of the shareholder—so they are definitely not side hustles.

What is your main recommendation for the hustling entrepreneurs out there?

RITESH: Stop being involved in too many things. Seriously. Pick a business you are passionate about, can and want to do all day long, every day, and focus on it. Lack of focus limits your ability to develop knowledge, deep relationships, and experience to ultimately become successful in your chosen area—and potentially limits your growth, success, and ability to achieve your full potential in life.

MIKUL: I think the advice remains the same for all businesses. First, there should be a strong and diverse team who are all vested in the business. In terms of skill sets, it is an advantage to have people who have good experience with legal, marketing, sales, and technology. In most cases, spending time in the corporate world helps to build experience and networks that can in turn help you determine whether an idea is worth pursuing. Second, start-ups should focus on execution. Our brainstorming whiteboard sessions at EatOut are arguably the most fun part of what we do, and we come up with hundreds of new ideas every day. But the truth is that we have very limited time and resources, which is why it is important to focus and prioritize. Settling on a clear focus—your product, your audience, your strategy—is critical from day one. Finally, there is no substitute for hard work. We try to have a lot of fun at the same time. Work hard and play hard, and the rewards will come. But it is also always important to remember that there is nothing wrong with trying and failing. If you are going to fail, make sure it happens quickly, pick yourselves up, and start again.

What was your biggest “Aha!” moment when it comes to doing business in Africa?

MIKUL: The biggest difference from developed markets (e.g., Silicon Valley) is that start-ups in our region have to focus on revenues at a fairly early stage. Kenyan investors look at profitability above almost everything else. In other markets, growth potential based on users and traffic is much

more important, and it is common to see large investments in start-ups that have no revenue model in place. Second, the Kenyan market is relatively small, and technology businesses that can expand regionally are more attractive for investors.

RITESH: Business is hard everywhere; it is even harder in Africa. Everything takes longer, costs more, and there is more bureaucracy than you can imagine. My “aha” is having enough cash to see through the increased costs and time taken, and developing a lot of patience when things happen *pole, pole* [“slowly, slowly”].

You have tested quite a few different market opportunities. Can you give some examples? Why did some work out? And why did you decide not to pursue others?

MIKUL: Our main goal with EatOut at the moment is to ensure that we have Number-One market share within the industry, and we have therefore explored many different opportunities. Our magazine *Yummy* and activities such as Nairobi Restaurant Week have done well to generate revenue and increase our presence as an industry authority. We recently decided to explore the e-gift voucher market, allowing consumers to purchase and redeem digital gift vouchers securely online, tapping into a multi-billion-shilling industry (the shilling is the Kenyan currency) and providing easy gift solutions for the diaspora. In 2016, our aim is to have pop-up stores in high-traffic locations such as supermarkets and malls. On the other hand, we decided not to continue with an online restaurant delivery pilot due to the fact that there were already a number of start-ups concentrating on the same thing. We also felt that the market was simply not large enough to justify a heavy investment in building the logistics infrastructure and customer service team required to service it.

RITESH: We have tested a number of opportunities, from alcohol delivery and a mobile juice bar concept to providing third-party logistics to other consumer brands. The reasons why most of those concepts were not feasible as standalone businesses were mainly centered around two themes.

Number one was the size of market. As interesting as some of these businesses may have seemed on the surface, some of them just did not have a large enough customer base for the business to be sustainable. Let me

give you an example: We tried alcohol delivery to customers at home. It was a logical extension from the delivery of beer and wine at Naked Pizza that customers usually purchase alongside their food order. We saw a natural path to move into home delivery of alcohol, given that the customers trusted us, we had the infrastructure with bikes and storage facilities in place, and we had sufficient supplier relationships. In reality, we found that most middle-class consumers would prefer to “be seen” drinking their premium alcohol of choice in a public venue rather than enjoying it at home. The more affluent customers who were willing to consume premium alcohol in the comfort of their own homes either had the means to make own arrangements by sending their driver or simply had it in stock. The space that was left for us with customers who wanted premium alcohol delivery on demand was not large enough to justify a stand-alone business.

Number two was the willingness to pay. We piloted third-party last-mile logistics for a number of B2B players. They all expected a premium service, which meant a rider who was well spoken, well versed in terms of maps, driving a reliable bike with a clean uniform and possessed a box that safeguarded the items from rain. That is all good. However, sadly they were not willing to pay the costs associate with that kind of quality service. We usually heard things like “But my *boda boda* [motorcycle taxi] guy only charges me half the amount.” After five months, with that mindset in place, we just had to pull the pilot.

Thank you, Mikul and Ritesh!



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14

Venture Capital in East Africa: Is There a Right Model?

Stephen Gugu and Wilfred Mworia

Introduction

In its brief history so far, the venture capital (VC) and private equity (PE) industry in East Africa has attracted a sizeable number of active participants, and investment activity is on the rise (EAVCA and KPMG 2015). This has been driven partly by the overall trend toward positive sentiments about the viability of Africa as a whole as an investment destination (Roxburgh et al. 2010). The sustained positive economic growth of the continent over the past decade has generated some newfound interest in the continent other than as a recipient for aid. Indeed, by some estimates, the total dollar value of foreign direct investment (FDI) (UNCTAD 2013; UNESCO 2013; Lautier and Moreaub 2012; M'Amanja and Morrissey 2006), inflows to Africa now exceeds that of

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official development assistance (ODA). Sy and Rakotondrazaka (2015) observed that there were only two countries in Sub-Saharan Africa in 1990 that received greater FDI inflows than ODA—Liberia and Nigeria. In 2012, 22 years later, 17 countries were receiving more FDI than ODA.

Early-stage venture funding through VC and PE financing have been coming up as viable funding options for businesses alongside the traditional financing avenues through commercial lenders (Deloitte 2015). According to an East Africa Venture Capital Association (EAVCA)—KPMG survey (2015), 79 investment deals of this nature worth approximately USD800 million were reported between 2007 and 2014 across East Africa (EAVCA 2014). An Intellicap (2015) report noted that VC funds have committed USD93 million since 2012 and that since 2010 PE investors have USD862 million under management in Kenya alone (EAVCA and KMPG 2015).

What these statistics do not show is the fact that most general partners are in their first-round funds and are not sure if they will be able to raise second-round funds. That said, we naturally expect that some learning will have taken place among the general partners in the course of investing in the region over the time period they have been operating. We set out to interview a number of VC and PE players in the industry with the objective of getting a sense of the current state of the industry and how its future might evolve. Right from the beginning, we found our respondents constantly alluding to the idea that in their experience some of the key attributes of the venture funding model commonly used—that of structuring a fund based on a partnership model between the general partners (GPs) who run the fund and the limited partners (LPs) who provide the investment capital (Tawiri 2010; Zider 1998)—are not entirely suited to the East Africa context. Fund managers, for instance, thought the 7-to-12-year time span for a closed fund was not adequate and that the 2–3 % management fee was too low.

These realizations led us to formulate our research question: Is there a right model for VC funding in East Africa? Further, it emerged in the course of our investigation that this question cannot be considered in isolation. The right model has to be considered in light of two key realities for VC investors in the region: constrained deal flow, which is a function of the nature of entrepreneurship in the region (e.g., the tendency for entrepreneurship in the region to be driven by necessity rather than opportunity), and a challenging exit environment.

Literature Review

A 2010 report by McKinsey (Roxburgh et al. 2010) showed Africa's economy growing at an average pace of 4.9 % between 2000 and 2008. The East African Community (EAC) in particular—which comprises Burundi, Kenya, Rwanda, Tanzania, and Uganda—grew at an average pace of 6.2 % between 2004 and 2014 (Gigineishvili et al. 2014). Projections indicate that this growth is likely to be sustained in the short to medium term, because key economic indicators for the region, and the broader continent, are quite robust: a growing middle class and corresponding consumption patterns, rapid urbanization, stable (or stabilizing) governments, a large and growing proportion of youth who would provide labor, and so on. Efforts to integrate the EAC countries economically under a common market while doing away with inhibitive trade and investment barriers could create a unified market of more than 160 million potential consumers (World Bank 2012). Perceptions about doing business in Africa have also changed considerably over time, becoming much more positive (EY 2015a; Roxburgh et al. 2010).

It is in this general economic environment that PE and VC funding in East Africa have been developing. Buoyed by consistent growth and a favorable outlook, PE and VC in the region and the wider continent have developed progressively. Fundraising to invest specifically in Africa grew 24 % in 2014 over the previous year to USD4.1 billion (EY 2015b). About USD1.6 billion was raised by the PE sector for the East Africa region between 2007 and 2014—7.3 % of a total USD22 billion targeted at Africa. Most funds were sized in the USD10 to USD50 million or USD100 to USD500 million range. Of the 79 deals worth approximately USD822 million reported within that time, 63 % were in Kenya and 15 % were in Tanzania, including 27 % in agriculture, 14 % in financial services, 11 % in fast-moving consumer goods, 10 % in information and communications technology (ICT), and 9 % in healthcare. Seventy of the 79 were below USD10 million in size. There were 21 exits worth a combined value of USD260 million in the period, 43 % of them in financial services. As in other frontier markets, the majority of funds were sourced from development finance institutions and high-net-worth individuals. The investors were mostly foreign, those from Europe accounting

for about 50 % of the total. Local investors from the East Africa region were only represented as a minority (EAVCA and KPMG 2015).

VC funding specifically in the technology sector in East Africa is an even more recent development and has to a large extent been focused on Kenya, which has gained prominence over the past seven years as a rising technology hub known as the Silicon Savannah. Total invested capital in tech start-ups across Africa more than doubled in 2015 to USD26.9 million from USD12 million in 2014. The average capital secured per venture increased from USD129,348 to USD205,374 over the same period (VC4Africa 2015).

Earlier research (SAVCA-Monitor Group, SAVCA 2011) has shown that the cost of running a fund in Africa is generally quite high compared with that of other markets, a fact that has not been reflected in compensation structures, which have more or less been borrowed “as is” from other experiences of investing in developed markets. There is a shortage of skilled talent for funds. The operating environment is also characterized by high competition for viable investments and a shortage of deal flow. GPs mostly have to deal with founder-led firms that need significant business support from the investor to help them develop their governance, management, and operational capabilities to a level comparable to those that an investment-ready firm in the West would be adding to its cost base for funds and eating into its investment window. Furthermore, the deal intermediary and service provider ecosystem are relatively underdeveloped, meaning that GPs have had to do almost all the work, from sourcing deals to preparing them for exit.

Methods

In addition to secondary sources (i.e., industry reports and news articles) and the experiences of both authors in East Africa’s investment landscape, primary data were collected from interviews with representatives of six investment funds (see Table 14.1 below). The six were selected for the fact that they were involved in investments across the region and in investment prematurity stage ventures. It should be noted that the six were selected purely for these reasons and for their availability to participate. We cannot claim that they constituted a scientific sample of the population of VC investors in the region. Data were collected by means of questionnaires administered through face-to-face interviews.

Table 14.1 Profile of interviewed investment funds

Fund	Fund size	Minimum investment	Maximum investment	Focus countries	Focus sectors
1	Fund I—USD12 M; Fund II—targeting USD55 M	Fund I—USD100 K Fund II—USD250 K	Fund I—USD1 M; Fund II—USD3.5 M	East and West Africa	ICT, consumer goods, healthcare
2	The fund for each country ranges from USD1–2 M	USD15 K	USD100 K	Kenya, Nigeria, and South Africa	Early-stage technology based start-ups
3	Several funds, up to USD750 M	N/A	N/A	Pan African, including Kenya, Tunisia, Nigeria, South Africa, Morocco, Senegal, and Cameroon	Late-stage, including transport and logistics, agribusiness, gas and petrochemicals, consumer products, power and water, financial services, and telecommunications and media
4	Accelerator program that provides funding and access to funding for start-ups going through the program	USD10 K	~USD100 K (amount has evolved over time)	Kenya	Renewable energy, agribusiness, financial services
5	USD50 M	USD50 K	USD15 M (Syndicated)	Eastern Africa	Agribusiness, healthcare, energy and natural resource services, retail and consumer services, education
6	USD12 M	USD50 K (20 K for early-stage start-ups)	USD300 K (100 K for late-stage start-ups)	East Africa, preferably in Kenya, Uganda, or Tanzania	Media and information sector using mobile or online applications to provide content or services to consumers or businesses

We investigated the following aspects: fund structure and remuneration, team and roles, fundraising, deal sourcing and due diligence, investing, post-investment, and exit. Some of the investors invested as little as less than a hundred thousand dollars to start-up ventures, and others invested in the millions. In terms of their portfolios, several had investments across early-stage ventures through mature firms, where others were specialized. Moreover, our respondents invested in multiple countries and various sectors, including technology, healthcare, manufacturing, and financial services. The majority of the firms we spoke with are in the investment and early holding period of their funds.

Results

Four out of our six respondents stated that their funds were organized in the classic partnership structure. Two were organized as companies; one, a limited liability; and the other, limited by guarantee. The two limited companies were more focused on early-stage investing at the seed–start-up stages. All of the investment funds were incorporated outside East Africa, mostly in European countries. One of the companies was registered as a holding company in Europe with two separate entities in Kenya—a company limited by guarantee and a limited company. This was because the firm carried out both for-profit and not-for-profit activities. The other company was based in the Seychelles, “where it is easy to operate due to very low capital gains taxes and relative ease of set up,” as one of our respondents noted. Most of the respondents cited tax benefits as the main consideration in deciding where to incorporate. One fund incorporated in the Netherlands noted that the country has favorable legislation for funds; it is tax-transparent, meaning that individual investors are taxed instead of the fund.

Cost repeatedly came up as a major concern for industry players. This led to our asking about the remuneration of GPs. We found that the partnership-based funds, as expected, took the more or less standard 2–3 % management fee. However, all our respondents noted that operating expenses in East Africa have tended to be higher than average. One respondent went as far as suggesting that management fees should be in

the 5–6 % range. In addition, the partnership-based funds followed the standard ten-year (maximum) lifecycle from starting the fund to winding it down. Our respondents felt that finding suitable investments in this region took much more time and effort than average, calling the standard ten-year life of a fund into question. One of our respondents noted, for instance, that on average, it takes a year from identifying an opportunity to invest in and closing the deal. Another noted that the longest it had taken them from initiation to close was three years for one of their deals, explaining that “in the best case scenario, it takes us three to four months from identifying the opportunity to concluding an investment. In the worst case scenario it can be up to three years.”

The respondents noted that, when it came to fundraising, the vast majority of investment funds in the industry were foreign—typically development finance institutions, as is the case in most frontier markets. The dearth of local capital, even from local pension funds, was a major concern. Koome and Kipanga (2013) note that at the time of their research, no local pension had invested in PE. However, more recently the PE firm Ascent Capital of Bangalore, India, managed to draw Kenya Power Pension Fund and Nation Media Group Pension Fund into their Sh8 billion fundraising (Gachiri 2015). It was noted that high-net-worth individuals in the region were mostly unfamiliar with the asset class and were more comfortable with traditional investments—real estate, shares, and bonds—that are perceived as being less risky. New legislation in Kenya (specifically the Retirement Benefits Authority [RBA] Act and the Insurance Act that govern the pension-fund and insurance industries), for instance, allows pension funds to allocate funds to alternative assets, although there is still low uptake among pension funds (FSD Kenya 2008).

Generally speaking, our respondents felt that the standard partnership-based fund structure was not well adapted to the regional context and boxed them in. However, we also noted that LPs are accustomed to this structure and that GPs have little chance of altering it. One respondent proposed that his firm would consider using an investment vehicle, such as a holding company, in the future instead of using the partnership fund structure. This would solve the problem of investment horizons and partly solve the exit issues, because the funds would exit only when good avenues arose instead of exiting in accordance with preset time limits. Additionally,

it would remove the need for explicitly set management fees based on the amount of funds raised, thereby also addressing the cost issue.

All our respondents reported that they maintained the smallest teams they could manage with (usually fewer than 10 members) in order to minimize operating costs. They tended to hire skilled individuals who had extensive work experience that could encompass multiple role expectations. One respondent said, “We have two people who are dedicated to sourcing deals. The same two need to be technical enough to sell the proposition,” referring to the fact that even the staffers doing work that ordinarily did not need technical skills still needed these skills in order to take on the additional tasks. As another noted, “Everyone on our team is involved in sourcing deals.” In addition to the typical functions covered in a fund (sourcing, selection, due diligence, valuation, and negotiation), we found two peculiar characteristics among our respondents: First, because of cost constraints, the funds (instead of the portfolio companies) had to do a large part of the work themselves to get a deal to its financial close internally. For instance, one of our respondents indicated that his firm handled all aspects of due diligence internally. Second, the funds tended to be highly involved in the operations of their portfolio companies. The reason given for this was that the GPs typically had to deal with founder-led firms that needed significant business support from the investor to help them develop their governance, reporting, management, and operational capabilities. Funds used a mix of in-house resources and external consultants to support their portfolio companies. One respondent said, “We sent experienced consultants to the different companies to help operationally. We also did a lot on the board.” In addition, to minimize costs, the funds preferred to have regional offices in one location rather than multiple offices. “Having satellite offices is hard. Teams tend to be small,” said one respondent. Another said, “You operate where you know best.” This ends up affect deal sourcing, as we shall see.

When it came to deal sourcing, the underlying theme across the spectrum was the highly relationship-based nature of the industry. As one fund manager said, “Right from deal sourcing, it’s a very network-sourced industry.” The funds relied heavily on social networks to source their deals and tended not to turn to intermediaries, such as investment advisory firms. “We don’t use intermediaries to source our deals. Most of them place

their own interests above those of the fund. They rarely give us what we are looking for,” one respondent remarked. Another respondent noted that the quality of intermediaries was not as high as in more mature markets. In addition, the respondent felt that many times, deals that came through intermediaries had been “shopped around,” that is, had already been presented to multiple investors in the same form. The clear preference among our respondents was to build strong personal networks by building trust (e.g., through information exchange, pro-bono work, membership in key associations, personal attendance of domestic conferences, and reciprocal action) and a good reputation (depending on multiple factors, such as the performance of investees, condition of investor–investee relationships, degree of embeddedness in the business community, and long-term interest in the region) such that deals could confidently be referred to the respondent. This kind of “social capital,” however, takes significant time and patience to develop and can make things harder for new funds making their initial foray into a region. Some funds used the media to attract deals. One noted that one of their best marketing tools was contributing articles to newspapers or publicizing their investments, which would lead to potential investees contacting them.

On average, the funds ended up investing in only about one out of every hundred deal opportunities. The issue of time in getting deals to financial close was often raised. One respondent noted, “It takes long to build the first deal. You need time to network so that you can move; the first deal is a big thing in this case. People need to know if you are serious.” The respondent proceeded to explain that although it is in the investor’s interest to put in the work in order to help increase the value of the company ahead of the exit, entrepreneurs looked at this differently. The majority knew they needed help to build up their businesses and took this positively, but others perceived it as the investors meddling. As such, the respondent noted that the buy-in of the entrepreneur is critical from the start.

As for investment instruments, we found that investors used instruments similar to those used in developed markets—with several alterations. One of the accelerators we spoke with, for instance, offered training, coaching, business development, and support services to a cohort of ventures but did not take a stake upfront. Instead, at the end of the accelerator period, the investors selected the most promising ventures

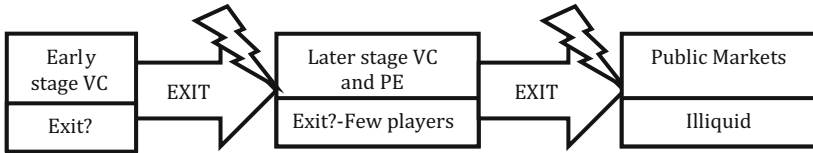


Fig. 14.1 Challenges in the current exit environment in East Africa

and converted the value of their support to a predetermined shareholding if the investee company was able to raise funds in a specified amount of time. Another interesting model we found was revenue-based financing, in which the investor took a royalty on sales as part of the return toward debt repayment until the debt and interest were paid off. Structures such as these ensure that in case the investment does not perform as expected, the funds can protect their downside risk to some extent.

As for deal flow, our respondents cited the exit as the most challenging aspect of investing in East Africa. Although trade sales and sales to strategic buyers were the most promising exit avenues in the market, it was pointed out that there were not many big firms locally that were in the market for acquisitions. Illiquid public markets have further added to the exit challenge, in the sense that without a final exit through public markets, the chain has no termination point for larger investors to harvest value—which creates a scarcity of buyers for VC projects (see Fig. 14.1 below).

Discussion

Venture funding in developed markets, particularly in the West, has several decades of history behind it (Gordon 2012; Hsu and Kenney 2004). VC and PE activity in East Africa, by contrast, is a very recent import and is still in its formative stages. The Western model has been refined, as it were, over the years and decades through the experiences of practitioners and other stakeholders, such as policy makers, to suit the context and characteristics of venturing in that context (Ferrary and Granovetter 2009). Further, the model has seen widespread uptake and been exported beyond the areas of its origins. However, its application in new contexts

is not guaranteed to succeed, given the new contexts' potentially unique dynamics, especially in terms of the nature of local entrepreneurship,¹ as we shall see shortly in the case of East Africa. Indeed as our respondents noted, there are substantial difficulties with the application of the Western partnership-based fund model in its strict form in the East African context. Compensation structure (Gompers and Lerner 1999; Litvak 2009) and fund life were particularly called into question.

We found that a lack of significant amounts of local participation in venture funding has been a major constraint for the industry. Probable local investors tend to prioritize for security and to be averse to risk and the unknown. Yet they have a much better grasp of local dynamics and could be of great value both on the investor side and the entrepreneur side. On the investor side, local investors can bring local know-how and understanding of the local norms and nuances of doing business as well as the long-term view needed for VC and private capital. Furthermore, they can add to the perception of the fund's local credibility, enhancing trust among local entrepreneurs. On the entrepreneur side, local investors, particularly those who have been successful in business in the past, can bring local market knowledge, contacts, and business linkages (Mäkelä and Maula 2008). This kind of support is especially critical for inexperienced early-stage founders and would be hard for a purely foreign player to match.

In contrast to US pension funds, East Africa's pension funds scarcely invest in VC. But it appears that commercial banks may be starting to dabble in it (Black and Gilson 1999). In the recent past, we have seen some commercial banks in Kenya getting involved in the tech start-up arena through partnerships (e.g., Chase Bank with the Nairobi Innovation Hub [iHub] [Jackson 2015a; Chase Bank 2015] and Barclays Bank, which has run an accelerator for financial technology start-ups in collaboration with a VC investor [Jackson 2015b]). We see this as potentially pointing to possible involvement in VC at some point, and we foresee that pensions will remain skeptical about VC in the short to medium term. Positive returns from the earlier-mentioned investment by two pension funds in Ascent Capital could, however, stimulate more interest by pension funds.

¹ See Bruton et al. (2004) for a similar study in East Asia.

Cost and ease of doing business in East Africa have clearly been impediments to VC funding. These factors vary quite significantly across the individual countries in the region. According to the 2015 World Bank Doing Business Ranking (World Bank 2015), Rwanda, Kenya, Uganda, and Tanzania ranked 62nd, 108th, 122nd, and 139th globally, respectively, in cost and ease of doing business. In terms of enforcing contracts, Tanzania ranked 64th, Uganda ranked 78th, Kenya ranked 102nd, and Rwanda ranked 127th. For investors hungry for deal flow and scouring the region to find deals, this situation can be daunting. Corruption presents itself as another major stumbling block, adding to the cost and complexity of doing business (Smarzynska and Wei 2000). Moreover, the East African bloc is a combination of five countries with different norms, legislation, and entrepreneurial cultures (Autio et al. 2013). This means that VC and PE focusing on firms in the region need to open local satellite offices or incur significant travel costs that further increase the costs of doing business.

The region's rather lengthy lag times between identifying and making an investment can be partly explained by a lack of trust and understanding of VC and PE on the part of entrepreneurs. In a market where investors—mostly foreign capital—are seeking local entrepreneurs, investors need to take time to “court” entrepreneurs and convince them to accept capital, not least because business owners in the region are more familiar with and accustomed to financing their work through commercial loans instead of VC. In addition, we have seen that a number of businesses that investors get involved in tend to need a lot of work to bring them up to standard in terms of effective operations and governance. The need for business support is a crosscutting feature of businesses in East Africa (Omidyar 2013), not just those that receive VC. However, with a lack of alternatives to provide such support, investors are placed in a situation where they have to take over this role in order to help develop the venture for future exit. This creates additional demands on the fund manager's time that could otherwise have been spent on other aspects of running the fund. It also requires a more active engagement by the fund manager in potential investees and a broader knowledge base to go beyond purely administering an investment fund. When the fund manager opts to bring in professional consultants, even more additional costs are incurred, further straining management fees.

The need for heavy post-investment involvement means fund managers getting in the market have to be prepared to play roles that go well above and beyond the call of duty for their typical role. They have to take on tasks related to coaching, mentoring, and training—becoming, in other words, enmeshed in the operational activities of their portfolio companies and significantly blurring the lines between investor and investee. This has an impact in turn on the composition of the fund's team. Compared with typical fund teams in mature markets, funds operating locally require people with operational business skills and immense contextual market knowledge; the alternative is to hire consultants. However, involvement in investee operations can create the potential for conflicts with entrepreneurs who are only interested in the fund's money, wishing to run their businesses as they see fit and to avoid the perception, especially among start-ups, that equity investors will take away their control in the firm—with the result that they become skeptical of VC.²

In our opinion, the lack of an exit avenue to public markets will remain the case in the short to medium term. According to data compiled by PricewaterhouseCoopers (2014), Kenya's stock market, the largest by market capitalization in the East Africa region, had only five initial public offerings from 2010 to 2014, raising a total of USD157 million; Tanzania had four, raising USD16 million; and Rwanda and Uganda each had only two raising, USD91 million and USD69 million, respectively. Some exchanges, such as the Nairobi Securities Exchange, have introduced market segments targeted at small and medium enterprises with lower and less stringent listing thresholds, but these have yet to really kick off and become vibrant enough as exit avenues. Liquid stock markets will draw in larger investors that will create demand from earlier VC (Black and Gilson 1999). As more multinationals seek entry into markets across Africa, investors that position themselves strategically through their holdings could find potential buyers (see Fig. 14.2 below).

On the other hand, VC is driven by the supply of high-quality entrepreneurship, creating a steady pipeline of deals for venture funders. The

²See De Clercq et al. 2006 for a fascinating overview of the VC's world through the lens of the entrepreneur, and Collewaert and Fassin 2013 on the possible conflicts in investor–investee relations.

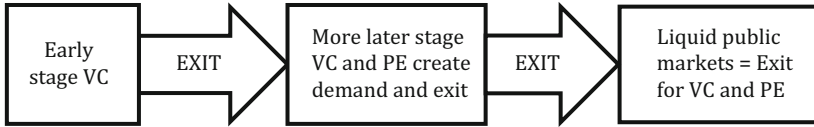


Fig. 14.2 A functioning exit environment

region is not lacking or behind the curve in entrepreneurial dynamism, as evidenced by Kenya's noted "hustling" culture, in which one can often have a full-time job and one or more other income-generating activities (usually not formally organized businesses) that are pursued on a deal-by-deal basis (Simons 2012). Much of the entrepreneurship that exists in the region (as in much of the rest of Africa) for those in "full-time" entrepreneurship, is characterized as necessity entrepreneurship (Giacomin et al. 2011), that is, as a means of survival and a way of earning an income, having failed to secure other means of making a living or supplementing one's income—as distinct from conventional entrepreneurship driven by the identification of an opportunity (Omidyar 2013). Muller and Amit (1995) referred to "push" versus "pull" entrepreneurship: Push entrepreneurs start ventures out of some kind of dissatisfaction with their current state, not as a result of their entrepreneurial spirit. Pull entrepreneurs are motivated by the attractiveness of the new venture in and of itself. Muller and Amit concluded that pull entrepreneurs are more successful than push entrepreneurs. The latter, thus, do not create opportunities as valuable for VC as intentional, opportunity-driven pull entrepreneurship does.

The problem of entrepreneurship supply is really about developing a culture of entrepreneurship, specifically the propensity for risk taking and a tolerance for failure. Nothing short of more and better-quality entrepreneurship will provide a lasting solution to the challenge of deal flow. This new kind of culture cannot emerge instantaneously. Cultures develop over time, and once entrenched are difficult to alter. The fact that entrepreneurship as a career seems to have gained general acceptance (Omidyar 2013) is encouraging. However, the hallmarks of entrepreneurship culture—again, the propensity for risk taking and a tolerance for failure—have yet to emerge sufficiently across the board. A larger and better supply of entrepreneurs will bring down costs for

investors as they have to expend less time and money to find suitable investees. Better entrepreneurship will also mean that investors will not need to be so highly involved in their investees' businesses, cutting costs further.

In a bid to bridge access to finance, governments in the region have taken initiative to create funds—usually subsidized loan funds such as Rwanda's Hanga Umurimo (meaning “create your own job”) Fund, the Uwezo (meaning “enable”) Fund in Kenya, and the National Entrepreneurship Development Fund in Tanzania—to support entrepreneurs. However, we feel that their efforts would better be directed at initiatives that provide entrepreneurs business support, emphasizing practical entrepreneurship skills in curricula and adapting education systems to develop entrepreneurialism in students from an early age. In fact, some have already questioned the possible role of such subsidy programs in eroding—rather than promoting—the entrepreneurial edge of beneficiaries.³

Thus, we find VC in East Africa in a dilemma: on the one hand, a limited supply of high-value deals and, on the other hand, a challenging exit environment. Compounding this dilemma are the issues of time, cost, and lack of local capital providers for VC investing. Figure 14.3 summarizes these challenges for VC in East Africa.

Recommendations

While the general idea of a partnership-based fund may still hold in East Africa, the specific characteristics of the partnership—the management fee percentage, carried interest, fund life, team composition, investment instruments, and so on—do not necessarily apply in the same way across different contexts. Nevertheless, this is the fund structure that foreign LPs, which constitute the main source of investment funds in the region, are familiar and comfortable with. Altering the modalities of the structure significantly might be desirable but is not feasible in the immediate term.

³ See <http://www.newtimes.co.rw/section/article/2014-09-18/181038/> for an intriguing recent article on whether government gives too much to start-ups.

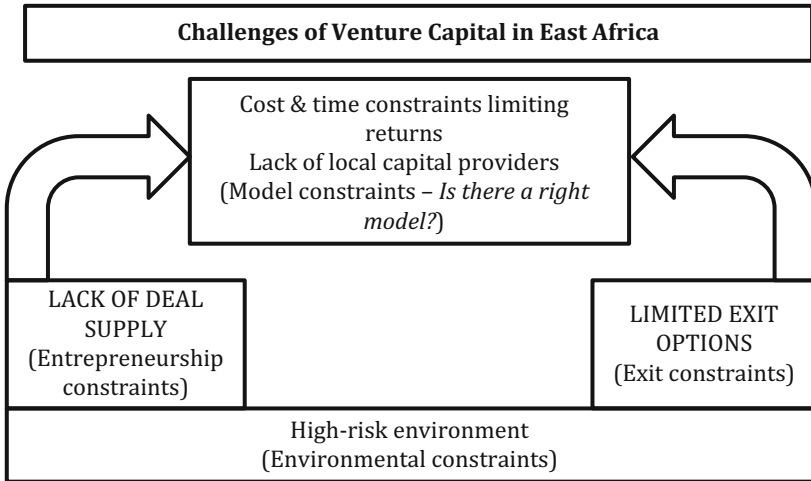


Fig. 14.3 The dilemma of venture capital in East Africa

As such, we recommend that fund managers *adopt a lean, start-up-like mentality of frugality* and maximize resources as best as they can to operate effectively in the region. Joint ventures between funds investing in the same sectors can increase their geographic coverage, split the burden in terms of cost and effort to find and make investments, and potentially help them get into bigger deals. This can be a good strategy for investors coming into the market for the first time, because it can help reduce the time it takes to close their first deal.

Fund managers should also *consider alternative structures*: evergreen funds where the fund has an indefinite fund life and a periodic inbuilt liquidity event to cater to LPs who would like to exit and to management, to calculate carried interest. Evergreen funds also have the advantage of keeping the gems in the portfolio within the fund while doing away with layered management fees that can be quite costly for the LP. Another structure that could be pursued to address the time issue is the setting up of investment holding companies in which capital providers can buy shares. As indicated earlier, there would be no management fees or exit stipulations. Fund managers would be remunerated as the company’s agents, and the holding company would hold investments as long as it deems necessary and exit at the opportune time.

In terms of encouraging local capital, we see great potential in *bringing corporations into VC* either as suppliers of capital to funds or through in-house managed funds. As it stands, established firms in East Africa are not known to be very active in corporate venturing. Safaricom Limited in Kenya has been a pioneer in this direction, having set up its Safaricom Spark Fund that focuses on investments in tech start-ups.⁴ We envision that established corporations investing in and working with young enterprises could bring in the rigor of administering an established enterprise. Furthermore, the enterprises could gain competitive advantage from being exposed to the corporation's internal resources and market. For the corporation itself, the innovation associated with start-ups could result in new product lines. Second, local savings and investment groups, known as *chamas*, could be another source of capital.⁵ Some *chamas* command sizeable funds that could be directed to VC activity. The challenge with the majority of *chamas* is their lack of investment sophistication; most stick to the well-understood areas of real estate and stocks, security being more attractive to them than high returns. The long-term horizon of VC investments does not sit well with *chamas* either. That said, structuring funds as investment holding companies, as suggested earlier, could be attractive to *chamas*, because the idea of buying shares in a holding company is familiar, and in fact some larger *chamas* attract members by issuing shares in the group.

We see also two additional interesting avenues that could be explored to improve the entrepreneurship supply: *introduce venture builders and search funds*. Venture builders are outfits that create start-ups internally using shared resources, develop them, and then spin them off (as distinct from accelerators, which solicit external entrepreneurs and ventures). We are familiar with at least one venture builder—Brave Ventures—that is in its formative stages in Kenya.⁶ Search funds, by contrast, have investors in the fund financially supporting an entrepreneur's efforts to locate, acquire, manage, and grow an existing privately held company. To our knowledge, there is only one active search fund in the region (Kolarova et al. 2014). However, these two avenues cannot really create new entre-

⁴ See <http://www.safaricom.co.ke/spark/> and <http://disrupt-africa.com/2015/11/sendy-named-1st-safaricom-spark-venture-fund-investee/>

⁵ For a comprehensive review, see KAIG (2014).

⁶ See <https://braveventurelabs.com/> for more details.

preneurs at scale. Only a thriving opportunity-driven entrepreneurship culture will produce the kind of deal flow investors are looking for.

On the matter of exits: Funds could explore *weaving in self-liquidating securities*. A fund could, for instance, invest in a mix of high-interest-yielding loans and equity. This would ensure that the equity portion does not need to exit at significant levels for the target returns to be met (hence increasing the likelihood of exit) while at the same time, returning some cash to the investors before the final exit event. Gilson and Black (1999) suggested that a solution for the lack of active local stock markets for VC to exit to, while avoiding the time and effort needed to develop local markets, would be to turn to external markets in the way Israeli ventures have found an avenue through US capital markets. In the same manner, creating avenues for East Africa's ventures to *list on more mature stock markets on the continent*—such as the Johannesburg AltX—could be worth exploring.

In terms of future research, we feel that the cultural effects of investing in East Africa need further investigation. In particular, the Kenyan hustling culture described earlier has been a stumbling block to foreign investors, who feel that entrepreneurs should be ready and willing to drop everything else in order to focus 100 % on their venture—an obstacle that has also turned many entrepreneurs away from seeking investment, knowing that this would be required of them. (See Eskor John's chapter in this book on portfolio entrepreneurship.) The issue is further compounded by the fact that foreigners are quite active and getting more so over time in Kenya's start-up scene. This is inevitable in a globalized world. Foreigners come with a knack born out of experience for identifying and seizing opportunities and, through established networks, gathering the resources to launch and grow ventures—easily bypassing locals. If some of the stumbling blocks to the development of a vibrant start-up ecosystem are cultural in nature and changing culture takes time, how will local founders stack up against their counterparts who are coming in with the skills and experience?

Another area that could be investigated further is the intermediaries' space—that is, which aspects of VC are most in need of intermediation and how can this be developed? A strong intermediary network would, for instance, shorten the amount of time, effort, and associated cost

required by investors to source for deals. Yet another aspect that could be interesting to research further would be to benchmark the risk profile for investing in East Africa against that of other markets and those of the individual countries. Is it generally more risky to invest in Tanzania or in Uganda, for instance? And if so, why? And how can the risk be minimized? This can help investors better focus their efforts and help governments make better interventions to promote entrepreneurship and VC.

Conclusion

To summarize: We found that the high cost of operating a fund in the region and the length of time it takes to make an investment are the top-most concerns among fund managers. Further, fund managers are called upon to take on roles, such as acting as a mentor and business coach to investees, that are not typical of fund management. Fund managers have to expend their own time or that of their staff to support investees or spend money to hire consultants to do so. The dearth of local investors in VC stood out, and we noted that the industry would be better off with more of this. In addition, the surrounding issues of deal flow and exit were identified as being pertinent. These may not be exactly in the realm of the “right model” in terms of fund structures, but they inevitably have an impact on what structure works best. We also found that the industry is heavily dependent on social networks rather than intermediaries to source investments.

We conclude that the key aspects needed to increase the chances of success for existing funds and new classical partnership-styled funds making their initial foray into the region are the following: Fund managers need to adopt a lean, start-up—like approach to fund management and investing, gain a keen understanding of and take into consideration the nature of entrepreneurship in the region, and be ready to take on a far more active role in the business than fund manager typically do—while maintaining amicable relations with the founders and owners. Further, we recommend that fund managers explore new structures to circumvent cost and time constraints, such as investment holding companies and evergreen funds. To tackle the issues of deal flow, we propose that governments in the region should

focus on entrepreneurship education and business, instead of on providing subsidized loans. We drew attention to venture builders and search funds as having potential to create investment-worthy ventures. As to successful exits, we proposed opening up avenues to more liquid markets by way of external markets, much as Israeli ventures have found an avenue through US capital markets, as a way of circumventing illiquid regional markets.

In the end, then, *is there a right model for venture funding in East Africa?* Not yet. But we believe that it will emerge in the years ahead—as VCs continue to learn to adapt to the context and take into account the unique characteristics of venturing in the region.

References

- Amit, R., & Muller, E. (1995). Push and pull entrepreneurship. *Journal of Small Business & Entrepreneurship*, 12(4), 64–80.
- Autio, E., Pathak, S., & Wennberg, K. (2013). Consequences of cultural practices for entrepreneurial behaviors. *Journal of International Business Studies*, 44(4), 334–362.
- Black, B. S., & Gilson, R. J. (1999). Does venture capital require an active stock market? *Journal of Applied Corporate Finance*, 11(4), 36–48.
- Bruton, G., Ahlstrom, D., & Yeh, K. S. (2004). Understanding venture capital in East Asia: The impact of institutions on the industry today and tomorrow. *Journal of World Business*, 39(1), 72–88.
- Chase Bank Kenya. (2015). Chase Bank and iHub sign partnership towards excellence in product innovation/excellence. *Chase Bank Kenya*. <https://www.chasebankkenya.co.ke/news-update/chase-bank-and-ihub-sign-partnership-towards-excellence-product-innovationexcellence>. Accessed 6 Dec 2015.
- Collewaert, V., & Fassin, Y. (2013). Conflicts between entrepreneurs and investors: The impact of perceived unethical behavior. *Small Business Economics*, 40(3), 635–649.
- De Clercq, D., Fried, V. H., Lehtonen, O., & Sapienza, H. J. (2006). An entrepreneur's guide to the venture capital galaxy. *Academy of Management Perspectives*, 20(3), 90–112.
- Deloitte (2015). *Africa private equity confidence survey: 2015*. Johannesburg: Deloitte financing avenues through commercial lenders.

- EY. (2015a). *EY's attractiveness Survey Africa 2015: Making choices*. EYGM.
- EY. (2015b). *Private equity roundup: Africa*. EYGM.
- EAVCA and KPMG (2015). *Private equity industry survey of East Africa for the period 2007 to 2014*. Nairobi: KPMG.
- Ferrary, M., & Granovetter, M. (2009). The role of venture capital firms in Silicon Valley's complex innovation network. *Economy and Society*, 18(May), 326–359.
- FSD Kenya (2008). *SME risk capital funds: Constraints to Kenyan institutional investors*. Nairobi: FSD Kenya.
- Gachiri, J. (2015). PE firm Ascent raises Sh8bn for new fund. *Business Daily*. <http://www.businessdailyafrica.com/PE-firm-Ascent-raises-Sh8bn-for-new-fund/-/539552/2903264/-/hs5xmz/-/index.html>. Accessed June 15 2015.
- Giacomin, O., Janssen, F., Guyot, J. L., & Lohest, O. (2011). Opportunity and/or necessity entrepreneurship? The impact of the socio-economic characteristics of entrepreneurs. *MPRA Paper*, 29506, 1–42.
- Gigineishvili, N., Mauro, P., & Wang, K. (2014). How solid is economic growth in the East African Community? *International Monetary Fund* (Working Paper No. 14/150).
- Gompers, P., & Lerner, J. (1999). An analysis of compensation in the U.S. venture capital partnership. *Journal of Financial Economics*, 51(1), 13–44.
- Gordon, J. S. (2012). A short (sometimes profitable) history of private equity. *The Wall Street Journal*. <http://www.wsj.com/articles/SB10001424052970204468004577166850222785654>. Accessed 15 June 2015.
- Hsu, D. H., & Kenney, M. (2004). Organizing venture capital: the rise and demise of American Research and Development Corporation. *Industrial and Corporate Change*, 14, 579–616.
- Intellicap Business Consulting Team. (2015). *Closing the gap: Updates on key challenges for the missing middle in Kenya*. Intellicap. <http://english.dggf.nl/file/download/40238782>. Accessed 17 Nov 2015.
- Jackson, T. (2015a). Barclays Kenya partners Moringa School, Nest to launch Product Lab. *Disrupt Africa*. <http://disrupt-africa.com/2015/09/barclays-kenya-partners-moringa-school-nest-to-launch-product-lab/>. Accessed 6 Dec 2015.
- Jackson, T. (2015b). Kenyan fintech startups invited to apply for Chase Bank, iHub support. *Disrupt Africa*. <http://disrupt-africa.com/2015/08/kenyan-fintech-startups-invited-to-apply-for-chase-bank-ihub-support/>. Accessed 6 Dec 2015.
- Kenya Association of Investment Groups (KAIG) (2014). *The Chama Handbook 2014* (2nd ed.). Nairobi: KAIG.

- Kolarova, L., Kelly P., Davila, A., & Johnson, R. (2014). International Search Funds 2013 – Selected Observations. *IESE Business School*.
- Koome, K., & Kipanga, B. (2013). *A case for private equity investments by pension funds in Kenya*. Nairobi: Retirement Benefits Authority.
- Lautier, M., & Moreaub, F. (2012). Domestic investment and FDI in developing countries: The missing link. *Journal of Economic Development*, 37(3), 1.
- Litvak, K. (2009). Venture capital limited partnership agreements: Understanding compensation arrangements. *The University of Chicago Law Review*, 2009, 161–218.
- M’Amanja, D., & Morrissey, O. (2006). *Foreign aid, investment, and economic growth in Kenya: A time series approach* (CREDIT research paper, no. 06/05).
- Mäkelä, M. M., & Maula, M. V. (2008). Attracting cross-border venture capital: The role of a local investor. *Entrepreneurship and Regional Development*, 20(3), 237–257.
- Monitor Group and SAVCA. (2011). Private equity in the shadow of giants: Innovative approaches along the investment value chain in sub-Saharan Africa. *Silk Invest*. <http://www.silkinvest.com/2011/12/african-private-equity-report-in-the-shadow-of-giants.html>. Accessed 23 Feb 2016.
- Ndikumana, L., & Verick, S. (2008). The linkages between FDI and domestic investment: Unravelling the developmental impact of foreign investment in Sub-Saharan Africa. *Development Policy Review*, 26(6), 713–726.
- Omidyar Network and Monitor Group. (2013). Accelerating Entrepreneurship in Africa. *Omidyar Network*. <https://www.omidyar.com/insights/accelerating-entrepreneurship-africa-report>. Accessed 23 Feb 2016.
- PricewaterhouseCoopers (2014). Africa IPO Watch 2014. <http://www.pwc.co.za/en/publications/ipo-watch.html>. Accessed 9 Sept 2015.
- Roxburgh, Charles, et al. “Lions on the move: The progress and potential of African economies.” McKinsey Global Institute (2010).
- Simons B. (2012). What Africa’s entrepreneurs can teach the world. *Harvard Business Review*. <https://hbr.org/2012/03/what-africas-entrepreneurs-can/>. Accessed 15 June 2015.
- Smarzynska, B. K., & Wei, S. (2000). Corruption and composition of foreign direct investment: Firm-level evidence. *National Bureau of Economic Research* (Working paper 7969).
- Sy, A., & Rakotondrazaka, F. M. (2015). Private capital flows, official development assistance, and remittances to Africa: Who gets what? Washington, DC: Brookings. <http://www.brookings.edu/-/media/Research/Files/Papers/2015/05/official-development-assistance-africa-sy-rakotondrazaka/Private-Capital-Flowswebv3.pdf?la=en>. Accessed 15 June 2015.

- Tawiri, N. (2010). Domestic investment as a drive of economic growth in Libya. *International conference on applied economics-ICOAE*, pp. 759–767.
- United Nations Conference on Trade and Development (UNCTD) (2013). *Strengthening linkages between domestic and foreign direct investment in Africa*. Geneva: UNCTD.
- United Nations Economic and Social Council (UNESCO) (2013). *Public aid as a driver of private investment*. New York: UNESCO.
- VC4Africa. (2015). Venture Finance in Africa: ‘The progress of early-stage high-potential growth companies’. *VC4Africa*.
- World Bank (2012). *East African community reshaping economic geography of East Africa: From regional to global integration*. World Bank: Washington, DC.
- World Bank (2015). *Doing business 2015: Going beyond efficiency*. World Bank: Washington, DC.
- Zider, B. (1998). How venture capital works. *Harvard Business Review*, 26(6), 131–139.

Conversation #14

Creating the PayPal Mafia of East Africa

Ben Lyon of Kopo Kopo



***Ben Lyon** co-founded Kopo Kopo in 2010 and sits currently on the Board of Directors. Earlier, he studied economics and international studies at Rhodes College in Memphis, Tennessee, where he specialized in informal economics and microfinance. Ben has served in various roles while at Kopo Kopo, from Head of Product to VP of Marketing and CEO. He has operational experience in multiple markets throughout Sub-Saharan Africa and Asia. Find Ben on Twitter @bmlion, and check out his company at www.kopokopo.com.*

What is the story behind Kopo Kopo? And why did you decide to start in Kenya?

We—Dylan, Tom, and I—co-founded Kopo Kopo five years ago in Seattle, Washington, as a Delaware C corporation. Dylan and I moved to Nairobi in late 2010 and lived here for four years.

The reason we came here was because of the ubiquity of mobile money. Our background was all in microfinance, and we had a hunch there was a business angle and a microfinance angle in mobile money that hadn't been fully exploited. Today that's different, because almost all microfinance institutions (MFIs) in Kenya use mobile money for disbursement and collection to some degree.

In our early days, we wanted to help MFIs integrate mobile money with their core banking systems. We quickly found that this wasn't the best idea—the reason being that microfinance systems and processes aren't standardized. MFIs can take ages to make a business decision, and they are highly bureaucratic and risk-averse, so they don't change. Change is a frightening thing, so they are using lots of disparate legacy technologies, and there isn't a real understanding or desire to fundamentally change that technology to catch up with the times.

Would you say that's only typical for the MFI sector or for most SMEs in Kenya?

It'd be most SMEs. Fiber cables just came a few years ago, and so the Internet hasn't fully reached all businesses yet, but you do see this massive growth in Android devices and 3G connections. MFIs are not at the front of the adoption curve. They are not your early adopter. We found this quickly and pivoted to focus on retailers. By retailers, we mean a barber shop, a salon, a general trader, somewhere where you're paying for goods and services to the person in front of you.

In early 2012, we launched as the world's first merchant aggregator of mobile money services. In essence, we were to Safaricom's M-PESA what Square was to Chase Paymentech in the U.S.

Safaricom is the issuer of M-PESA (Kiswahili for “mobile money”), the largest mobile money service in the world. When we entered the market, the majority of Kenyan adults had M-PESA on their phones, but less than one percent of businesses formally accepted it. So imagine if you were walking around with a payment card in your wallet but you couldn’t find anywhere to pay with it. The utility of that card would be diminished significantly. So we said to Safaricom, “Let us help you acquire merchants so people can pay for everyday goods and services with M-PESA.” We were the first to do that in the mobile money industry, and we are currently the largest third party doing it.

Why did you decide to incorporate in the U.S.?

We incorporated in the U.S. because we are Americans and planned to raise money from U.S. investors. For tech startups in the U.S., you either incorporate in your home state, in the state of your investor(s), or in Delaware as a C corporation. For a U.S. technology investor, that’s kind of the gold standard. So all lawyers in the U.S. are educated or taught on Delaware Case Law. C corporations can raise money from local and international investors. They have good board protections etc. So because we were raising money in the U.S., we incorporated in Delaware and have a branch in Kenya rather than a subsidiary. All of our shares are domiciled in Delaware, and that’s again for investors. If we had a subsidiary, then we’d have shares sitting in Kenya, and that can complicate things in an exit.

The company was designed to be enticing and relatable to the investor and also kind of designed from the beginning as a technology company to be prepared in the event of an exit. So if someone wanted to acquire us, if we wanted to list on a stock exchange, that’s how investors get their money back. If you want to get investment, you have to be prepared. It’s not just what’s the product, what’s the opportunity, what’s the problem you solve, or how big is it? It’s also, how will I get my money back, and how long will it take, because they are not charitable organizations. So if they invest in you, on year three of their funds, they have seven years to get their money back. And so they are thinking in terms of an exit timeline from the very moment you shake hands. So you need to have a structure that accommodates that.

How about your employees? How do you engage them?

Building Kopo Kopo is a mission, not a job. And by mission, I mean a higher calling—something both important and meaningful that is greater than our individual selves. We wanted a compensation package that reflects that, and we wanted everyone to be aligned toward the same outcome. Every employee has a stake in the company's future—engineers, sales personnel, drivers, janitors, *everyone*.

The way it works is that every new employee signs an Employee Stock Option Agreement that entitles them to purchase shares at a strike price in the event of an acquisition or IPO. We also pay competitive salaries, so there aren't any real trade-offs. It's the best of both worlds.

Some time back I heard you talk about the “PayPal Mafia of East Africa.” What makes it so valuable?

Silicon Valley is both ecosystem and mindset. The ecosystem is a function of mature capital markets, supportive institutions, and experienced entrepreneurs. It's common to see successful entrepreneurs in Silicon Valley become investors, and for good reason: They offer capital and, more importantly, empathy and expertise. Look for example at all of the consumer Internet companies you know today, the big ones, Facebook, Twitter, Foursquare, etc. Most of them have PayPal employees invested in them. So when PayPal IPOed, it made a huge number of millionaires, and now those employees are seeding entire generations of investment and starting new companies. You see it in 500 Startups, too. I mean, it's all over the place—Peter Thiel with Palantir, Elon Musk with SpaceX and Tesla. These are all PayPal people. We want to see that same ecosystem develop in East Africa.

Specifically, we talk about building the “PayPal Mafia of East Africa” because we want our team to become the first batch of entrepreneur-investors in the region. Their experience building a company and withstanding the ebbs and flows of entrepreneurship are a real and lasting asset.

What's happened here so far is that different parts of the ecosystem are developing parallel to one another. You have the incubators like iHub,

Nailab, iLab Africa, m:lab East Africa, and all the accelerators. You have angel investors starting to come from other markets. And this is all happening at the same time. What hasn't happened yet is there haven't been many successful exits from the technology community because it's so young. And because of that, you don't have many first-generation tech entrepreneurs that are wealthy enough to invest in the next generation. So we need a big exit, and then we need the members of that community to become the PayPal Mafia. That's the missing element.

Five years from now, I'd love to see our earliest employees behind the biggest startups on the continent. That's my personal vision of success.

How essential are investors from Africa to realize that vision?

I don't think it's about creating African investors or Silicon Valley investors or European investors. I think it's about learning a skill and paying that skill forward irrespective of region or nationality. We built a company from the ground up in Nairobi. That's what we know. As we've grown, we've seeded partnerships and cut our teeth throughout the continent. So I'm not on a mission to create "African investors"—I'm on a mission to create entrepreneur-investors that know their markets better than anyone else.

Should ICT ventures aim at becoming strategically valuable for a foreign buyout, reach for an international IPO, or simply not worry about it because other things matter? What is your strategy?

There's a saying that "companies are bought, not sold." I think that's true. Our main priority has been to build a big, defensible company. With defensible I mean that we're in the business of digging moats to protect our castle from attack. A company that is not defensible cannot withstand attack, or direct competition. In other words, to be defensible means that you have to capture a market segment quickly, patent some kind of unique IP, or jump over a material barrier to entry. Defensible companies are hard to replicate or attack.

We've made mistakes along the way in terms of prioritizing incorrectly. For example, we scaled prematurely. Specifically, we hired for the business

that our projections said we would have, not the business that our cash position dictated we actually had. We spent too much too quickly, and then we missed our targets. Another example is that we should have hired a chief financial officer or head of finance as early as 2013 or 2014 but only filled this role in late 2015.

In retrospect, I think we would have been more successful in the capital markets, if we had someone strong in the finance role. Despite these setbacks, our strategic goal has always been to build a big, defensible company. If you do that correctly, then there's a ready exit path.

How have you managed the tension between openness versus closed-ness when it comes to broadcasting information about your company?

We've probably been *too* open, insofar as we've always broadcasted our work. We've blogged about our work on the Kopo Kopo blog. We've also shared insights through industry blogs (e.g. CGAP, GSMA, and FSD Kenya). We've also talked about many of our insights and findings at industry conferences around the world. On the one hand, we've had a number of competitors try to replicate our ideas. On the other, the global industry knows and looks to our work. So it's hard to tell if our openness has been an asset or a liability. In general, though, it's who we are—it's in the DNA of our company.

What are some of the not-so-obvious risks you can get into when running a business in Kenya?

Risk is a relative term. It's important to understand the day-to-day context of your customers, employees, and partners. Growing up in the U.S., my idea of risk was relatively limited, and I mean this in the literal sense. We lost a friend in the 2013 Westgate Mall attack, and one of our board members was murdered in Nairobi in 2014. My wife and I also repelled or escaped repeated home-invasion attempts and a carjacking in 2014. As a result, I now think about security every single day. Growing up in the U.S., I never had to be so conscious of

physical security. We often talk about the relationship between risks and rewards. To be clear, there are real and significant risks to operating a business in an emerging market. Things don't often go south, but when they do, they go south quickly! That's a realization that inspires humility and patience.

Thank you, Ben!



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15

Entrepreneurship for Society: What Is Next for Africa?

Tim Weiss

Concluding Thoughts

Digital Kenya is a modest representation of the powerful space and time in which an inspiring generation of entrepreneurs finds itself at the present moment—a generation that is working actively to bring the benefits of the digital age to every citizen and organization of Africa, unleashing the power of modern-day technology for the benefit of society. Above all, it is a generation that seeks to help create a brighter future full of opportunities and possibilities for the many generations to come. The book has sought to capture this intriguing moment and—like the snap of a camera’s shutter—permanently conserve and document its uniqueness.

In this volume, we have not focused on the so-called hard facts that find truth in numbers, models, and calculated projections that explain how entrepreneurship contributes to creating new organizations, technology developments, employment, and economic growth (for a

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review, consult Aldrich (2005). Instead, we have focused on the underlying fabric—the vivid stories, ideas, beliefs, and opinions—of economic exchange that brings a society and its economy to life. Besides the uncontested drive for wealth creation in entrepreneurship, the chapters and conversations have also revealed a strong and visionary “itch” to overcome and remove prevailing constraints so as to allow change, progress, and development to occur—not just for the benefit of the individual entrepreneur but also to unleash a transformation for the benefit of all. With this in mind, the book offers illustrative examples of entrepreneurship as a societal project in which the creation of wealth and change happen for society, a process that Rindova et al. (2009) called *entrepreneuring*. Hence, the quest of bringing about something *new* dominates—“a new idea, a new thing, a new institution, a new market, a new set of possibilities for the entrepreneuring individual or group and/or for other actors in the environment” (Rindova et al. 2009). In other words, entrepreneuring is about breaking out of the old mold of dusty constraints that restricted and held back in order to imagine and practice a new tomorrow.

David Audretsch (2007) said that earlier economies built on the manufacturing paradigm—in which the organization man sought perfection in standardized production units and economies of scale—which have been replaced by the entrepreneuring (wo)man, who reigns through creativity, outside-the-box thinking, nonconformity, independence, and the pursuit of a greater mission that fuels the “itch” for something new. The reason behind this shift is simple but powerful. Although the production of physical goods has increasingly been outsourced to offshore locations—think of Nike’s original equipment manufacturing model, the so-called Nikefication—the production of knowledge has had to remain in place. In fact, the “right” location mattered and is today of pivotal importance in turning investments in knowledge into social returns that fuel economic growth and job creation (Audretsch 2009). Now if knowledge production through creative ideas and world-class innovations provides the competitive edge over manufacturing in today’s global economy, then Kenya has the opportunity at this point in time to take on an all-new role in the digital economy—from offshore location to knowledge creator, a vision embodied in the slogan “Also designed in Kenya and made in

the USA,”¹ crafted by the Kenyan start-up BRCK to highlight both the importance of creation over manufacturing and the similar development trajectories of its product and US President Barack H. Obama.

In fact, as change creation and wealth creation continue to fuse in the remarkable narratives of a new generation of entrepreneurs in Kenya, it has become evident that the entrepreneurs’ motivation is grounded in a complex nexus of goals and values, in which financial goals are just one among many others and are quite often not the primary ones (Rindova et al. 2009; Baker and Pollock 2007; Ruef 2010). Put differently, “studies across a number of nations have consistently shown that values such as desires for autonomy, to express creativity for its own sake, to pursue innovation, and to be one’s own boss typically dominate financial goals in motivating entrepreneurship” (cited in Rindova et al. 2009, originally from Baker and Pollock 2007). As a result, entrepreneurship is not a schizophrenic endeavor divided between societal and financial goals. It is much rather in its essence both, about social change and about wealth creation. Note that the label social entrepreneurship, despite its normative push toward recognizing and making the social aspect of entrepreneurship even more prominent, is, given this understanding, “not only unnecessary but potentially not valid, since many entrepreneurs seek to improve their economic positions through the impact of broader social change” (Rindova et al. 2009). As Eleanor Marchant showed in her chapter, key actors in Kenya’s technology sector creatively combine a social-change agenda with wealth creation to remove constraints for themselves and the wider ecosystem. It makes them pivotal actors in the scene.

Against this background, I will undertake a brief synthesis of the book—a few key takeaways—through a closer look at four overarching themes that are grounded in (though they also have relevance beyond) Kenyan entrepreneurship—namely, mindset change, creation of newness, critical reflection, and location as a comparative advantage. These are of central importance, because none of the chapters or conversations could have done without at least one of them. In a final step, I will take a leap into the future—the road ahead—and briefly outline four additional

¹A marketing slogan developed by BRCK (http://whiteafrican.com/wp-content/uploads/2015/08/Obama_MadeInKenya_BRCK.jpg) for use during President Obama’s visit to Kenya in 2015.

themes that have yet to receive attention as the entrepreneurial revolution in Kenya's knowledge economy unfolds—namely the dark sides of entrepreneurship, of the future's in the past, of Pan-Africanism in business, and of Africa's response to grand global challenges.

An Attempt at a Synthesis

Among African economies, Kenya stands out as a stellar example of a thriving and growing technology sector. It is thus a good time to draw some conclusions that might also be of value beyond Kenya, in particular for other African economies that decide to explore a similar path. In the four overarching themes explored below, I will dive into a brief assessment of the book's corollaries by interweaving its chapters and conversations into a single narrative and laying out a number of agenda items that call for further mindful scrutiny.

Mindset Change

In our conversation with Anne Shongwe, she expressed that “I have dreamed of a future season when youth of my village will not run in hope at the sight of a Land Cruiser with a foreign agency logo on the car door—only door to turn away dejected by yet another broken promise of their finally being saved by the Land Cruiser guy. Instead, I have dreamed that the youth of my village will be so invested in ensuring that they not only define and shape their own destiny but that they also will build their own Land Cruisers.” Shongwe opened up a crucial debate with a striking image that embodies both the harsh reality of many Africans and a rich imaginary future of positive change and progress. She pushed us to think more deeply about the lens through which Africans view, experience, and act in the world (Asante 2015) and consequently advocated for instilling a mindset in young Africans that is grounded in self-awareness and autonomy where nurturing aspirations become key pillars for change.

While governmental and foreign aid efforts have focused strongly on infrastructural measures and governance projects as a basis for change,

using the individual and collective mindset as a starting point turns the debate about progress and development in a new direction—toward the self-image of Africans. Here, the formulation of new visions, ideals, and role models is a necessary precondition for citizens to align their internal image of the world with a new imagined future. With his introductory chapter, Bitange Ndemo describes a steady, albeit subtle, transformation toward embracing new and empowering values that center on the capabilities and agency of the individual. Disruption, creativity, and innovation become the central tenets of a new era. Hence, the personal quest circles around *What can I do within and for society?* Instead of surrender, paralysis, and frustration, Ndemo went on and brought forth, in his chapter on Kenya's policy arena, an example of how entrepreneurial—seeking out ways to actively overcome and remove perceived constraints—could set free new possibilities and opportunities. In fact, his entrepreneurial approach during his time as permanent secretary for Kenya's Ministry of Information and Communication proved to be pivotal in connecting Kenya to the global optical-fiber grid. In a similar vein, Weiss and Weber's chapter demonstrated that, in order to see the abundant resources in an environment, an open and mindful mindset is needed that gauges tension and contestation as spaces of opportunity. In particular, in today's globalized economy, a global mindset is a key asset for working through challenges and realizing new, global opportunities (Gupta and Govindarajan 2002). The logical consequence is clear, namely that initiatives are needed that take as their starting point the unique societal, communal, and individual conditions of African citizens in order to bring forth projects that can unleash a profound mindset shift. Whether these are from the private sector, government, or civil society, existing initiatives need to be strengthened further, and new initiatives should be developed. In particular, initiatives that extend their work to rural citizens and the poor can help ensure that their pivotal work will be of benefit to the many rather than just the few.

Our conversation with Ory Okolloh reemphasized the significance of the links between government, the private sector, and civil society. While common wisdom favors a culture to operate outside the purview of government—staying under the radar—Okolloh pushed back and brought the government back in. Hence, entrepreneurial does not

mean creating a parallel system wherever service delivery, for example, is malfunctioning; it means getting organized, communicating with a joint voice, and both feeding government officials with vital information and holding them accountable. A bypass may help solve a problem in the short run, but a permanent fix that includes crafting good policy will help society evolve better in the long run.

In our conversation with Judith Owigar, she took the power of organizing a step further and showed how getting organized around a common cause helps not only to bring new themes into the purview of society but also affects mindsets. Her organization, AkiraChix, has sensitized Kenya's tech scene early on to gender issues and women's rights in order to make the involvement of women in the field of technology an indisputable norm rather than an exception. These kinds of initiatives can iron out many of the pitfalls mature industry sectors in Western economies are suffering from and configure emerging industries in Africa with a different set of value and norms (Marquis 2013; Amaeshi and Idemudia 2015). Likewise, de la Chaux and Okune's chapter advocated for discursive spaces where heterogeneous groups tackle common challenges in new ways rather than forming homogenous groups that tend to reaffirm and solidify already-existing knowledge structures. The takeaway? Getting stuck in old behavioral patterns will not help with future challenges.

All this comes with an important caveat. In the entrepreneurial society, the individual advances to becoming the central actor, who—now equipped with agency—will make real changes. Here, the individual is seen as the source of and solution to society's problems (Frank et al. 1995; Brandl and Bullinger 2009). Hence, the value system shifts toward seeing individuals as being accountable and responsible for their own destiny. While this can be a desired outcome, the degree to which such a societal transformation is realized matters. Think of the perception of unemployment, for example. Is unemployment a result of personal failure? Or is it a result of a collective failure, in which extended family and society have not prepared the unemployed adequately for the job market. Depending on which side you choose, you will either leave the unemployed to themselves to make do in their situation or invest in them as an extended family or society to equip them with an adequate skill set. Our views of individualism not only play a role in these grand social questions, but can

also affect the development of new technologies, the conceptualization of products, the cultivation of relationships, and even the preservation of traditional values. Individualism cuts across all levels. Hence, resistance to it is preprogrammed in societies where increased focus on the individual also means the erosion of deeply held beliefs and rituals about interpersonal and intra-communal relationships.

A normative question about tradeoffs, pitfalls, and balances lingers underneath this value system shift: What is the right balance, if any, for societies in Africa between individualism and collectivism? Put differently, which traditional norms and values should remain and which new ones should be incorporated and adopted to foster rather than impede societal development? A living system such as a society needs a dynamic answer with constant revisions and refinements. After all, individualism in conjunction with prevalent economic concepts and approaches (i.e., neoliberalism) necessitates a holistic consciousness that can gauge and prevent profound negative societal implications—of which social isolation, extreme economic inequality, and environmental exploitation are just a few symptoms on a long list of global negative externalities. However, there is light at the end of the tunnel! A recent push toward a normative theory of business that sees the purpose of business in collective value optimization may well provide a common ground for society, in which the values of society and business are not seen as two forces that work in opposition but rather in conjunction and harmony (Donaldson and Walsh 2015). Again, it depends on your mindset whether you see tension and friction or opportunity and possibilities in something truly innovative and new.

Critical Reflection

Marissa Drouillard's chapter intriguingly demonstrated that a critical assessment and analysis of the environment can bring new opportunities to the surface. In fact, market inefficiencies—so-called institutional voids—can become a fertile ground for new digital platforms that “help to develop the overall market ecosystem so that other products and services can also flourish,” as she put it.

In the same spirit, our conversations with Munyutu Waigi and Su Kahumbu Stephanou each identified two societal nuisances that the digital age can help solve.

First, endemic corruption impedes government functionality with severe repercussions on society. Here, the digitization of services would not only bring Kenya's government into the twenty-first century, but would also limit or at least complicate adversarial behaviors that come at a high social cost. Consequently, the digital age can, so the hopeful thought goes, be a key pillar in reinstating trust in government. Second, agriculture has experienced a substantial loss of prestige in Kenya. Even though fertile land exists to feed not only Kenya, but also to supply the East African community, urban migration has been leaving the elderly and the poor behind to farm ancestral land. Sounding a call against industrial farming, Stephanou advocated for the power of digital solutions to make small-scale farming efficient and sexy again, with the aim of feeding and employing Africa's population through sustainable farming practices that also have the potential to feed populations beyond the continent's borders.

In a similar spirit, Wamkoya and Ng'weno's chapter laid out an award-winning social business model that honed in on the high levels of youth unemployment in Kenya. Here, the social impact agenda dominated, making business process outsourcing more than just an employment- and wealth-creation opportunity, but also a means to transfer crucial knowledge to the nation's youth. The key takeaway was that the knowledge economy provides a new context and new resources to entrepreneurs seeking tailor-made solutions to societal problems (Weiss and Weber 2016).

Taking a slightly different angle, our conversation with Conrad Akunge dove into the education sector and questioned the dominant cramming culture, in which the hiring process, morphs into role-playing between employers and potential employees about "who is fooling whom?" Instead of developing reflective, critical, and creative thinkers, the current education system rewards people who perfect the art of reproducing, not applying, knowledge. Arguably the repercussions of turning Kenya's technology sector into a global hotbed of innovation are substantial and will require a reform of the educational system to meet today's

new workforce demands. Larson and Munger's chapter proposed a radical approach. As an alternative to emulating other education solutions from abroad, as if a global one-size-fits-all approach would work, they called for a reimagination of education delivery. This can be done by basing the new, digital solutions on a comprehensive analysis of the education sector and drawing on the latest advances in technology to help craft a workable, digital solution tailored to the realities of the context. This approach bears the potential to imagine entirely new forms of education delivery that break with existing models and may prove more suitable for Africa and the Global South in general.

New developments and trends, however, also require critical analysis in order to fully understand the effects of change. In particular, the mythical character inherent in information and communications technologies (ICTs) as remedies for social and economic problems demands critical inquiry. A seemingly sacred charter fueled by seductive tales of heroes (Patai 1972)—in this case, the highly successful entrepreneurs, investors, and inventors equipped with their digital theory of change—instills the belief that, together, entrepreneurship and ICTs can solve the world's many challenges (Miscione 2015). Harvard's Vincent Mosco vividly illustrated how, for example, the reigning wish for an abundant and equal distribution of information is believed to democratize power and encourages a sense of freedom. Yet, much like the promise of other, earlier technologies (e.g., electricity or steam engines), the myth conceals the fact that technology's control continues to remain in the hands of a few global businesses (Mosco 2005). As Mosco put it, "The magic wand of computer communication is undeniably seductive. It is also undeniable that much of the allure is manufactured by the very companies that stand to benefit from the sale of computer technology software, and access to the Information Highway. Indeed, we are in the midst of a worldwide effort, organized by many different companies and governments in many different ways, to make computer communication a transcendent spectacle" (Mosco 1998). Instead of leveling the playing field, old power structures reproduce themselves after all. Cheerfully unaware, we build start-ups, design innovations and take for granted that our first hits on Google tend to come from abroad. Digital solutions can be effective tools, yet the creators and users need to be mindful of the terms that structure their

use, because those who set the rules control the information flow. In such an environment, it is highly negligent not to investigate the structures in which Kenya as a society and its entrepreneurs operate. We should ask ourselves, What are the intended and unintended consequences of putting new technology to work for society? And who are the ultimate beneficiaries of, for example, big data initiatives, the development of artificial intelligence, Bitcoin, or free Facebook usage? More work is needed that can provide answers to these difficult questions.

Creation of Newness

Arguably, the most difficult passage in entrepreneurship is the creation of something new and bringing about change. In our conversation with Jimmy Gitonga, he made a consequential move by reaching the conclusion that “Silicon Savannah” is an inadequate and misleading term to describe the character of Kenya’s technology sector. He proposed instead an original term grounded in the language and memories of Kenyans—Digital Nyika. Although the term may seem a marginal novelty at first, it in fact has profound implications if taken seriously and carried forward. As Thiong’o (2009) said, “Language is a communication system and carrier of culture by virtue of being simultaneously the means and carrier of memory”—and hence the term Digital Nyika activates the memories of Kenyans and connects it to their future. New meanings can arise, meanings that can be further developed by Kenyans and have the chance to break free from predefined structures. Mark Kaigwa’s chapter intelligently continued this line of thought and demonstrated how social media gave rise to a new class, the “connected Kenyans.” They have become the narrators of their own destiny, locally and globally, with a great likelihood of precipitating a cultural shift in the contemporary interpretation and perception of Africa in the world (Mudimbe 1994) that is driven by the heart of the society (Kaigwa and Wu 2015).

Disruption has become a synonym for newness in the tech scene. Disruptive digital solutions are sought to fundamentally change established ways of doing things by breaking with convention, changing perceptions, or solving a previously unsolvable problem. Timbo Drayson’s

start-up OkHi has set out to do exactly that. In our conversation, he asserted that the secret of building a start-up lies in an obsession with solving a big, fundamental problem in society. The start-up's resources are then concentrated on finding the best solution to the given problem, and through constant iteration cycles something new arises—in the case of OkHi, a digital solution that will provide a virtual addressing system for the four billion people in the world without a conventional physical address. Although at first sight, this simply makes the job of logistics experts easier, the change is more profound than that. Here is why: OkHi created an empowering digital identity for those excluded from the system by unlocking the emotional, social, and economic value that stands behind physical addresses. Think of the consequences if an ambulance driver missed the correct turn on his or her way to you. Or think of the feeling that comes with finally existing on a map and receiving the services that the rest of the world already enjoys. Likewise, wealth and change creation became one in Elizabeth Rossiello's BitPesa. During our conversation with her, she showed how her start-up translates the manifold opportunities of Bitcoin into a new way of transferring cash within Africa and beyond. In essence, the digital solution broke free of the old mold of expensive, bank-dominated cash transfers by using a decentralized ledger technology to bring cross-border cash transfers into the digital age. These ambitious examples demonstrated how entrepreneuring new solutions can overcome and remove longstanding constraints in order to effect positive change for individuals and for society.

Entrepreneuring, however, does not stop with government. Quite the opposite. As Bitange Ndemo's chapter showed, an entrepreneurial approach to policy-making helps to ensure that something actually gets done. The risk-taking usually associated with the private sector is equally part of the strategic decision-making process in the policy arena. In a recent paper, Waswa and Juma (2012) pushed Kenya's Vision 2030 a notch further. They laid out a policy plan to develop an outer space sector in Kenya, saying, "A domestic space sector generates a multiplicative development effect and enables making Kenya 'customise' space applications for its own consumption. Such a position is preferable to the current one where Kenya is a mere ad hoc user of space technology products and services conceived elsewhere without any significant capacity to

influence the source.” Again, entrepreneuring also means imagining and pursuing new futures for the benefit of society.

A focus on the creation of newness is a daunting challenge that demands conducive working environments, specific competencies, and carefully placed financial investments (Shane 2009). First, we need to ask, What are the principal challenges in dire need of new solutions in African societies? This question calls for a holistic comprehension of the causes rather than a surface treatment of symptoms. Second, if at all possible, How can the creation of newness be strategically incentivized? While research on innovation processes and the like have developed profound models, their effective application in the African context still requires much attention. Our conversation with Jessica Colaço and Ibanga Umanah showed that the two of them set up shop with a venture builder to do exactly that—blend local and global knowledge to seize new opportunities that lie in deep fixes for society’s problems.

Inherent in the pursuit and appreciation of newness is the denial of the mundane. This can have severe consequences, because the inclusion, maintenance, and alteration of the new in society is equally important. In that light, an entrepreneur’s or start-up’s success becomes a function of the wider ecosystem and its condition. In other words, while disruptive innovations catch the observer’s eye, the proliferation, subsequent use of, and alteration of the innovation is crucial, as evidenced by the diverse set of developments that the original M-PESA technology has set in motion (Omwansa and Sullivan 2012). Without the daily work of countless shop owners and intermediaries in Safaricom’s agent network and new solutions by entrepreneurs to further extend and alter its application, the impact of mobile money transfer on Kenya’s society would only be a fraction as profound as it is today. Hence, the absorptive capacity of the ecosystem and market environment plays a significant role. What are successful strategies to test, anchor, and scale innovations within a given African economy and beyond national borders? In particular, applied research by private sector consultancies can shed light on the strategies and underlying mechanisms that influence the adoption, proliferation, and appropriation of African innovations in Africa.

Beyond that, while a shift from Afro-pessimism to Afro-euphoria has spurred a wave of global excitement for the Afro-moment (Onuoha

2015), the mobilization of cultural and economic resources needs to translate into tangible economic gains so that a gradual shift away from reliance on natural resource exploitation by foreign multinationals remains within reach (Taylor 2015). While busy nourishing the hype, the economic fundamentals should not be left out of the societal equation. On the contrary, they require careful attention from policymakers so that it all adds up to enhanced socio-economic development.

Location as Comparative Advantage

Despite the increased proliferation and benefits of communications technologies in a globalized and thus more connected world, physical location remains important. This holds especially true if the intention of seizing the opportunities of the knowledge economy is to be taken seriously. The nature and resource configuration of their location not only nourishes and raised companies but also—as this book shows—serves as their unique space for inspiration. Ushahidi and the iHub, for example, are two successful examples that can bear witness. A unique human capital pool in conjunction with careful investments in research and development hold the potential to set in motion a domino effect, in which increased global awareness of location can trigger the inflow of additional resources.

Muriuki Mureithi and Johannes Bramann outlined in their respective chapter the unique ecosystem effects that governed the emergence of Kenya's technology sector. Interestingly, an entrepreneurial revolution started in Kenya from the bottom up with minimal infrastructure in place. Perhaps best understood as grassroots movements (as evidenced, e.g., by the fact that there are now more than 90 technology hubs in Africa²), this dynamic parts ways with the top-down, policy-driven approach previously believed to instigate innovation on such a scale. Epitomized by the romantic slogan "Innovation follows regulation," this all-too-attractive approach requires academic scrutiny, especially for economies trying to enter the knowledge economy as knowledge creators. Inherent in the label

²For updates on the latest count, see <http://blogs.worldbank.org/ic4d/tech-hubs-across-africa-which-will-be-legacy-makers>.

is the risk of justifying a *laissez-faire* approach to policymaking instead of taking more adequate action—that is, a structural change in government that rewards and fosters innovation for society instead of trying to kill it because of institutionalized neophobia. Or, to put it more bluntly and use the words of our conversation with Erik Hersman: “So the role of the government is very simple: To reduce friction in the system for the technology industry to grow.” Policymakers must ask, What are the distinct features and mechanisms that drive social movements in African societies? How can they be further nourished with the goal of fostering innovation output for society? And what are the successful policy approaches from the viewpoint of the society that can make government an enabler of, rather than an obstacle to, grassroots movement and innovation?

Although physical location can be an inspiration, it can also be a source of frustration. During my own research in Kenya’s technology sector, I came across an entrepreneur who said with great disillusionment in his voice, “We are supposed to compete globally, yet we have to deal with the constraints we face here in Kenya!” Indeed, in a global knowledge economy, entrepreneurs are asked ideally to perfect their skills in both the local and the global game. This book is, in fact, dedicated to the dire need for rich context-specific knowledge that makes sense of and helps guide the entrepreneurial journey onto the global stage. Investors are pivotal companions. Stephen Gugu and Wilfred Mworira’s chapter, in particular, filled an important gap. Although well-placed investments are crucial in helping strengthen and grow businesses, little is known—beyond industry reports driven by quantitative data—about the management structures prevalent in venture capital and private equity investment funds. Gugu and Mworira’s insights revealed that, indeed, adaptations to the unique East African context have been a key challenge to making equity investment a standard financing vehicle. This opens up opportunities for new research to identify and test the many creative equity model changes currently at play in the investment space and to further develop new ones with the aim of finding the best-fitting models.

Investment models that work are of great importance in triggering a stronger buy-in by domestic investors into domestic businesses. Leaving the opportunity to development finance institutions and funds from abroad again runs the risk of reproducing and solidifying existing power

structures in the global economy. In our conversation with Ben Lyon, for example, he proposed a model similar to that of the US “PayPal Mafia,” in which many of the founders and employees of PayPal sold their equity stakes after an acquisition by eBay in order to help invest in and found new companies. This model not only creates financial wealth among the employees, but also creates substantial entrepreneurial expertise that can be put to work in triggering a wave of new ventures.

The cry for location-specific research could not be louder. (To mention just a few, see Johns 2006; Marquis and Battilana 2009; Welter 2011; Bamberger and Pratt 2010; Rousseau and Fried 2001; Weick 1996; and Weber and Glynn 2006). Not only does context-specific research provide the immediate opportunity to translate novel findings back to the subjects studied, it is also a productive ground for new theory development (Zoogah et al. 2015). An award-winning research piece by Chris Yenkey (2015), for example, mapped out the proliferation of stock market practices across Kenya. Using data from the Nairobi Stock Exchange, Yenkey discovered that investments in the stock market were not just geographically clustered in Nairobi but were spread across the country as a whole and across ethnic lines. His research uncovered the prevailing social mechanisms, showing that Kenyan investors identify themselves with a common market rather than as agents of competing social groups. In particular, for societies that are highly fragmented along ethnic lines, these findings are an eye-opener. Without his research, this novel finding would have remained hidden in Kenya’s social fabric. I concur with Lewin (1945) that “nothing is so practical as a good theory.”

Richer descriptions, analyses of contextual events, and comparative studies are needed (Rousseau and Fried 2001). The call for more context-specific research is anything but a no-brainer. In seeking out a publisher for this book, Ndemo and I were asked repeatedly by prominent publishing houses to write a book instead about technology entrepreneurship “in Africa.” In fact, most research in the field of management and organizations (though less so in the field of entrepreneurship) are somehow trying to conduct research “on Africa” as a whole without accounting for its enormous location-specific differences. We therefore opted for an apparently counterintuitive approach, seeking out rich descriptions of context and encouraging the many authors in this volume to focus on

the hidden but important details. We believe that, in a subsequent stage, comparative studies across Africa as a whole will be useful and needed to make sense of the regional differences and compatibilities among the continent's economies.

What is more, the local reliance on foreign educational materials and prescriptions emanating from foreign research conducted in foreign contexts can be fatal. Instead, research needs to be based on Afro-centric inquiries that takes the values and ideals of Africans as their starting point (Asante 2015). This would affect not only the questions we as researchers ask but also the educational materials we deem ideal for local classrooms. In essence, new Afro-centric research on business and educational materials that build on an Afro-centric epistemology are desperately needed. The wheel does not have to be invented anew. What is called for is stronger research collaborations across such disciplines as, for example, Africology, anthropology, African philosophy, entrepreneurship, and organization and management research.

The Road Ahead

An agenda for future entrepreneuring for society and its corresponding academic research could easily fill a chapter on its own, if not an entire new book. In the meanwhile, the purpose of the final section of this chapter is to highlight four agenda points that have received little or no attention in public discourse and research. However, as the entrepreneurial revolution unfolds in Kenya, spills over, and joins into that of other African economies, the four themes explored below will force themselves onto the agenda.

The Dark Sides of Entrepreneurship

Entrepreneurship and entrepreneurs are widely celebrated as heroes of modernity (Brandl and Bullinger 2009), yet entrepreneurship can also come with a destructive and exploitative force that affects individuals, society, and the environment (Rindova et al. 2009). Behind the glamor lingers

an often-ignored side of entrepreneurship. Excessive risk-taking and work pressure come at a personal cost and have societal implications. The high mortality rate of start-ups, for example, triggers excessive stress, burnout, and peer pressure that are “on mute” in most conversations among entrepreneurs. The ubiquitous image of a strong and invulnerable male entrepreneur dominates local and global folklore (Ogbor and Avenue 2000; Cardon et al. 2009), drawing a veil over the actual social and physical tolls that entrepreneuring takes on the individual, such as social isolation, drug abuse, alcoholism, and deteriorating physical and mental condition. The pendulum, however, can also swing in other directions, including harmful behaviors, such as overconfidence, greed, unwillingness to share control, and power abuse as outer manifestations of worrisome personal conditions that affect start-ups’ functionality. For entrepreneurs, “there is a fine line between being highly confident in their abilities to be successful in an entrepreneurial endeavor and exhibiting hubris” (Haynes et al. 2015). What this reveals is a need for a look behind the scenes of entrepreneuring. We need to ask, What are the social dynamics among entrepreneurs in Africa? What happens to entrepreneurs in Africa who fail? Special attention needs to be placed on young entrepreneurs that enter the digital economy between the age of 20 and 30. How does failure affect their life trajectory? Eskor John’s chapter and our conversation with Mikul Shah and Ritesh Doshi provided an interesting hint. They stressed that the parallel entrepreneur, or hustler, is involved in multiple undertakings, which have significant effects on company growth. But what are the effects on personal wellbeing? One may hypothesize that entertaining multiple engagements at the same time may actually buffer the entrepreneur in African societies from the psychological costs inherent in entrepreneurship. If one venture fails, the entrepreneur can still rely on other income generating activities. More research is needed.

On a societal or environmental level, the negative externalities can be grounded in criminal entrepreneurship or in various unexpected outcomes of entrepreneuring. Drug and human trafficking run by mafias, for example, has garnered attention as the drug route from Afghanistan to Europe through East Africa has gained in importance (The Economist 2015). Similarly, illicit trade in ivory, timber, gold, diamonds, arms, or antiquities is a lucrative global market, creating societal, cultural, economic, and

environmental damage (World Customs Organization 2015). Another notion are the unexpected outcomes or unintended consequences of entrepreneurial action. Although change creation may aim at altering conditions, adverse outcomes can also become a reality. Because there have been so few long-term studies, few results are available, though an intriguing study of Pakistan's soccer ball manufacturing industry revealed how a global outcry about the prevalence of child labor led to a change in regulations and the abolishment of child labor in the industry—the change creation—yet the benefits for children were questionable, driving the affected children and women deeper into poverty, with far-reaching consequences (Khan et al. 2007). Without examining the aftermath of change, its intended and unintended consequences, it is almost impossible to gauge whether societal change for the better is actually happening—highlighting the need for more long-term studies of the unexpected outcomes and unintended consequences of entrepreneurship.

The Future Is in the Past

Although my position as a European, more precisely a German, researcher who conducts academic work in Kenya comes with myriad difficulties and a constant feeling of uneasiness about the role of my country's and continent's past in Africa—as well as a nagging feeling of uncertainty about the authority with which I can enter the terrain of knowledge production—I do want to follow the lead, in this section, of many critical African thinkers in order to strengthen the strand of inquiry that lies at the intersection of African history, entrepreneurship, and organization and management research.

For the Kenyan philosophers Mwalimu Ali Mazrui and Ngũgĩ wa Thiong'o, the Congolese Valentin-Yves Mudimbe, and the African-American scholar Molefi Asante (to name just a few), the past is an important way to connect with the present and a basis for imagining the future. As Mudimbe (1988) said, "What I mean is this: the Western tradition of science, as well as the trauma of slave trade and colonialization, are part of Africa's present-day heritage." Not only is Africa an invention of the West (Mudimbe 1994; Mudimbe 1988), but

also “racial stereotypes that bred contempt and lack of understanding and became so deep rooted that they distorted even the basic concepts of historiography” (M’bow 1993) have severely complicated a clear view of African history, with profound repercussions for all spheres of societal life. That is why, as M’bow (1993) wrote, “Africans themselves have felt a deep-seated need to re-establish the historical authenticity of their societies on solid foundations,” of which the *General History of Africa*, counting by now nine volumes, is one outcome full of wisdom about the African condition. After all, “re-membering Africa is the only way of ensuring Africa’s own full rebirth from the dark ages into which it was plunged by the European Renaissance, Enlightenment and modernity. The success of Africa’s renaissance depends on its commitment and ability to remember itself, guided by the great re-membering vision of Pan-Africanism” (Thiong’o 2009).

Diving into one’s own personal, national, and continental history is a deeply personal journey, with recondite implications for present-day identity construction and the mindsets that govern how one’s world is viewed and acted on. For obvious reasons, discourse about the intersection of African history and modern-day entrepreneurship and organization and management studies has so far largely been absent. Yet, as entrepreneurs increasingly shape Africa’s present—and future—a connection with the collective memory of the past seems desirable if not indispensable, even in today’s global economy, in order to act with an informed consciousness in ways that accord with one’s own and society’s values and ideals.

Efforts that nourish a critical discourse—be they formal, informal, local, transnational, or global—need to be extended into the heart of society in order to avoid limiting the discourse to a handful of intellectuals in the academic realm. A thorough understanding of the historical dimension, so the belief goes, will ground and substantially enhance people’s unique entrepreneuring capabilities for the benefit of their societies. Research endeavors could start at the continental, national, or ethnic level, for example, by asking, What are the historical roots of entrepreneurial behavior in Kenya and other African economies? How have organizing concepts evolved over time within and across ethnic lines in a particular geographical cluster in Africa? What were the mechanisms behind the development, proliferation, and translation of inventions and innovations

within and across ethnic lines? Behind these and many other questions lies a wealth of wisdom—a treasure that needs to be lifted for the benefit of all.

Pan-Africanism in Business

In our conversation with Ken Njoroge, he expanded on his entrepreneurial journey and said, “I consider myself generally ambitious and motivated. Otherwise, why aim for a USD1 billion Pan-African company?” It seems self-evident today that Kenyan enterprises venture first into regional and Pan-African markets before even considering leaving the continent’s boundaries. The development and respective benefits of new technologies from Africa are thus deployed first in, and for the benefit of, other African economies—demonstrating that entrepreneuring does not stop within national borders but only within the “borders” of the technology (Beckman et al. 2012), continuing onward to scale and to outgrow its own market. A step toward increased Pan-African trade, collaboration and knowledge exchange driven by the private sector³ is becoming a vibrant reality, a development that was not obvious two decades ago when Mazrui (1993) wrote that “uniting against the foreign oppressor was one thing; uniting for internal development was another. The earlier part of this period of history [the twentieth century] has demonstrated that Africans are effective when they unite for liberation. The later part of this era demonstrated that Africans are finding it hard to unite for political and economic development.” Achielle Mbembe (2002) continued this line of thought, arguing that efforts to “re-invent a being-together” were largely relegated to peripheral importance, muting action that would focus on a renegotiation of the social bond among Africans who had been “corrupted by commercial relationships (the sale of human beings) and the violence of endless wars.”

It is against this background that Pan-African initiatives require particular attention. Osiakwan raised, in his chapter, awareness of developments at the Pan-African level by outlining similar trends that are affecting Kenya, Côte d’Ivoire, Nigeria, Ghana, and South Africa—and

³The trend in intra-African economic exchange is not confined to technology enterprises but also applies to banking, fast-moving consuming goods, and the hospitality industry, among others.

thus the evolution of a Pan-African knowledge economy. With his designation of the “KINGS” economies, Osiakwan introduced a sense of connectivity and a shared future at a Pan-African level that is likely to intensify as time passes. In particular, Pan-African conferences, workshops, Internet platforms, and organizations create a new dimension of entrepreneurship, one that works to overcome and remove constraints at the transnational level. Tony Elumelu, a Nigerian philanthropist, struck a similar chord with his efforts to foster entrepreneurial excellence at a Pan-African scale and by crafting the neologism Africapitalism, a management concept that seeks to remoralize capitalism in Africa by putting it to work for society and by thrusting African economies onto an equal footing with those of the rest of the world (Amaeshi and Idemudia 2015; Elumelu 2011).

These remarkable economic, social, and cultural developments require further academic inquiry to understand their full magnitude and potential. Raising awareness of these trends may also spill over into the policy arena and accelerate and strengthen a Pan-African agenda that reaps benefits for all African citizens and creates substantial economic power. Regional and Pan-African integration will provide further fuel to the already ongoing transnational entrepreneurial actions.

Africa’s Response to Grand Global Challenges

Catching up, reaching an equal level of socio-economic development, or leapfrogging technologies are some of the buzzwords that mingle in the current discourses on societal evolution strategies in Africa. Yet increased global migration, rising global economic inequality, a crippled world economy, global hunger and severe malnutrition, the effects of a deteriorating climate, and the crumbling façade of capitalism are just a few of the daunting global challenges that will require a new frame of reference for the current—and the next—generation of entrepreneurs in Africa. The task, therefore, becomes not only to develop African societies and to “catch up with the rest,” but rather to place grand global challenges at the center of entrepreneurial inquiry in innovation processes, asking, What are the responses from Africa to these grand global challenges?

The current innovation scenery among multinational companies, for example, is best encapsulated by the term “reverse innovation” (Govindarajan and Trimble 2012)—“developing ideas in an emerging market and coaxing them to flow uphill to Western markets” (Govindarajan 2012)—attesting a deep-seated mindset stuck in an old paradigm that sees innovation creation as a one way pipe leading “downhill” from the Global North to the Global South. Going against the flow then requires special engineering capabilities. However, innovation development on the globe today is much rather circular and dynamic in nature which makes countries of the Global South just as much a part of the global quest for innovations and inventions then the Global North. Indeed, we are all in it together.

Take Google X, for example, a research and development initiative by the company Alphabet (formerly known as Google), that seeks to grow a global community of radical innovators and inventors to tackle the world’s biggest challenges.⁴ In this worldview, the correct problem definition and solution can come from anywhere in the world, still, be mindful as to who is setting the terms for innovation and invention. Initiatives like this one, though still scarce, help create a global mindset among their members in which entrepreneuring means to overcome and remove constraints at a global rather than a local or transnational level. Arguably, truly path breaking inventions and innovations will come from a mindset in which solutions to grand global problems are just as important as local ones. And in fact, both approaches can be synergistic. There is a demand for similar initiatives from Africa.

Entrepreneuring around grand global challenges helps realize the potential to define a global agenda from an African perspective, with far-reaching implications for prevailing global power structures and the potential to propel global society forward in the quest for path breaking solutions. Indeed, the current—and the coming—generations of entrepreneurs are part of an exciting time, a time that in the years ahead will no doubt continue to unveil ever more of Africa’s unique entrepreneurial revolution.

To be continued....

⁴ See <https://www.solveforx.com>

References

- Aldrich, H. (2005). Entrepreneurship. In N. Smelser & R. Swedberg (Eds.), *The handbook of economic sociology* (pp. 451–477). Princeton: Princeton University Press.
- Amaeshi, K., & Idemudia, U. (2015). Africapitalism: A management idea for business in Africa? *Africa Journal of Management*, 1(2), 210–223.
- Asante, M. K. (2015). *African pyramids of knowledge*. Brooklyn: Universal Write Publications LLC.
- Audretsch, D. B. (2009). Emergence of the entrepreneurial society. *Business Horizons*, 52, 505–511.
- Audretsch, D. B. (2007). *The entrepreneurial society*. Oxford: Oxford University Press.
- Baker, T., & Pollock, T. G. (2007). Making the marriage work: The benefits of strategy's takeover of entrepreneurship for strategic organization. *Strategic Organization*, 5(3), 297–312.
- Bamberger, P., & Pratt, M. (2010). Moving forward by looking back: Reclaiming unconventional research contexts and samples in organizational scholarship. *Academy of Management Journal*, 53(4), 665–671.
- Beckman, C. M., Eisenhardt, K., Kotha, S., Meyer, A., & Rajagopalan, N. (2012). Technology entrepreneurship. *Strategic Entrepreneurship Journal*, 6, 89–93.
- Brandl, J., & Bullinger, B. (2009). Reflections on the societal conditions for the pervasiveness of entrepreneurial behavior in Western societies. *Journal of Management Inquiry*, 18(2), 159–173.
- Cardon, M. S., Wincent, J., Singh, J., & Drnovsek, M. (2009). The nature and experience of entrepreneurial passion. *Academy of Management Review*, 34(3), 511–532.
- Donaldson, T., & Walsh, J. P. (2015). Toward a theory of business. *Research in Organizational Behavior*, 35, 181–207.
- Elumelu, T.O. (2011). *Africapitalism: The path to economic prosperity and social wealth*.
- Frank, D. J., Meyer, J. W., & Miyahara, D. (1995). The individualist polity and the prevalence of professionalized psychology: A cross-national study. *American Sociological Review*, 60(3), 360.
- Govindarajan, V. (2012). A reverse-innovation playbook. *Harvard Business Review*, 90(4), 120–124.
- Govindarajan, V., & Trimble, C. (2012). *Reverse innovation: Create far from home, win everywhere*. Boston: Harvard Business Review Press.
- Gupta, A. K., & Govindarajan, V. (2002). Cultivating a global mindset. *Academy of Management Executive*, 16(1), 116–126.
- Haynes, K. T., Hitt, M. A., & Campbell, J. T. (2015). The dark side of leadership: Towards a mid-range theory of hubris and greed in entrepreneurial contexts. *Journal of Management Studies*, 52(4), 479–505.

- Johns, G. (2006). The essential impact of context on organizational behavior. *Academy of management review*, 31(2), 386–408.
- Kaigwa, M., & Wu, Y. (2015). #MadeinAfrica: How China-Africa relations take on new meaning thanks to digital communication. In A. W. Gadzala (Ed.), *Africa and China: How Africans and their governments are shaping relations with China* (pp. 149–170). London: Rowman & Littlefield.
- Khan, F. R., Munir, K. A., & Willmott, H. (2007). A dark side of institutional entrepreneurship: Soccer balls, child labour and postcolonial impoverishment. *Organization Studies*, 28(7), 1055–1077.
- Lewin, K. (1945). The research center for group dynamics at Massachusetts Institute of Technology. *Sociometry*, 8, 126–135.
- M'bow, A.-M. (1993). Preface. In A. A. Mazrui & C. Wondji (Eds.), *UNESCO general history of Africa. – Abridged ed. Volume 8 Africa since 1935*. James Currey/University of California Press .XIX–XXVII
- Marquis, C. (2013). Imprinting : Toward a multilevel theory. *The Academy of Management Annals*, 7(1), 193–243.
- Marquis, C., & Battilana, J. (2009). Acting globally but thinking locally? The enduring influence of local communities on organizations. *Research in Organizational Behavior*, 29, 283–302.
- Mazrui, A. (1993). Introduction. In A. A. Mazrui & C. Wondji (Eds.), *UNESCO general history of Africa. – Abridged ed. Volume 8 Africa since 1935* (pp. 1–25). James Currey/University of California Press.
- Mbembe, A. (2002). African modes of self-writing. *Public Culture*, 14(1), 239–273.
- Miscione, G. (2015). Myth, management of the unknown. *Culture and Organization*, 9551(October), 1–21.
- Mosco, V. (1998). Mything links: Power and community on the information highway. *Information Society*, 14(1), 57–62.
- Mosco, V. (2005). *The digital sublime myth, power, and cyberspace*. Cambridge, MA: The MIT Press.
- Mudimbe, V. Y. (1994). *The idea of Africa*. London: James Currey Publishers.
- Mudimbe, V. Y. (1988). *The invention of Africa: GNosis, philosophy, and the order of knowledge*. Bloomington/Indianapolis: Indiana University Press.
- Ogbor, J. O., & Avenue, C. (2000). Mythicizing and reification in entrepreneurial discourse: Ideology-critique of entrepreneurial studies. *Journal of Management Studies*, 37(5), 605–635.
- Omwansa, T., & Sullivan, N. (2012). *Money, real quick: The story of M-PESA*. London: Guardian Books.
- Onuoha, G. (2015). A 'rising Africa' in a resource-rich context: Change, continuity and implications for development. *Current Sociology*, 64(2), 277–292.
- Patai, R. (1972). *Myth and modern man*. New Jersey: Prentice-Hall Inc.

- Rindova, V., Barry, D., & Ketchen, D. (2009). Entrepreneurship as emancipation. *Academy of Management Review*, 34(3), 477–491.
- Rousseau, D. M., & Fried, Y. (2001). Location, location, location: Contextualizing organizational research. *Journal of Organizational Behavior*, 22, 1–13.
- Ruef, M. (2010). A sociological perspective on strategic organization. *Strategic Organization*, 1(2), 241–251.
- Shane, S. (2009). Why encouraging more people to become entrepreneurs is bad public policy. *Small Business Economics*, 33(2), 141–149.
- Taylor, I. (2015, October). Dependency redux: Why Africa is not rising. *Review of African Political Economy*, pp. 1–18.
- The Economist (2015). Drugs smuggling in Africa: The smack track. *Middle East and Africa*.
- Thiong'o, N. W. (2009). *Something torn and new – An African renaissance*. BasicCivitas: Books.
- Waswa, P. M. B., & Juma, C. (2012). “Establishing a space sector for sustainable development in Kenya”. *International Journal of Technology and Globalisation*, 6(1/2), 152.
- Weber, K., & Glynn, M. A. (2006). Making sense with institutions: Context, thought and action in Karl Weick's theory. *Organization Studies*, 27(11), 1639–1660.
- Weick, K. (1996). An appreciation of social context: One legacy of Gerald Salancik. *Administrative Science Quarterly*, 41(4), 563–573.
- Weiss, T., & Weber, K. Globalization in action: Templates, tensions and strategies of action in Kenyan technology entrepreneurship. Working Paper.
- Welter, F. (2011). Contextualizing entrepreneurship – Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, 35(1), 165–184.
- World Customs Organization (2015). *Illicit trade report 2014*. Brussels: WCO.
- Yenkey, C. B. (2015). Mobilizing a market: Ethnic segmentation and investor recruitment into the Nairobi securities exchange. *Administrative Science Quarterly*, 60(4), 561–595.
- Zoogah, D. B., Zoogah, R. B., & Dalaba-Roohic, F. (2015). Riding the tide: Management in Africa and the role of high-impact research. *Africa Journal of Management*, 1(1), 27–53.



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