

DIGITAL ENTREPRENEURSHIP IN AFRICA: AN UNEVEN AND CHALLENGING LANDSCAPE

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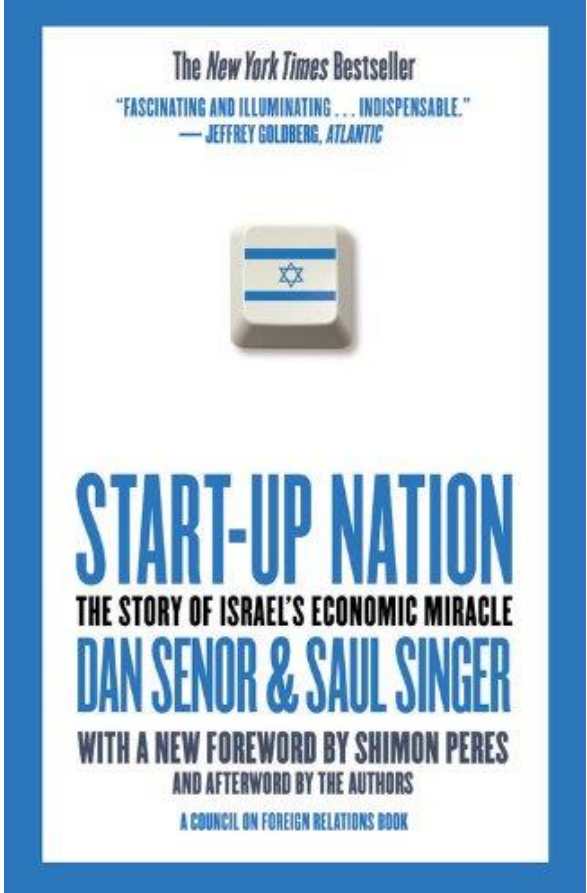
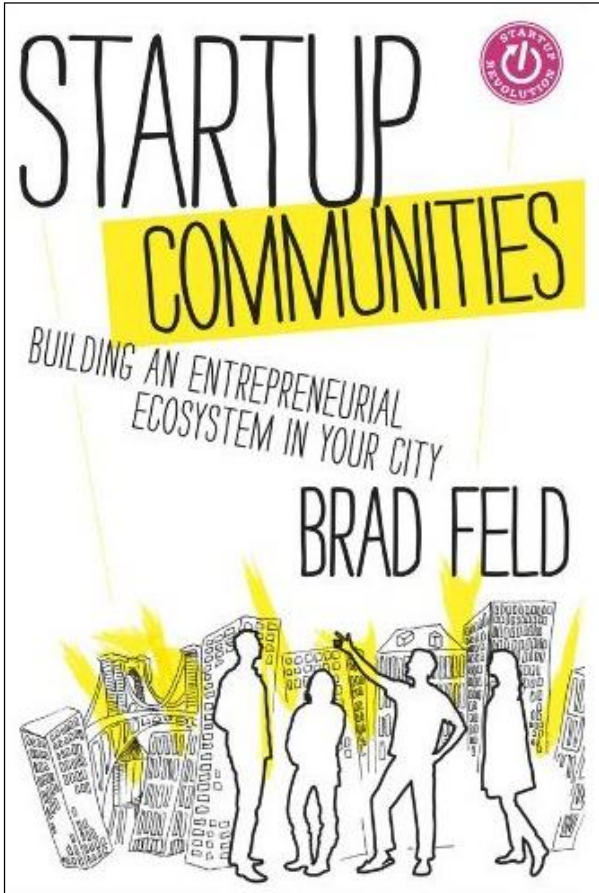
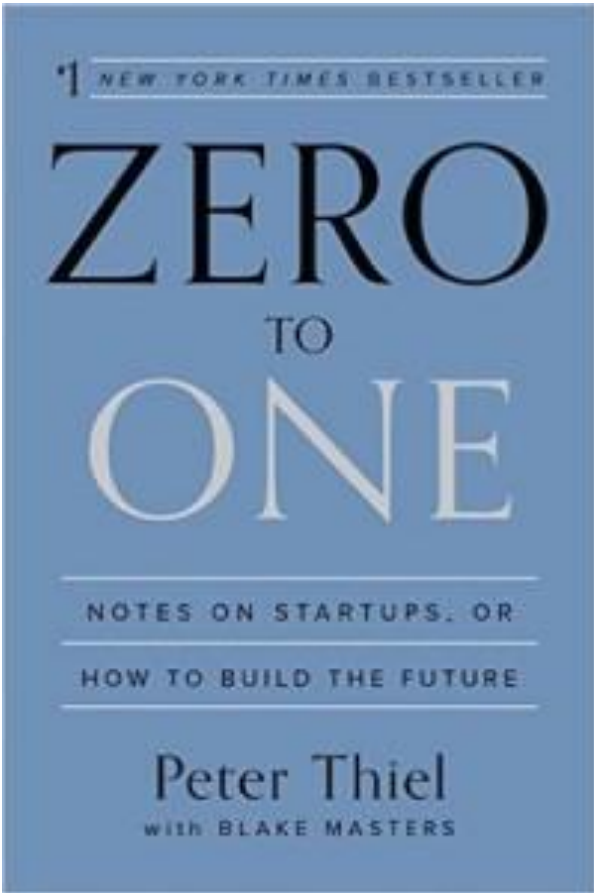
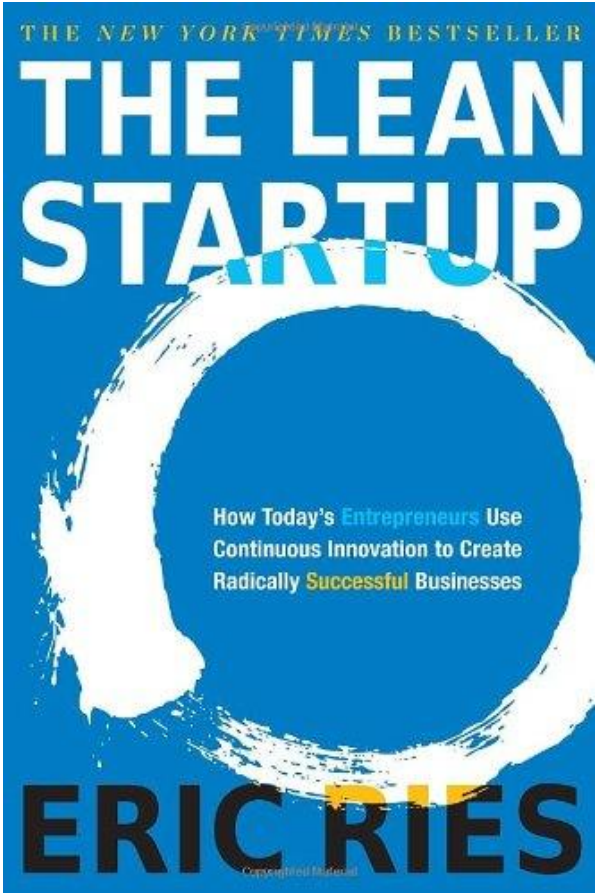
Motivation:

Developing an economic geography of African digital entrepreneurship

	Popular discourses	Academic research
Global / general claims	Lean Startup, high growth, Cambrian moment	Clustering & entrepreneurial ecosystems, boundaryless digital entrepreneurship
Africa-specific claims	Internet & transformation, digital entrepreneurship revolution	ICTD lit ?

RQ:
How does digital entrepreneurship as a practice & process that we commonly associate with the Global North work in African cities?

Global
discourses









Publicly traded companies [\[edit \]](#)

All market capitalization figures are in USD millions.

2016 [\[edit \]](#)

This list is up to date as of October 3, 2016. Indicated changes in market value are relative to the previous quarter.

Rank	First quarter ^[8]	Second quarter	Third quarter	Fourth quarter (To Date)
1	 Apple Inc ▲596,988.7	 Apple Inc ▼515,590.0	 Apple Inc ▲612,662.8	
2	 Alphabet ▼514,923.5	 Alphabet ▼475,160.0	 Alphabet ▲541,700.3	
3	 Microsoft ▼434,130.1	 Microsoft ▼399,710.0	 Microsoft ▲448,223.3	
4	 Amazon Inc. ▲356,119.4	 Exxon Mobil ▲388,710.0	 Amazon Inc. ▲401,629.1	
5	 Berkshire Hathaway ▲349,813.4	 Berkshire Hathaway ▲356,810.0	 Facebook ▲368,704.1	
6	 Exxon Mobil ▲346,616.5	 Amazon Inc. ▼▲333,650.0	 Exxon Mobil ▼363,175.4	
7	 Facebook	 Johnson & Johnson	 Berkshire Hathaway	

Alphabet's valuation ~ Nigeria's GDP
 Big five's valuation ~ 4.5 x Nigeria's GDP
 Big five's valuation ~ 280 x Rwanda's GDP
Big five's valuation ~ Africa's GDP

List of African countries by GDP (nominal)

From Wikipedia, the free encyclopedia

List [\[edit \]](#)

The 2016 estimates are as follows:^{[7][8]}

2016 Rank ↕	Country ↕	Nominal GDP (\$ billions) ↕
1	 Nigeria	537.966
2	 Egypt	330.765
3	 South Africa	266.213
4	 Algeria	165.974

Economy of Africa

Statistics	
Population	1.1 billion (15%; 2013 ^[1])
GDP	Nominal: US\$2.39 trillion, €1.80 trillion (2013) PPP: US\$ 3.757 trillion (2013)

Special report: Tech startups

Tech startups

A Cambrian moment

Cheap and ubiquitous building blocks for digital products and services have caused an explosion in startups. Ludwig Siegele weighs its significance

Jan 18th 2014 | From the print edition



2.1K



Cambrian

From Wikipedia, the free encyclopedia

The **Cambrian** is the first geological period of the [Palaeozoic era](#). It lasted from 541 million years ago to 485.4 million years ago.^[1] Before it came the [Ediacaran](#), and after it the [Ordovician](#).

Life on Earth changed greatly during the Cambrian period. Before the Cambrian, life was mostly small and simple. Complex organisms ([metazoa](#)) [evolved](#) during the [Proterozoic](#) era. But during the Cambrian period, some organisms used [carbonate minerals](#) for [shells](#), so they had hard parts which could become fossils. There were many different kinds of life during the Cambrian period. This diversification of lifeforms was relatively rapid, and is called the [Cambrian explosion](#). This [adaptive](#)



This *Marrella* specimen shows how clear and detailed the fossils are from

Clustering & evolution of tech entrepreneurship, entrepreneurial ecosystems

	General research

Creating a Cluster While Building a Firm

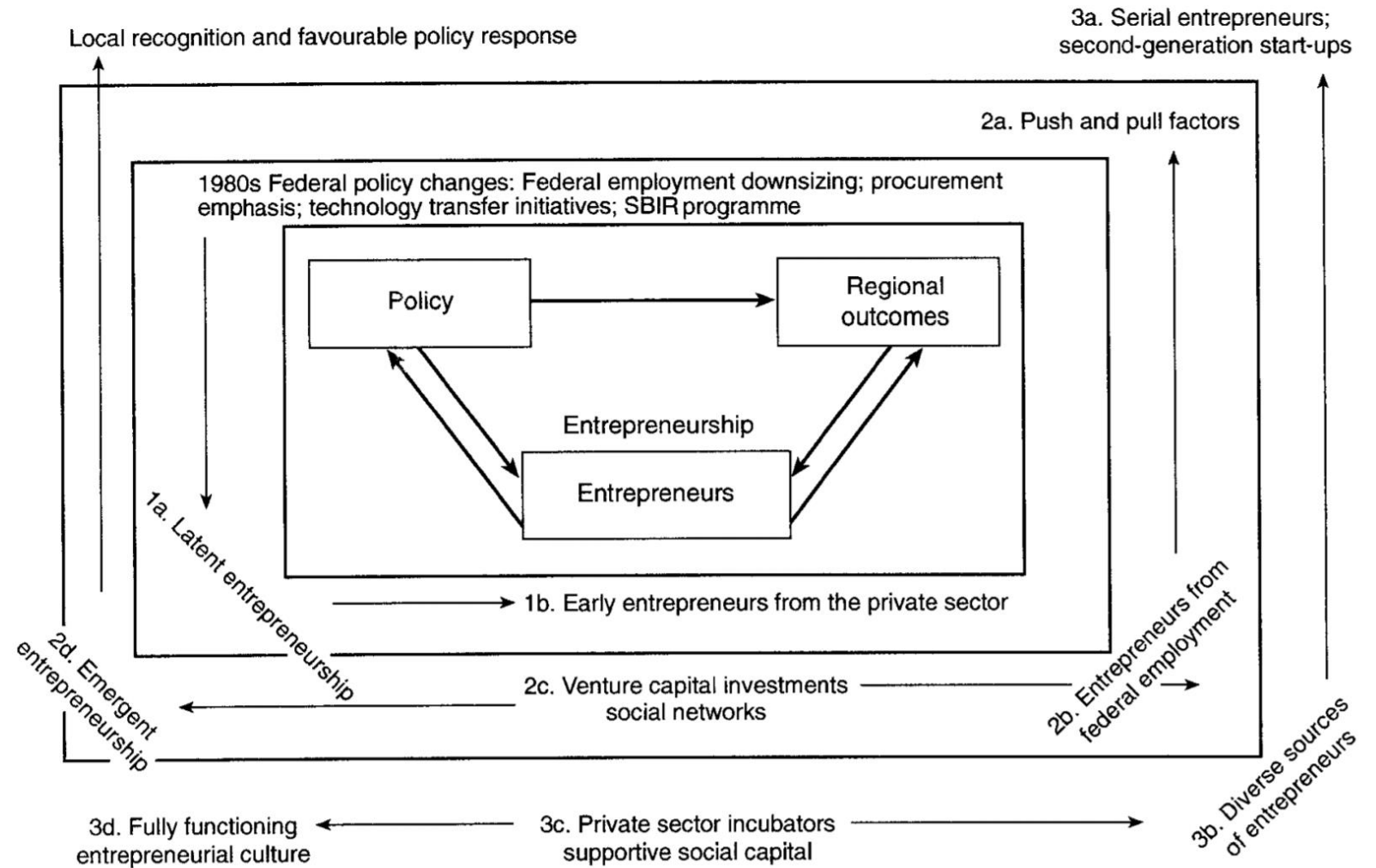


Fig. 2. Evolution of the entrepreneurial cluster

Digital entrepreneurship

Digitization makes entrepreneurship less space-/cluster-bound (Autio et al., 2017)

Intersection of digital technologies and entrepreneurship (Nambisan, 2016)

- less bounded entrepreneurial processes and outcomes (generativity & scale)
- less predefined locus of entrepreneurial agency

Platform companies like Amazon as global digital entrepreneurial ecosystems (Sussan & Acs, 2017)

Democratization of entrepreneurship (Aldrich, 2014)

Grassroots innovation, digital fabrication (Seo-Zindy & Heeks, 2017; Smith & Hielscher, 2013)



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Digital Entrepreneurship: Toward a Digital Technology Perspective of Entrepreneurship

Satish Nambisan

New digital technologies have transformed the nature of uncertainty inherent in entrepreneurial processes and outcomes as well as the ways of dealing with such uncertainty. This has raised important questions at the intersection of digital technologies and entrepreneurship—on *digital entrepreneurship*. We consider two broad implications—less bounded entrepreneurial processes and outcomes and less predefined locus of entrepreneurial agency—and advance a research agenda that calls for the explicit theorizing of concepts related to digital technologies. In articulating the promise and value of such a digital technology perspective, we consider how it would build on and enrich existing entrepreneurship theories.

Introduction

A primary focus of entrepreneurship research has been on understanding the nature and sources of uncertainty that underlie entrepreneurial pursuits and the ways by which entrepreneurial actions unfold amidst such uncertainty (Kirzner, 1979; Knight, 1921; McKelvie, Haynie, & Gustavsson, 2011; Schumpeter, 1934). Indeed, uncertainty “constitutes a conceptual cornerstone for most theories of the entrepreneur” (McMullen & Shepherd, 2006, p. 133). In recent years, the infusion of new digital technologies—such as mobile computing, cloud computing, social media, 3D printing, and data analytics—into various aspects of innovation and entrepreneurship has transformed the nature of uncertainty inherent in entrepreneurial processes and outcomes as well as the ways of dealing with such uncertainty. In turn, this has opened up a host of important research questions at the intersection of digital technologies and entrepreneurship—on *digital entrepreneurship*—that call for careful consideration of digital technologies and their unique characteristics in shaping entrepreneurial pursuits.

Specifically, digitization has upended two broad assumptions that underlie our extant understanding of entrepreneurial processes and outcomes. First, digital technologies have rendered entrepreneurial outcomes and processes *less bounded*—a shift from discrete,

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Africa-specific discourse	

Silicon Valley's days leading the tech revolution may be coming to an end...

The **future of tech** "will be written in Lagos, Nairobi, Kampala and cities across Africa," Jeremy Johnson the CEO and founder of Andela told CNBC. "We believe that **Africa** is going to emerge as a **very significant player in the global tech scene**," he said.

Companies are increasingly comfortable with teams that are **widely distributed**, he said... "that I think is **flattening out the world even more.**"

Increased internet penetration, mass urbanization and growth in **smartphone adoption**, combined with **rapid population growth**, has made Africa very attractive to investors.

"**Entrepreneurship is native to Ghana**, and now, with an influx of resources, an increasingly educated population, and access to technology — **new businesses**, start-ups and social enterprises, are emerging **en masse** to try and **solve some of the challenges** here,"

Also cf., Eric Osiakwan's KINGS arguments, <https://medium.com/global-entrepreneurship-summit/afi-leapfrogs-with-the-kings-eric-m-k-osiakwan-managing-partner-chanzo-capital-8a72f874032e>

TECH

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The future of tech is in 'cities across Africa,' says start-up CEO

- Africa has 300 tech hubs in 93 cities across 42 countries.
- Andela is one of the startups accelerating the continent's tech evolution.
- The Chan-Zuckerberg Initiative led Andela's series B funding round last year.

Chantel McGee

Sunday, 18 Jun 2017 | 10:00 AM ET



The laying of the first **fiber-optic cable** ... heralded a new chapter for cheaper telecommunication access. With it, **opportunities** to mainstream Internet access **were created**, such as... **start-up hubs where entrepreneurs had access to high-speed Internet**.

Africa presents a sea of economic opportunities in virtually every sector, and the continent's (comparatively **youthful**) **population** structure... an **enormous opportunity in this digital era**. The demand for online services is increasing, including the digitization of records to improve data visibility.

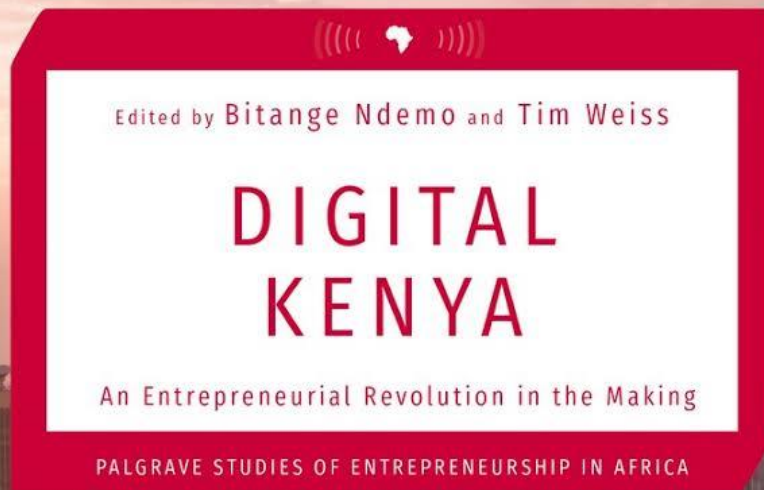
... **knowledge and technology combined** can change societies dramatically, creating **opportunities that were previously unthinkable**

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.

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**.

digital entrepreneurship revolution in Africa in the face of high unemployment rates, poverty, lack of technological infrastructure, and disparate cultural interpretations of entrepreneurialism and risk taking.



entrepreneurship is about **breaking out of the old mold of dusty constraints...**

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.**

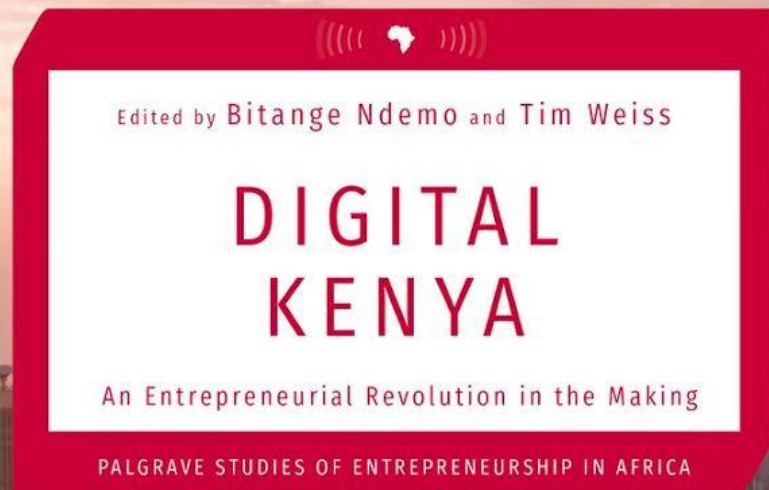
Now if **knowledge production** through creative ideas and world-class innovations provides the competitive edge over manufacturing in today's **global economy**, then **Kenya** has the opportunity at this point in time to take on an **all-new role in the digital economy**—from off shore location to knowledge creator

inspiring generation of entrepreneurs...—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.

a generation that seeks to **help create a brighter future** full of opportunities and possibilities for the many generations to come

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.**

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.**



	Africa-focused research



Highlights from related lit

Aker, 2010; Aker & Mbiti, 2010; Avgerou, 2003; Burrell & Oreglia, 2015; Carmody, 2013; Foster et al., 2017; Friederici et al., 2016; Maurer, 2012; Kleibert, 2016; Lundvall & Lema, 2015; Murphy & Carmody, 2015.

See also Graham (ed.), *Digital Economies at Global Margins*, MIT Press.

- “Thintegration:” Africa as a customer, no local R&D, incremental rather than transformational effects of ICTs
- Consultancies, corporations, development organizations as neutral observers & enablers vs. as self-interested influencers
- Unequal benefits: more affluent & more powerful appear to benefit more (at least in detail-oriented studies)

Geonet

Investigating the Changing Connectivities and Potentials of Sub-Saharan Africa's Knowledge Economy



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Digital Entrepreneurship

This third stream of the project centres on “digital entrepreneurship”. The stream will investigate how local conditions in African cities shape the mindsets and practices of local technology entrepreneurs and startup employees. The study will combine scale and depth, examining Lagos, Nairobi, and Kigali as in-depth case studies, as well as 10 other cities across Africa. This effort represents the first large-scale, rigorous, and grounded examination of African digital entrepreneurship. It seeks to go beyond the hype, exploring the palpable opportunities and limits of African cities to generate digital economies that are globally competitive and locally transformative.

Research themes



Our work so far

<http://geonet.oii.ox.ac.uk/digital-entrepreneurship/>

Research design

Comparative case study design

- Focus on Sub-Saharan Africa due to shared connectivity history, discursive context, & high number of low-income countries
- Three in-depth case studies: Lagos, Nairobi, Kigali
- 8-11 breadth-oriented cases: Accra, Kampala, Maputo, Gaborone, Johannesburg/Pretoria, Dakar, Abidjan, others

Emphasis on interviews to combine depth & breadth

Michel Wahome

Researcher

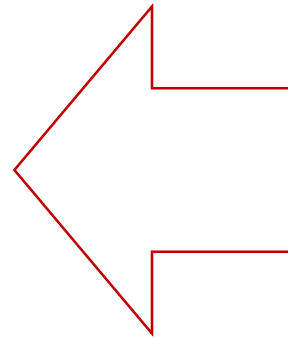


Michel Wahome researches the co-evolution of digital technologies, practices, markets and institutions in the Global South.

High-level findings

City-level differences: **kind and degree of digital entrepreneurship**

- Massive differences in entrepreneurial capacity
- Different business models
- Kigali far from level activity in Lagos & Nairobi



What's underlying the differences? All about **iterative, experiential technical & entrepreneurial learning**

- Individual: entrepreneurial knowledge, maturity
- Enterprise: differentiation, local adaptation, specialization
- Ecosystem: interactive learning, networks, communities

Check <http://geonet.oii.ox.ac.uk/blog/africas-digital-revolution-an-enterprise-perspective/> for blog post with some descriptive findings on firm-level



Entrepreneurial motivations & mindsets

The **infrastructure is still waiting to be built** here... I commit to the universe... Money is nice but for me, once you have a basic amount of money that you can live and be okay and **not have to rely on anybody**... I'm a capitalist, I'm not a social entrepreneur... It's not about how many people have you touched... No, **the business must be profitable**.
(Entrepreneur in Lagos)

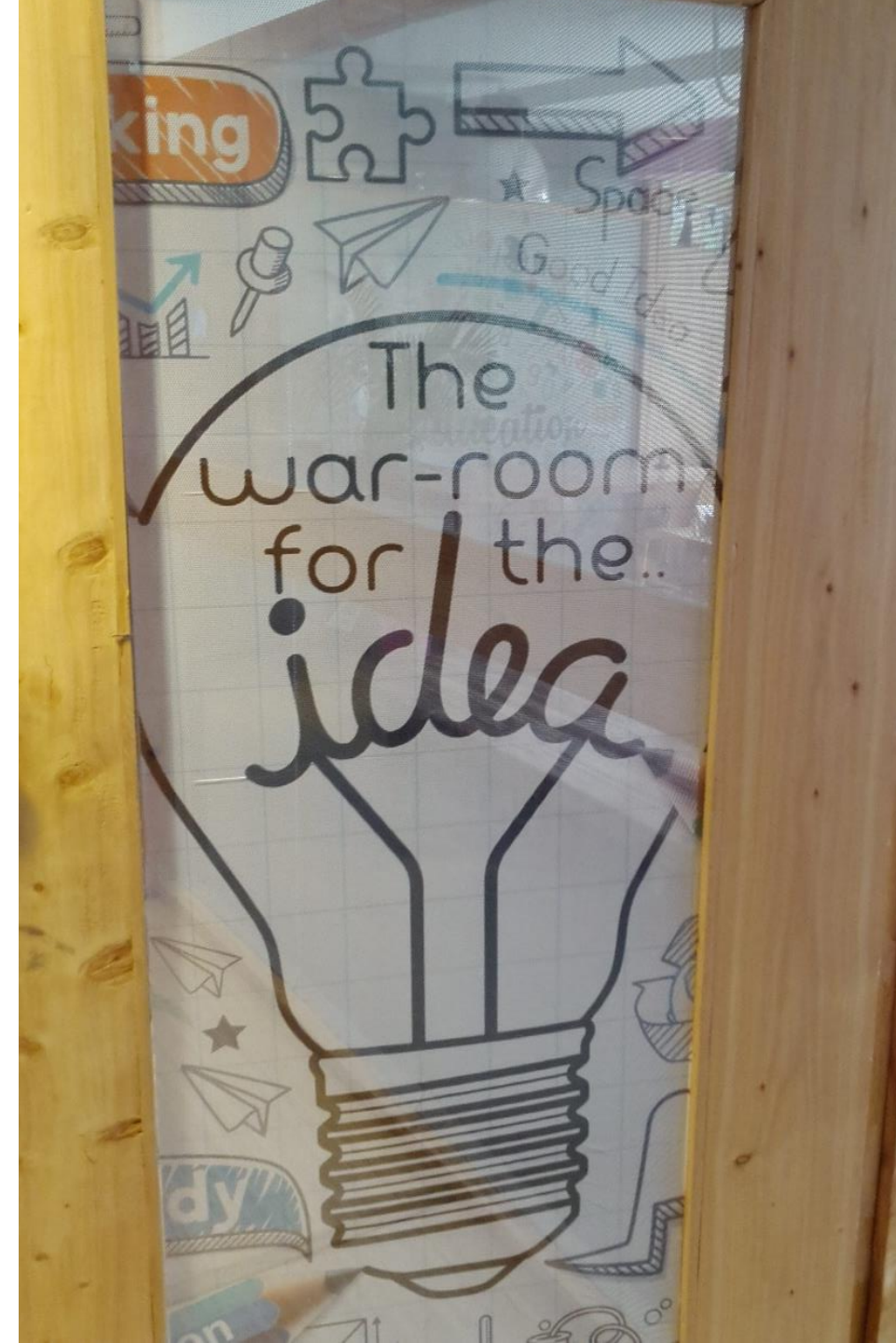
I'm also growing up, so maybe something is happening in my brain where you **forget about idealism** somewhere.
(Entrepreneur in Nairobi)

Us, we believe that we are the people who **are going to make this country develop**... Other fellow youth are just sitting there, waiting for the country to do everything... I, as a young entrepreneur—I see it as a contribution to the national development... and just **giving something big to the country**.
(Entrepreneur in Kigali)

Local markets I: Software competing / complementing global incumbents

Chances are anything built in Kampala, has already been built better for Kenya. It would be hard to make it compete... Specifically, when you're doing a **largely software company**, it's a flat market... You're not selling shoes, you're selling FarmVille, right? ... Everybody's trying to make Amazon for Africa, Airbnb for Africa. Well, **Amazon and Airbnb are already effective and would be hard to beat.**
(Entrepreneur in Kigali)

We were like, look, you guys are paying \$2,000 for [the global incumbent's solution], here is almost the same: beautiful design, fantastic data; I'm going to charge you \$300. Companies... were like: "But you don't have functionality of [the global incumbent]. I'd look at these guys and I'm like, wait... **you're willing to pay \$2,000 for a Lamborghini to sit in Nairobi traffic?**"
(Entrepreneur in Nairobi)



Local markets II: **Adaptation**

(Localization, differentiation, experimentation, experiential learning)

I feel like **I'm wearing my little white coat every day** and tweaking things. So we assume certain things... then how can **we test those hypotheses** in the least costly way possible... (Entrepreneur in Nairobi)

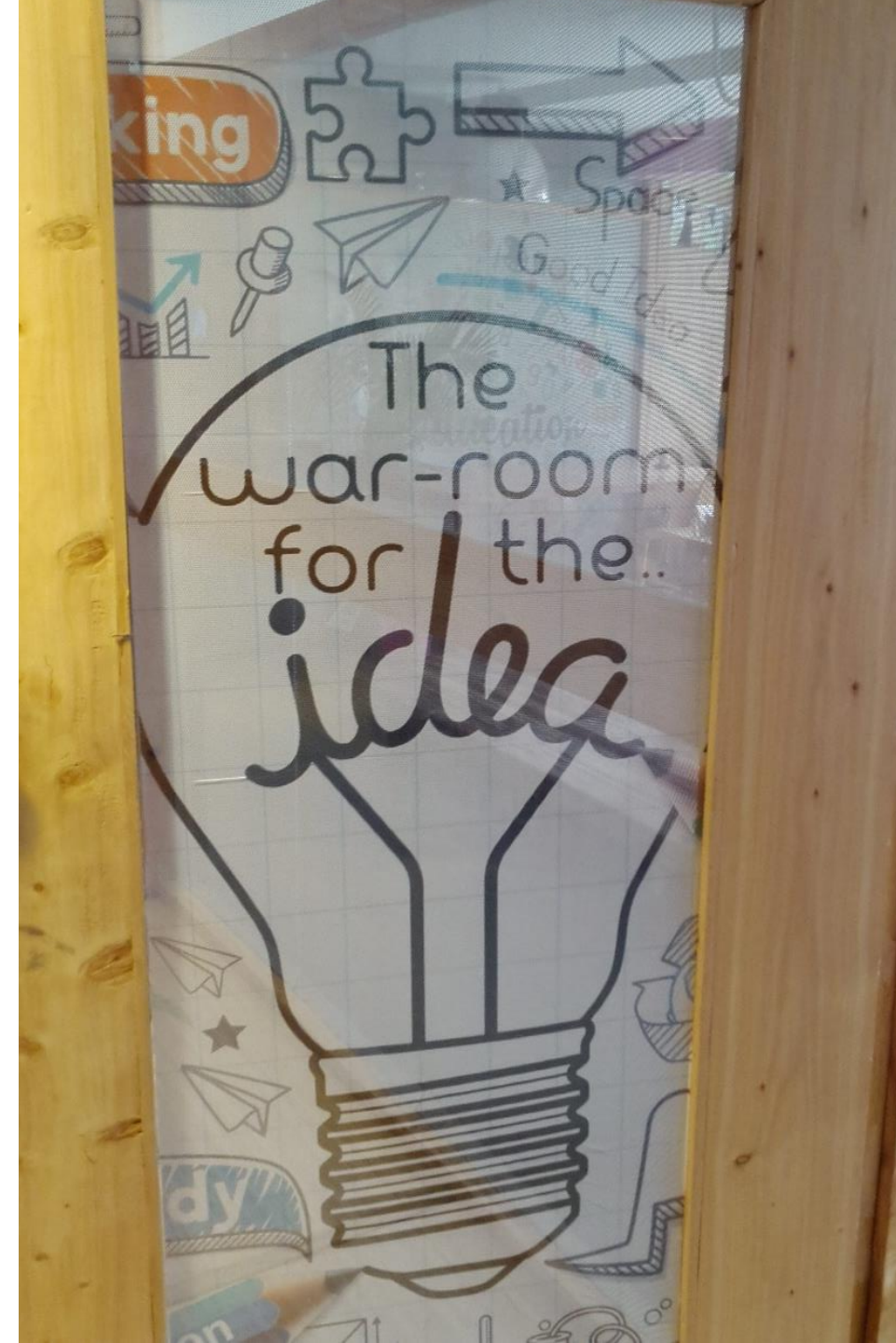
let me just **give it a shot**... and he paid the money immediately. The next person, I did the same... so **I just realized** with Nigerians, you have to do some drastic things, and then we've used that ever since.

(Entrepreneur in Lagos)

It's not like you launch something in Uganda and immediately you have applications with Sudan. I actually think that, the concept of these **startups that work across Africa without having modifications is not really realistic.**

(Entrepreneur in Kigali)

Cf., also Quinones, Heeks, Nicholson, 2017

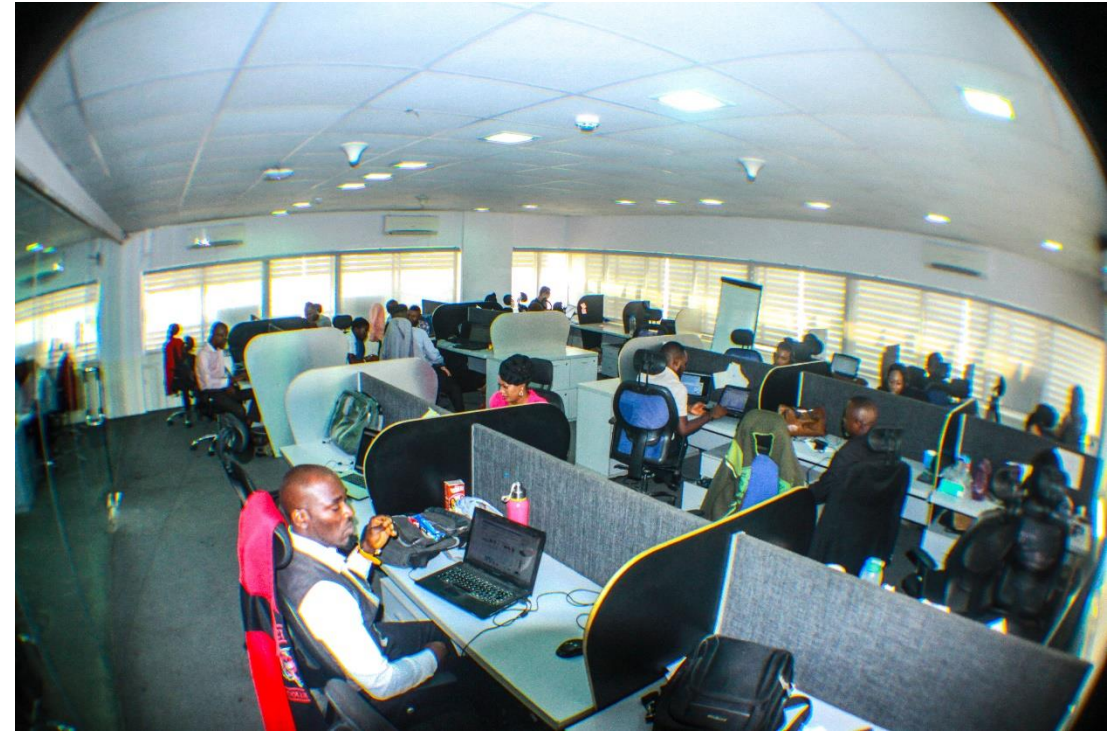


Entrepreneurial knowledge & missing middle of technical skill

We **didn't have the expertise**, so it took quite a while... If you're dealing with folks that are inexperienced, [trying to put] square pegs through round holes, you just can't grow.
(Entrepreneur in Lagos)

We were with a **Kenyan self-taught developer for 2.5 years**, who is great for where he learned his skills but now we've got this **French guy who is just a super star**. (Entrepreneur in Nairobi)

I mean, what we spend on human resource as a company a month, is less than what it would cost to [hire?] one talented dev... But you know what? **The tech capacity in Rwanda, specifically is zero out of a million**. In Nairobi, it's way better but still not, in my opinion, to the point where they're able to compete to global best standards... It's really, I think, naive of all this tech hub, Africa Rising enthusiasm, to think that, **software engineers who are 20 years behind** can be the ones who create world leaders... We have like a really good relationship with this Polish team.
(Entrepreneur in Kigali)





Preliminary **conclusions**

➤ **Key findings**

1. Complex & contextual motivations & mindsets
2. a) Local markets: complementation/competition
2. b) Adaptation Localization, differentiation, experimentation, experiential learning
3. Entrepreneurial knowledge & missing middle of skill

➤ New **opportunity** and **innovation**

➤ **Local demand** from accessible markets will remain the driver of digital entrepreneurship

➤ **Not** helpful to think of digital entrepreneurship as a **globally homogenous phenomenon**

➤ Creative and opportunity-oriented software production in low-income contexts **cannot** be expected to swiftly **kick off economic transformation and inclusive growth**

Thank you!

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<http://cii.oii.ox.ac.uk/author/nicolas/>

Policy & practice

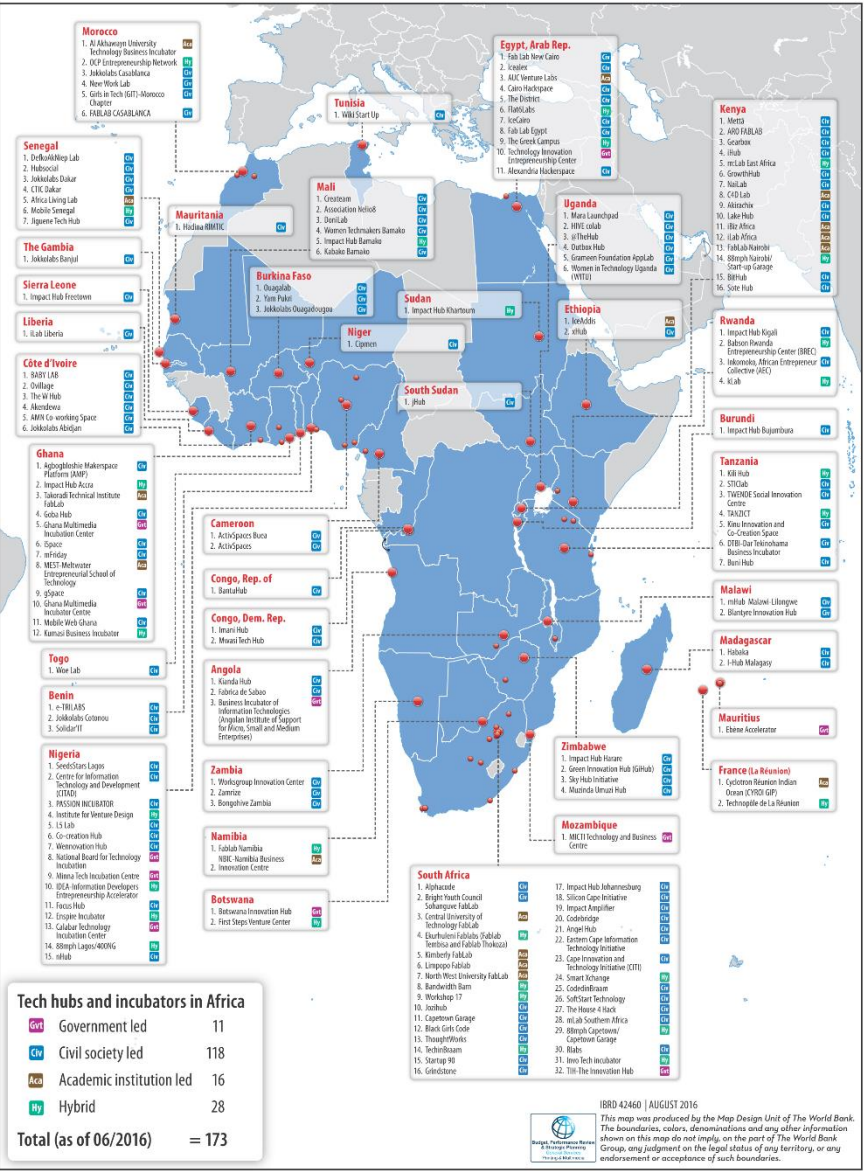
- Do not fall for the idea that African digital enterprises will compete in commodified global digital markets (e.g., software, devices). The most opportunity may lie in locally and regionally oriented innovations, addressing unique market conditions and problems.
- Digital entrepreneurship and innovation is a long-term game.
 - Given the importance of learning and adaptation, maybe we should not speak of a digital entrepreneurship revolution, but rather of an *evolution*.
 - The earlier the process starts in a given locale, the better, but it will take time and hard work to materialize in the form of widespread wealth.
- Sustainable, innovative early lead firms/organizations are essential, as they create environments for entrepreneurial and technical learning.
- In the absence of established lead organizations, digital enterprises and supporters (governments, hubs, etc.) should enable in-depth and experiential learning rather than creating appearances or focusing on quantity (e.g., “no. of hubs”).
 - When faced with a choice, focus less on light-touch initiatives (hackathons, bootcamps, etc.) and more on enabling tacit knowledge creation (incentivized mentorship programs, vocational training, apprenticeships, internships, etc.).
- It will be tough to create vibrant digital entrepreneurship ecosystems in rural or peri-urban environments. It is also very hard in smaller cities.

Questions to you

- What is particularly interesting?
- What are we missing? What do we need to work on?
- Who else is working on these topics? Who should we connect to?
- Should we focus on economic geography or also target entrepreneurship studies & management scholars?

Findings so far: **hubs**

I can make the dissertation available to you upon request

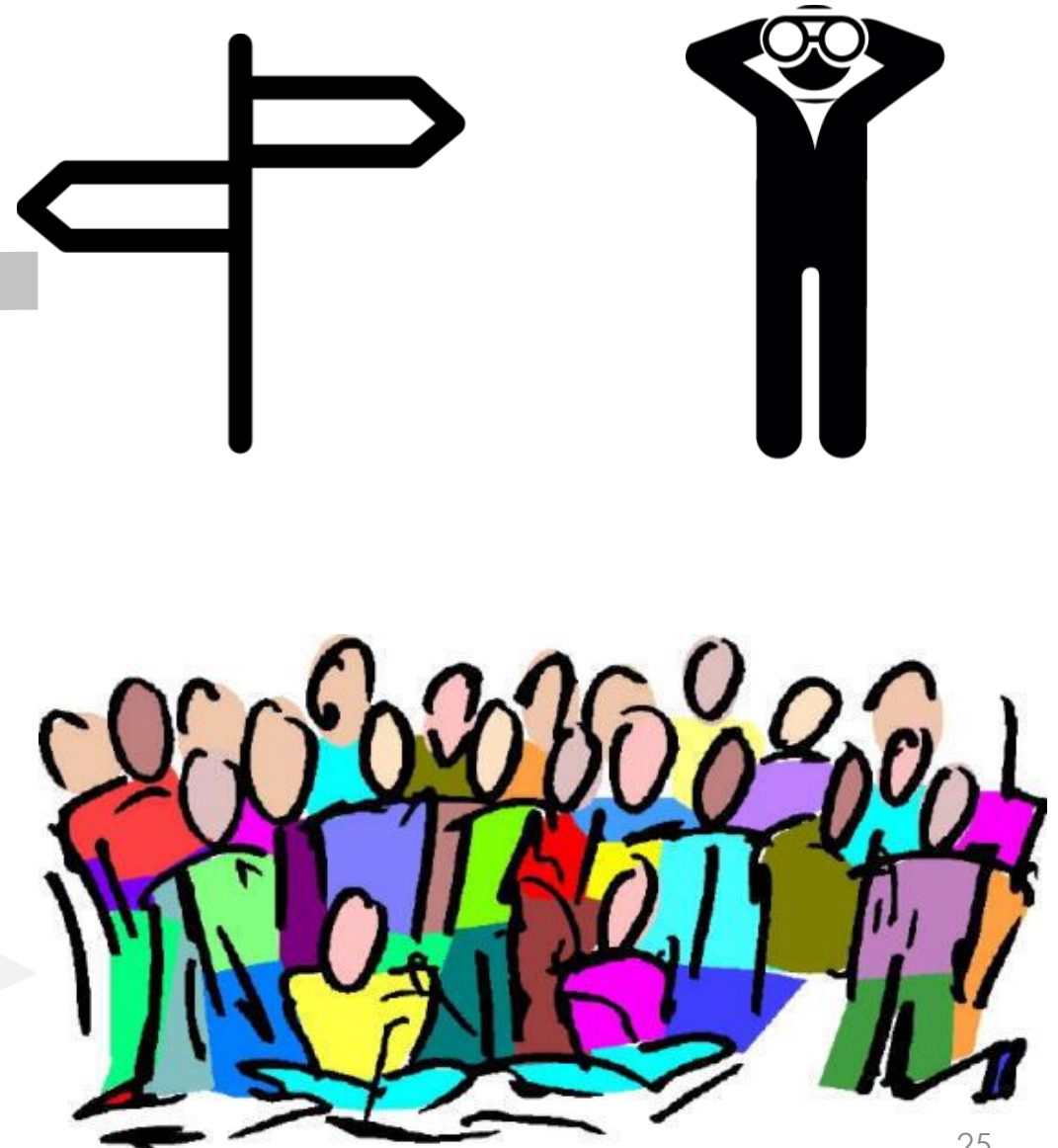


Hubs & Community Assembly

Different & distant
technology entrepreneurs
and partners



Entrepreneurial
communities



African **digital entrepreneurship**?

Emerging work by DIODE network, Richard Boateng & Joseph Budu (U of Ghana)

<https://diode.network/events/indonesia-workshop/indonesia-workshop-presentations/>

Related topics (innovation systems & clusters, entrepreneurship in general, entrepreneurial networks, inclusive/frugal innovation) but nothing on African digital entrepreneurship per se

If you know of other references, please let me know!

Clustering of tech entrepreneurship, entrepreneurial ecosystems

- Clustering of tech entrepreneurship, parallel specialization and diversification, entrepreneurial culture (Bresnahan, Gambardella, & Saxenian, 2001; Saxenian, 1994)
- Networks, ecology of organizations, firm practices determining regional advantage (Storper et al., 2015; Kemeny et al., 2016)
- Double-edged geography of digital economies: creative production in local ecosystems, distributed/far-flung distribution & marketing of digital products (Malecki & Moriset, 2007)
- Individual & collective agency in early moments of clusters/ecosystems (Feldman et al., 2005); co-evolution (Pitelis, 2012)
- Importance of mobile human capital, re-pats, “Argonauts” (Saxenian, 2006)
- Relational & entrepreneur-focused view of ecosystems, entrepreneurial resources, extending cluster & innovation systems lit (Spigel, 2015; Stam, 2015; Stam & Spigel, 2017)

Development potential of digital entrepreneurship

- **Technological products & services** are developed, making local economies more efficient (link to ICTD)
- Value creation happens inherently within and for the “**local**,” and by/for small, “**grassroots**” actors
- At the same time, a **global embedding** happens and **global competitiveness** can be achieved (though this is not further specified)
- **Dual development effect:** venture creation (employment, taxes, etc.) & locally suitable products, “solving problems”
- Through entrepreneurship, economic development is envisioned to be consonant with **empowerment**, freedom, independence, risk, self-responsibility