Africa Foresight Group

In partnership with

HARAMBEANS

African Innovation Report

Understanding Market-Creating Innovation Across Africa

FEBRUARY 2020

Cover image:
Yoco.co.za, co-founded by Harambean, Lungisa Matshoba, H’14

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1. Foreword

Okendo Lewis-Gayle is author of Harambeans, founding partner of Harambeans Prosperity Fund and Chairman of the Harambe Entrepreneur Alliance. Harambe is an ecosystem of over 300 young African leaders (Harambeans) which has spawned a series of tech-enabled ventures such as Andela, Yoco and Flutterwave. Collectively Harambeans have generated over 3000 jobs, raised over $500m from Google Ventures, Chan Zuckerberg Initiative and Alibaba. Okendo is a graduate of Harvard University, the Inaugural Entrepreneur in Residence at Schwarzman College in Beijing and has served as Africa Advisor to the Vatican, Rhodes Trust, and Chan Zuckerberg Initiative.

Introduction to the African Innovation Report

Paradoxically, two trends intersect at this junction of Africa's journey towards development. Between 1990 and 2015, poverty rates decreased from 54% to 41% yet the sheer number of Africans living under $1.90 a day increased from 278 million to 416 million. The reason? You guessed it - population growth.

At the start of this century, Africa accounted for 14% of the world's population. By 2050, the United Nations estimates that this will rise to 26%, and by the end of the 21st century, 4.3 billion people (40% of the world's total population) will hail from Africa. Thus, if current poverty reduction rates continue, we are heading for a full-frontal collision with Table Mountain.

Fortunately, The Prosperity Paradox, the last book co-authored by the late Harvard Professor, Clayton Christensen, with former HBR editor, Karen Dillon, and a Harambean, Efosa Ojomo, offers an alternative path not just to poverty reduction, but towards prosperity. It is a path that places Market-Creating Innovations (MCI) at the center of the continent's growth and Africa at the heart of global tech trends.

In partnership with Africa Foresight Group, a company founded by Harambean Yasmin Kumi, the annual "African Innovation Report" (AIR) will equip entrepreneurs, investors, and policymakers with the dashboard indicators necessary to capture lessons from the MCI process and speed up our journey towards African prosperity.

May the insights of AIR be profitable and serve as wind gust of ever bolder African ventures.

Introduction to the concepts of African prosperity and innovation

2. Introduction to the concepts of African prosperity and innovation

2.1 The nexus of prosperity and innovation

Economic progress, development, growth, value creation. Depending on the stakeholder, many terms exist in the African business community to describe the same question: How do we make Africa a prosperous continent for its people? Driven by "The Prosperity Paradox," a ground-breaking book by the late Professor Christensen and his colleagues, Efosa Ojomo and Karen Dillon, this report offers an attempt to dissect the prosperity challenge of the continent. The analyses presented in this report make use of the book's key themes to help us understand the power and potential of innovation-driven development theory to create wealth and equality on the continent.

The report begins by inviting the reader on a journey to explore the idea of market-creating innovation through the lenses of three thought leaders in the field of innovation and investment. It goes on to present the perspective of Harambeans on the strength of country-specific innovation ecosystems. To provide a more micro-level insight, it introduces the reader to six companies that Harambeans deem to be at the forefront of building the future of Africa through their creation of new markets across the continent.

It then illustrates the important winning factors that ventures must consider to create real economic value from their innovation. Through a case-study exploration of two companies that are members of the Harambe Entrepreneur Alliance, the report concludes with an outlook into the future of market creation and innovation in Africa, by Efosa Ojomo of Harvard Business School and co-author of "The Prosperity Paradox". Throughout the report, the reader is offered deep and differentiated insights that will contribute to setting the right focus and pace for moving Africa forward.

Figure 1: Journey of this report

2.2 Karen Dillon: How Africa can leverage innovation to achieve economic transformation

Karen Dillon is the former editor of Harvard Business Review magazine and co-author of three books with Clayton Christensen, including The Prosperity Paradox: How Innovation Can Lift Nations Out of Poverty (Thinkers50 finalist, Breakthrough Idea, 2019), the Wall Street Journal business best-seller Competing Against Luck: the Story of Innovation and Customer Choice and the New York Times bestseller, How Will You Measure Your Life? She is also the author of The Harvard Business Review Guide to Office Politics. A graduate of Cornell University and Northwestern University's Medill School of Journalism, she was named by Ashoka as one of the world's most influential and inspiring women. She is currently a contributing editor to Harvard Business Review and Editorial Director of BanyanGlobal Family Business Advisors.

Market-creating innovations develop new growth engines for companies and create entirely new industries upon which economies can build and thrive. They transform complex and expensive products into simple and more affordable products, making them accessible to a whole new segment of people in a society who, previously, have not been able to buy a product or service simply because it was not affordable or accessible to them. Market-creating innovators find a way to address the issues of accessibility and affordability and, in the process, create new markets. They represent the best version of capitalism: both consumers and companies win.

Since 2008, more than 200 Harambeans have developed high-impact ventures in Africa with lasting social and economic impact that have not only attracted more than $400 million from investors but helped to create more than 3000 jobs. Much can be learned from the insights and success stories of Harambeans and other enterprising entrepreneurs in developing economies.

1. *Every market has potential for extraordinary growth within it*

   Innovators must first understand that there is significant opportunity in frontier markets, which are underdeveloped. The opportunities in these markets do not (and should not) resemble opportunities in economically developed markets precisely because the fundamental makeup of these markets is different. They are, typically, filled with many more “non-consumers.” The market is not obvious, but it signals a vast market-creation opportunity.

2. *A market-creating innovation is more than just a product or service. It is an entire business model.*

   The organizations that thrive in frontier markets understand that they must rethink their entire business model. The business model may not resemble that of a similar business in a more developed economy, but the key is finding a way to design the business so that it has a chance to succeed within its target market.

3. *On technology: borrow first, invent later*

   There is a misconception that companies in frontier markets must invent new products and technologies in order to target customers in those markets. This misconception lies in the belief that existing products and services are just too expensive for them and so only newer, lower-cost options can be successful in these markets. This could not be further from the truth. Innovation is not the same as invention, and invention is not essential to create a new market. Invention describes the process of creating something entirely new that has never existed before, while innovation is a change in the processes by which an organization transforms labor, capital, materials, and information into products and services of greater value. Innovations, which include a specific technology, are often borrowed from one country to another and from one firm to another, and then improved upon. Organizations in frontier markets can borrow first and invent later.

4. *Don't wait for institutions and infrastructure to be perfect. You can help create them with successful innovation.*

Many companies are reluctant to invest in developing economies until institutions and infrastructure such as well-developed capital markets, education, and healthcare systems, and electricity have taken root. **But history has shown us, repeatedly, that market-creating innovations can trigger the development of institutions and infrastructure**, initially with rudimentary "workarounds", but eventually triggering more sophisticated developments. **Once a new market is created that is profitable to the stakeholders in the economy (including investors, entrepreneurs, customers, and the government), the stakeholders are often incentivized to help maintain the resources the market has pulled in**, such as infrastructure, education and even policies. This tendency, we believe, has a significant impact on long-term and sustainable prosperity.

Market-creating innovators in Harambe are focused on building businesses that not only help their customers but also thrive in the long term. In the process, they are helping to build their countries.

Adetayo Bamiduro H'15 is a notable example of a market-creating innovator. Through a summer internship with e-commerce platform Konga, an Amazon-like service in Nigeria, while a student at MIT Sloan School of Management, Bamiduro did extensive research into how Konga was struggling with "last mile" delivery to get orders into the hands of customers. When he graduated, Bamiduro and his MIT Sloan classmate, Chinedu Azodoh, founded Metro Africa Xpress (MAX) in their home country of Nigeria to create a more efficient, technology-driven, platform to fill that gap.

Bamiduro and Azodoh realized that for them to create a new and reliable infrastructure to accomplish efficient last-mile delivery for customers, they had to build more infrastructure. MAX needed a network of drivers who were licensed and professionally trained. They needed to create ways for drivers to safely collect payment for their services through a mobile phone wallet. Additionally, they needed to help drivers find ways to finance and purchase their own vehicles. "It was like we were seeing the opportunity at first, as the part of the iceberg that you can see above water," says Bamiduro. "Our frustration with the non-existent infrastructure forced us to innovate and go down the value chain. Once you dig in, you discover there is so much missing."

MAX has grown beyond a last-mile delivery service and has added messenger and transportation services for people who need to get somewhere quickly. "Each time we developed a new layer, we found another layer that was missing," says Bamiduro. And that, in turn, grew into a very substantial business. At the time of this writing, MAX had contracts with 1,100 drivers, 85 full-time employees, and is planning to triple that in the next six months.

MAX was able to do this with the help of an impressive array of partners who saw the potential in what the company was building. MAX has raised $9 million in investment to date, including $7 million from an elite group of strategic investors from the United States, Europe, Asia, and Africa. The newly launched Harambeans Prosperity Fund is another investor in MAX. It is a rule-based co-investment fund established by Cisco aimed at accelerating the growth of market-creating innovators in the Harambe Entrepreneur Alliance. "This isn't just about building mobile apps," says Bamiduro. "It's about creating financial, technological and operating infrastructure where it never existed."

2.3 Mobolaji Adeoye: How to detect investment opportunities that can create prosperity for Africa

Mobolaji Adeoye is a Managing Director and Chief Investment Officer of Consonance Investment Managers. Previously, Mobolaji was a Managing Director at Kuramo Capital Management where he was responsible for deal sourcing, execution, and monitoring in West and Southern Africa. Mobolaji was a member of the investment committee of Kuramo Capital Management. Prior to Kuramo, Mobolaji worked in the Investment Banking Division of Barclays Capital where he evaluated potential acquisition opportunities in the technology space and played a key role in the execution of equity and debt financings. Prior to Barclays Capital, Mobolaji was a Senior Hedge Fund Accountant at Farallon Capital Management. Mobolaji Adeoye received his MBA from the Columbia Business School where he was a recipient of the Charles Brunie Value Investing Scholarship.

Africa is becoming fertile ground for investors seeking above average returns over a long-term horizon. The continent's growing population (50% of global population growth between now and 2050 is expected to occur in Africa; United Nations, 2019), improved political environment, and greater regional integration are creating a large 1.2-billion-person market that has the potential to unlock significant wealth for its citizens. **Achieving this potential, however, will require innovative and patient capital with a focus on long-term prosperity for all.**

Until recently, the majority of investment in Africa was predominantly focused on extractive industries (for example in 2013 resource rich industries accounted for 95% increase in FDI to Africa; IMF, 2013) and although investors have begun to invest in sectors with stronger wealth creation potential, there is still a gap of understanding regarding how to build long-term prosperity on the continent.

In regions like Africa, the **performance of an individual company cannot be separated from its larger context**; the strength of the industry, the economic sector, as well as the nation itself are all intertwined with the performance of the company. If the larger systems are underperforming, an individual company will find it difficult to actualize its potential. Hence, to unleash prosperity and wealth creation across the continent, **it is crucial for investors to deploy capital in a manner that considers the need to affect change across several different contexts**.

Create a Prosperity Generating Investment Strategy

In order to invest in a manner that builds long-term wealth, **investors must explicitly plan to do this and should reflect this within their investment strategy**. At Consonance Investment Managers, we have built a long-term strategy based on the Milken Institute's Prosperity Formula. This framework proposes that the **four components of prosperity-driven investing** are human capital, social capital, real assets and financial innovation. The thought process is that if a nation can improve the productivity of its people, provide access to social services like health and education, build real infrastructure and finally provide suitable financial tools, then the nation has built a productive ecosystem that can enable prosperity.

Investors seeking to do business in Africa should perform a similar exercise -- figure out **what system they believe will create long-term prosperity and think holistically about how to deploy capital** in a manner that enables this productive ecosystem. Investors who fail to be **systems thinkers** in the African context are unlikely to create long-term wealth for themselves or the continent.

(Human Capital + Social Capital + Real Assets) * Financial Innovation = National Prosperity

Invest in "Trust Infrastructures"

If a transaction is going to occur, **both parties must trust each other**. To **buy apples at a grocery store, you must trust that the apples are safe to eat**. In developed countries, this trust is ensured by standard boards that regulate grocery stores. For the grocer, he must also trust that if he lets you into the store, you will pay for the apple before you eat it. This trust is assured by laws which deter most people from stealing and enhanced with security systems and professional staff.

As is typical in many developing countries, Africa has a deficit of trust across its formal value chains due to the **lack of trust-enabling systems,** such as identification, enforced laws, security, and standards (for instance, 74% of countries in Africa still use manual and error-prone identity registration methods with an average national identity registration rate of 40%; World Bank, 2017). This **trust deficit impedes the flow of business**, leading to a continued reliance on informal systems which have a high level of trust and acceptance.

Given the trust gap, there is a large opportunity to **invest in companies that create systems enabling trust, collaboration, and innovation in African markets**. To succeed, an investor must identify the key players in value chains and invest in a system that allows them to trust each other due to a transparent set of rules that are easily enforceable.

For example, much of Nigeria's agriculture production is still dominated by smallholder farmers who have low yields. Their efficiency is inhibited by the lack of access to inputs, such as quality seeds and fertilizers. The disconnect between farmers and factors of production exists even though there are plenty of banks ready to lend as well as fertilizer and seed firms ready to sell their goods. The lack of trust among all parties means that banks will not lend to farmers due to the lack of identity and credit systems, and farmers will therefore not buy seeds and fertilizers at scale due to a lack of capital.

To help tackle this problem, Consonance Investment Managers invested in AFEX Commodities Exchange which is building the "trust infrastructure" in the agricultural value chain. AFEX now has a detailed database of thousands of farmers and can therefore provide collateral management services to banks and institutions who want to lend to farmers. They also provide further credit enhancement by purchasing and distributing inputs, providing agri–extension services and post–harvest training.

Companies like AFEX are necessary in Africa where value chains need exchange-like firms, systems or structures which stand in place of low trust and an ineffective business environment. Investors should identify and invest in these companies as they can create value for all participants in the value chain and can establish new markets.

Have a Long-Term Orientation

Lastly, to build wealth in Africa, an investor must be in it for the long term. While investing requires a high level of subject matter expertise, investing in Africa needs a studied approach. It is important to spend time doing the research through a disciplined and hyperlocal methodology which can provide deep insight into the inner workings of Africa's informal systems. This method will help to unearth localized solutions and will strengthen the investor's investment strategy.

Investors must create value, which brings up the question of whether this long-term approach deprioritizes return over impact. It is our belief at Consonance that due to Africa's current stage of development, the greatest return will come with the greatest impact. Given this, the investors who will do the best in Africa will also do the best for Africa, and the only way to do this is with long-term, deeply knowledgeable, patient and resilient capital.

2.4 Noah Raford: Creating an enabling environment for thriving private sector innovation

Noah Raford is the Futurist-in-Chief and Chief of Global Affairs for the Dubai Future Foundation. He is responsible for identifying emerging opportunities, strategic partnerships, and future initiatives for the Government of Dubai, as well as leading the Foundation's thought leadership and partnerships activities. Previously, Noah was the Chief Operating Officer of the Dubai Future Foundation and Acting Executive Director of the Museum of the Future. He was also an advisor on futures, foresight, and innovation in the UAE Prime Minister's Office, a senior strategy consultant at Monitor/GBN, CEO and co-founder of the technology foresight company Futurescaper, North American Director of Space Syntax Limited, and the Senior Research Advisor to Prince's Foundation for the Built Environment.

Innovation is at the heart of economic and social transformation. Everyone knows that the private sector is the only real source of innovation in the 21st Century. Or is it?

The origin story of the contemporary information economy suggests that all you need to become the next Silicon Valley is abundant venture capital, talented young entrepreneurs, IP protection, and as little other regulation as possible. Sprinkle this on a young economy and just wait for Apple, PayPal and other billion-dollar unicorns to emerge. Of course, the reality is not so simple. Despite its popular orthodoxy, this view ignores the history of innovation economics and overlooks one of the **most essential ingredients to economic transformation; active, intentional and long-term state involvement in new sector creation**, and the support of modern technologies.

From China to Singapore, South Korea to Germany, history has shown us that visionary and vigorous involvement from the state and state-owned enterprises has been one of, if not the only, effective way to build the foundation of a new economy. This is not limited to emerging economies alone, either. **Silicon Valley benefited from decades of direct and indirect financing, support, and activities from the United States Federal Government**, including everything from land grants to low-interest loans, massive federal contracts for defense technologies, generous R&D contracts and lucrative technology transfer programs. The European Union estimates that every **euro spent on applied R&D programs in emerging technologies yielded a 3x return and every job financed** through direct state grants produced four additional jobs in the real economy. The U.S. Government estimates that every dollar spent on programs like NASA delivers $40 in return to the real economy.

In the United Arab Emirates, we have taken this lesson to heart. My organization, the Dubai Future Foundation, is responsible for coordinating the research, investment, and prototyping of next-generation solutions to the region's most pressing challenges. This includes transforming the most heavily regulated industries upon which we all depend, industries such as energy, healthcare, education, security, transportation, and infrastructure, using the most advanced methods and techniques of the 21st century. **We do this by delivering cutting edge prototypes and proof of concepts**, such as the world's first fully functional 3D printed building.

We work with partners to attract hundreds of start-ups and investors through our accelerators such as the Dubai Future Accelerators and through large-scale public engagement projects, such as the Museum of the Future. **Our programs have been wildly successful, attracting investment and talent, creating new companies, changing national policy, and providing essential evidence and momentum for bold, transformational initiatives**. This demonstrates how visionary state involvement can provide both a mandate and an environment in which private sector innovators can experiment and thrive, particularly in the regulated sectors upon which most of our lives depend.

What does this mean for Harambeans and for African prosperity? While money is important, **developing a new narrative that acknowledges the central responsibility of the state in generating economic innovation is essential to**

Africa's future. African entrepreneurs, investors, and leaders have a historic opportunity ahead of them; an opportunity to re-imagine their countries' growth in a way that reflects the historical realities of how innovation actually occurs, and to apply the many tried and tested solutions that this point of view unlocks.

By rewriting the story of innovation in Africa, acknowledging the essential role of the state, we can create a new narrative that emboldens national leaders to take a more active role in supporting African enterprise in ways that will help Africa realize its true 21st-century potential.

Politicians need bold ideas and concrete examples to build this narrative. Thankfully, the continent is full of extraordinary young entrepreneurs and businesspeople who can provide these ideas, as well as globally connected companies and civil society groups like the Harambeans who can help realize them. **Working together, African leaders and entrepreneurs can create ambitious, persuasive and world-leading examples that can, in turn, be used to attract even more capital, support, and publicity**.

From projects like Rwanda's Zipline blood delivery programs to innovative solutions in finance, payments, and banking, Africa's start-ups are full of unconventional ideas and value that offers meaningful solutions to the critical challenges facing African customers and citizens. Creating these examples will unlock more financing, which will support more ambitious public agendas, which will create more successful projects and so on. The result is a virtuous circle of public innovation.

There is no reason that Africa's next generation of political and technological leaders should not succeed. **The tide of history is moving away from free-market narratives that emaciate the state and shifting back towards historically proven models that work better for young countries and new economies; models that prioritize visionary politicians and strong states working together with talented entrepreneurs**. By rewriting Africa's narrative of progress, the continent can combine the best aspects of sovereign power with the most successful kinds of entrepreneurial enthusiasm, offering a template for Harambeans to work together to create a unique African success story in the years to come.

Understanding the innovation ecosystems of African economies

3. Understanding the innovation ecosystems of African economies

3.1 Purpose and methodology of this chapter

The analysis presented in this chapter highlights which countries possess the type of innovation ecosystem to build a different understanding of the African continent and its potential. The analysis can serve as a guideline for policymakers, entrepreneurs and investors alike.

Strength of local economy	***Strength of innovation environment***
Foreign Direct Investment (FDI) net inflow (US$, 2018)	Access to Electricity (% of population, 2017)
Gross Domestic Product (GDP) per capita (US$, 2018)	Internet Penetration (% of population, 2017 or 2018 dependent on the latest data available)
Inflation, GDP deflator (average for annual % from 2014 to 2018)	Foreign Direct Investment per young citizen aged below 35 (2018, US$)
Exchange rate % change (LCU per US$, for annual rate from 2014 to 2018)	Bank lending rate (%, 2018)
Net trade in goods and services (BoP, current US$, 2018) % of GDP	Startup procedures to register a business (2019)
Unemployment, youth total (% of total labor force ages 15-24, 2018)	Ease of Doing Business Ranking Delta, 2015 - 2019

Figure 2: Criteria applied for country analysis

All fifty-four countries in Africa were assessed using two sets of indicators that focus on the strength of the local economy and the innovation environment, respectively. A pro-rata score was created to produce a ranking of countries per indicator group. In each group, the raw figures of each metric were ranked in ascending or descending order and added together to produce a total score. The total score was utilized to produce a typology of African innovation ecosystems. Only countries not considered fragile states and with a contribution of at least 1% to African GDP were included in the final analysis.

3.2 Exploring the types of African innovation ecosystems

As noted in the introductory essay by Raford, Silicon Valley was built on more than a stream of investments and talent; the support of the US government played a pivotal role in its success and growth. Interestingly, the situation on the African continent does not always follow the pathway of the Silicon Valley example to become a breeding ground for market-creating innovation.

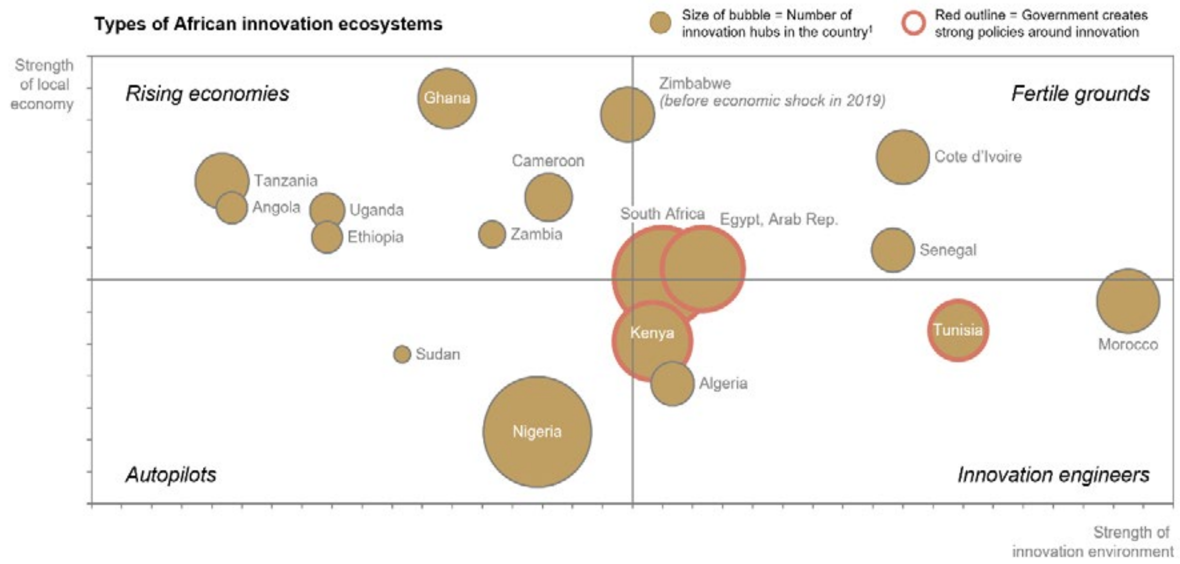

Figure 3: Types of African innovation ecosystems

The result of the analysis performed yields a differentiated picture that is clustered into four archetypes of innovation ecosystems.

Fertile grounds are considered economies that combine the strength of the local economy with a strong enabling environment for innovation. These economies tick the boxes for allowing innovations to thrive and scale. That, however, does not always imply that policymakers in those markets have dedicated attention to the cause of innovation. Côte d'Ivoire, for instance, seems to have a stronger focus on rebuilding the brick-and-mortar industries that made the economy a large player up until the 1990s. Creating an enabling environment for start-ups and innovation seems of little concern. Strikingly, there are only a few economies in Africa that fit this category. The challenge is clear: Africa must do even more to build innovation ecosystems as a long-term strategy for growth. South Africa, often considered the incumbent for start-ups and innovation, manages to just hold its spot. The current challenges of the economy with regards to electricity access and high currency devaluation coupled with the constant unemployment challenge of the nation have derailed its prospects. However, the strong commitment of the South African government to innovation will likely allow the country to continue holding the fort when it comes to producing market-creating entrepreneurs that have pan-African potential.

Autopilots have a quite different path to innovation. Both the economic and innovation environments are challenging in these markets. However, the best innovations do not always originate in places that have the strongest economies or best infrastructure as such. At times, innovation emerges where the need is the most pronounced. Nigeria, the prominent country in this category, is a market that has bright young talent and significant gaps to fill with regards to basic needs such as education, healthcare, nutrition, and infrastructure. Based on the number of innovation hubs in the market, it has become the largest ecosystem in Africa before Egypt and South Africa. The beauty of this type of innovation ecosystem is that innovators in such markets solve real problems that are ubiquitous across the continent and hence have multi-national scaling potential. However, one can only imagine how powerful such an ecosystem could be if basic factors such as electricity access or red tape were enhanced to unlock even more innovations.

Africa is home to an increasing number of **rising economies** that have made headlines around the world for their double-digit growth rates, with countries such as Ghana and Ethiopia at the forefront. These markets are going through an exciting transformation, often attract significant amounts of FDI and are on a conquest to diversify and grow their local economies. However, they are in a transition process and their private sector might still be in the process of fruition. Investors would often show significant interest in these countries but might take longer to identify investible businesses since the economy has only recently started transforming. These markets are, however, not yet investing sufficiently in innovation-enabling environments. With its 33% bank lending rate, Ghana's access to finance for new innovators is close to not existent; meanwhile more than 70% of Zimbabwe's population does not yet have access to the internet and Uganda struggles to connect close to 80% of its population to the electricity grid. Once these rising economies can enhance their enabling environment for innovation, they will likely cause a paradigm shift in the growth story for Africa by becoming more fertile ground for new market-creating ideas to thrive.

Innovation engineers, in contrast, are markets that have seen a recent slowdown in their economic growth story but managed to build an enabling environment for innovation to become their new weapon. Markets such as Kenya or Morocco would likely have qualified as fertile grounds in earlier years of analysis. However, both markets pose examples of a strong governmental focus on policymaking in favor of innovation. While Kenya is a well-known ecosystem to the anglophone business community, many might overlook Morocco and its potential. The country has traditionally held a strong reputation as a financial hub for Africa and made a significant effort in further advancing its regulation around investment. This has made the country a popular recipient for private equity deals. It is likely the government will also increasingly shift its focus on creating an enabling environment for start-ups and young innovators in particular. Tunisia is another example of a market that can be considered an innovation engineer. Since 2011, Tunisia has slowly emerged as a key player in the start-up scene in the Middle East and North Africa region (MENA). There are north of a thousand start-ups in the country of 11 million and over 20 hubs dedicated to accelerating venture growth. The start-ups that have achieved the most success in Tunisia are those that use and create tech products to mobilize communities, encourage civic engagement and fill a void in tech advances.

3.3 Government policy as an innovation driver

There are four markets among the countries analyzed where policymakers display especially high dedication to the creation of an enabling environment for innovation.

South Africa has one of the most advanced start-up and hub ecosystems in Africa. For many years, it was the market leader in terms of hub presence and the creation of valuable technology ecosystems. The 80 active tech hubs identified in South Africa in 2019 offer well-established collaboration and investment networks. Digital policies – laws related to data flow, cybersecurity, data privacy, IP protection, etc. - that support cross-border data flows lead to higher utilization of efficient, cost-effective global cloud services. South Africa's strong innovation capacity is steered by substantial government-funded research, as well as by development policies designed to bolster the innovation ecosystem. South Africa's key differentiator is rooted in the reliability of its fixed and mobile internet infrastructure, which are when compared to prices across the continent, affordably priced.

South Africa has faced a spate of electricity load shedding in recent months and Eskom tariffs have increased by 300% in the last decade. That notwithstanding, approximately 85% of South African households are connected to the country's main electricity supply. The Ministry of Energy has drafted an updated IRP which will prescribe the energy mix to address demand until 2050. The new IRP focused on increases in photovoltaic solar panels while reducing coal fire generation and civil nuclear power plants. In 2018, the government signed 27 new renewable energy projects under the Renewable Energy Independent Power Producer Procurement Program (REIPPP) representing 2,130 MW of generation capacity. Power Africa supports the REIPPP through the Southern Africa Energy Program.

Meanwhile, Egypt has nearly 60 start-ups hubs, most of which are in its capital city, Cairo. Over the past decade, there has been a growth in the number of start-up ventures. The growth of Egypt's start-up ecosystem is due, in part, to its access to numerous funding agents. These agents include Algebra, A15, Endure Capital, and

Cairo Angels, who finance early-stage investments. The Egyptian government has also tried to fill gaps in the ecosystem by providing funding for entities that support start-ups. Recipients of this type of government funding include Falak Startups, an accelerator program, and Egypt Ventures, an investment fund that finances both start-ups and other investors. Egypt's robust innovation ecosystem has allowed start-ups in the country to scale their businesses and achieve notable success. In 2015, the Fawryan e-payment network, which had over 65 thousand locations serving 15 million Egyptian customers, sold the majority of its stake for $100 million. This deal was the first of its kind in North Africa. Soon, other Egyptian start-ups followed suit, raising significant amounts of foreign investor capital.

Tunisia is yet to catch up with an incumbent such as Egypt on government policy, yet impresses with the increased attention to digital transformation in recent years. Aside from being selected as the Africa-wide hub for Digital Excellence by the African Union, the country passed a comprehensive start-up law in 2018 that encompasses funding, more ease in registration processes for new businesses and support in internationalization. However, many viewed the tax breaks, which can last up to eight years, as seminal. Founders can also apply for government-paid salaries for up to three years until their businesses take off.

As a concluding example of government success, the Kenyan government's policies on infrastructure investment and development have led to a boost in innovation. In 2013, the government began construction on a large technology hub, Konza Technopolis, a $14.5million project aimed at accelerating the pace of technological and economic growth in the country and the region. In 2014, to spur the establishment and growth of businesses operating in the information, communications and technology sectors, the Kenyan government followed with the National ICT Masterplan. Following trends in growing economies across the developing world, the government hoped that this support would enable young people to leverage technology to establish a robust economy around its products and services. Notably, Kenya is one of the most well-known ecosystems for IT innovation in Africa today.

	Foreign direct investment, net inflows (BoP, current US$)	GDP (current US$), 2018	Contribution to Africa-wide GDP in %	FDI as % of GDP	FDI as % of GDP	GDP per capita (current US$), 2018	Net trade in goods and services (BoP, current US$) % of GDP	Population size	Unemployment, youth total (% of total labor force ages 15-24) (modeled ILO estimate), 2019
Cote d'Ivoire	912,856,301	43,007,045,466	1.84%	include	2.12%	1,716	2%	25,069,229	3.4
Ghana	2,989,000,000	65,556,464,056	2.81%	include	4.56%	2,202	-3%	29,767,108	13.7
Tanzania	1,104,800,000	57,437,073,927	2.46%	include	1.92%	1,051	-1%	56,318,348	3.4
Ethiopia	3,310,300,000	84,355,462,494	3.61%	include	3.92%	772	-15%	109,224,559	2.8
Uganda	1,337,128,158	27,476,945,526	1.18%	include	4.87%	643	-11%	42,723,139	2.7
Cameroon	701,744,000	38,502,059,858	1.65%	include	1.82%	1,527	-2%	25,216,237	5.7
Congo, Dem. Rep.	1,284,643,394	47,227,535,291	2.02%	include	2.72%	562	-4%	84,068,091	8.0
Morocco	3,626,012,575	118,495,328,198	5.07%	include	3.06%	3,238	-10%	36,029,138	21.9
South Africa	5,467,539,710	368,288,203,087	15.77%	include	1.48%	6,374	0%	57,779,622	53.2
Angola	-5,732,491,335	105,750,987,619	4.53%	include	-5.42%	3,432	15%	30,809,762	17.1
Zimbabwe	744,637,199	31,000,519,447	1.33%	include	2.40%	2,147	-6%	14,439,018	8.1
Nigeria	1,997,485,165	397,269,616,081	17.01%	include	0.50%	2,028	0%	195,874,740	19.6
Egypt, Arab Rep.	6,797,600,000	250,895,469,644	10.74%	include	2.71%	2,549	-10%	98,423,595	32.4
Kenya	1,625,921,494	87,908,262,520	3.76%	include	1.85%	1,711	-10%	51,393,010	18.3
Zambia	408,438,492	26,720,073,436	1.14%	include	1.53%	1,540	-1%	17,351,822	15.9
Sudan	1,135,787,164	40,851,536,134	1.75%	include	2.78%	977	-8%	41,801,533	27.0
Senegal	629,312,448	24,129,599,552	1.03%	include	2.61%	1,522	-12%	15,854,360	8.4
Algeria	1,506,316,886	180,689,115,941	7.74%	include	0.83%	4,279	-12%	42,228,429	30.8
Tunisia	988,942,901	39,860,715,814	1.71%	include	2.48%	3,447	-13%	11,565,204	34.8

Figure 4: Strength of economy – Data table (Source: World Bank)

	Access to electricity (% of the population), 2017	Individuals using the Internet (% of the population) 2017 or 2018 (latest data available)	Start-up procedures to register a business (number), 2019	Inflation, GDP deflator (average for annual % from 2014 to 2018)	Exchange rate % change (LCU per US$, for annual rate from 2014 to 2018)	Youth population	FDI/Young person	Change in Ease of Doing Business ranking, 2015-19	Bank lending rate (%)
Morocco	100	64.80387	4	1.269389	2%	21319785	170	18	2.25
Tunisia	100	64.19081	3	4.981656	9%	6322313	156	-18	4.4
Cote d'Ivoire	65.63576	46.82373	4	0.927096	2%	17943784	51	37	5.14
Senegal	61.7	46	4	0.76339	2%	11328479	56	38	5.14
Cameroon	61.40187	23.20297	6	1.238797	2%	18215214	39	-9	
South Africa	84.4	56.16739	7	5.421593	4%	36486868	150	-41	10.08333
Egypt, Arab Rep.	100	46.92434	5	14.35659	20%	62837536	108	-2	18.31667
Algeria	100	59.57968	12	1.993954	8%	25347960	59	-3	8
Congo, Rep.	66.21485	8.65	11	-1.32033	2%	3640286	1185	-2	14.5
Ghana	79	39	8	14.31295	10%	20420508	146	-48	33.5
Zimbabwe	40.42137	27.05549	9	7.310761	n/a	10808922	69	31	7.131667
Kenya	63.81147	17.8271	7	7.414849	3%	37172853	44	80	13.06076
Nigeria	54.4	42	7	7.684726	14%	139586199	14	39	16.9039
Zambia	40.3	14.3	7	9.040841	11%	12814563	32	26	9.791667
Tanzania	32.81333	25	10	5.563595	6%	40320562	27	-10	17.41516
Angola	41.88623	14.33908	8	15.85522	21%	22296220	-257	4	20.677
Sudan	56.45155	30.8703	10	21.16995	34%	29324244	39	-11	13.8
Ethiopia	44.3	18.61805	11	10.29125	7%	78159353	42	-27	7
Uganda	22	23.70653	13	4.327888	7%	31305986	43	34	19.84656

Figure 5: Strength of innovation environment – Data table (Source: World Bank)

The Six Builders of Africa's Future 2020

4. The Six Builders of Africa's Future 2020

4.1 Why look for builders of Africa's future?

Africa faces significant and evolving challenges, from digital transformation to building human capital. These challenges will be solved by leaders who creatively engineer solutions, and in so doing transform obstacles into opportunities. Entrepreneurial innovation is creating unprecedented opportunities for Africa to grow its economy, create jobs, and transform people's lives. The African Innovation Report seeks to highlight ventures whose ambitions and activities are geared towards the advancement of the continent's growth, by innovating, creating new markets that unlock non-consumers, and capitalizing on Africa's immense human potential to deliver sustainable solutions.

For the inaugural 2020 Ranking of the Builders of Africa's Future, we longlisted ventures that had been operational for a minimum of three years and a maximum of ten years. This was done in order to identify the ventures that had been established long enough to demonstrate traction, clear leadership, and market-creating innovation. The resulting pool of 210 longlisted ventures was assessed using the following nine criteria, which we determined were critical for identifying market-creating innovations:

Reputation/Governance

Good governance is crucial to the destiny of an organization, and accordingly, this metric is concerned with the reputation of a venture — especially with that of its senior leadership. Ventures whose leadership has received censures or negative coverage for unethical or unfavorable practices toward any of their stakeholders score the lowest. Those whose c-level leadership has demonstrated and/or been commended for ethical and/or positive leadership behavior scored the highest.

Impact

Impact-driven businesses are not merely trendy for offering both social good and profit, these businesses must meet the needs of society. The impact metric, therefore, is primarily concerned with how a venture's products and services are configured to address the social and economic issues that are most pressing on the African continent. For our purposes, we used the alignment of a venture's offerings with solutions to the United Nations' Sustainable Development Goals (SDGs) as a proxy, to determine this impact.

Growth Stage

Our dedication to market-creating innovation nonetheless recognizes the importance of demonstrating traction, sustainability, and buy-in from potential investors. Truly innovative and market-creating companies must venture into new markets and expand their products or service offerings. To achieve this, they must move beyond their region of inception or open new locations. Accordingly, using this metric, we awarded the highest scores to ventures which have successfully prepared for this type of business expansion and raised Series B funding.

Scalability

As market demands are never static, scalability in the model is crucial for business growth in order to meet market demands and acquire more data and consumers. Here, we took an indirect approach to the question of scalability and instead looked at where and how in its organizational structure a venture was leveraging technology. Those ventures that intensely leverage technology for growth and scale were ranked higher than ventures which did not. The use of technology as a proxy for scalability is crucial in the African context in order to circumvent the continent's many infrastructural pitfalls.

Market Type

Market creation is not merely about focusing on a small group that already has interests aligned with a venture's products or services, it is about communicating with the largest *possible* audience. As such, the market type metric rewarded ventures whose products and services were targeted at a mainstream audience, rather than a niche market. Since our priority in this report is highlighting those market-creating and innovative ventures who might build Africa's future, it was crucial that the ranking focused on ventures that approached innovation and design with the mass market in mind.

Accessibility

Ventures who design their products and services to be inclusive are also the most likely to create new markets. Accessible ventures, by the very nature of their cost structures and implementation design, can both create and reach last-mile consumers. At the level of execution, this requires innovative thinking and bold leadership. In determining the accessibility of a venture, we focused on those ventures whose offering can be accessed not just by consumers with ample resource networks but also by those with non-substantial or extremely limited resource networks.

Target Fit

Market-creating ventures do just that, identify and cultivate new targets and users for their products. Particularly, at the base of the pyramid, market creation is challenging work that balances creativity with impact. As such, this metric rewards ventures who offer products and services that combined both practicality for users with a futuretivity[1] of design and purpose. This means that ventures whose offerings both anticipated and fulfilled consumer needs ranked better than those which merely responded to immediate needs.

Network Effect

The network effect is described in economics as the effect that an additional user of a good or service has on the value of that product to others. As a result, businesses leveraging network effects are constantly innovating to adjust their value propositions, in order to avoid diminishing or negative returns on these networks. Ventures were ranked better on the network effect metric if they provided offerings that were well-suited to capitalize on the network effect. Critically, as network effect does not evolve equally and is extremely dynamic, and market creation is a lynchpin for the builders of Africa's future, ventures for whom the value of their product or service increased according to the number of users ranked best.

Competitive Risk

Ventures operating successfully in markets (new or old ones) undoubtedly attract the attention of competitors looking to gain market share. Competition in the business landscape is good because it motivates businesses to optimize decision making and improve utilization of resources whilst increasing the likelihood of innovation. In our assessment of ventures, however, the most innovative ventures were those pioneering new markets and opportunities. Accordingly, the more local and global competition a venture faces, the worse it fared on this metric.

[1] Futuretivity refers to the quality of being both focused on and adapted for the future.

4.2 The sectors under analysis for industry leadership

Innovation focus and capability differ highly by sector. Understanding industry-specific dynamics is important when looking for market-creating innovators, because without understanding these dynamics, the true power of an innovator might remain unrecognized. For this report, six sectors were chosen based on the rationale outlined in the figure below. This rationale is further elaborated upon in the rest of this section.

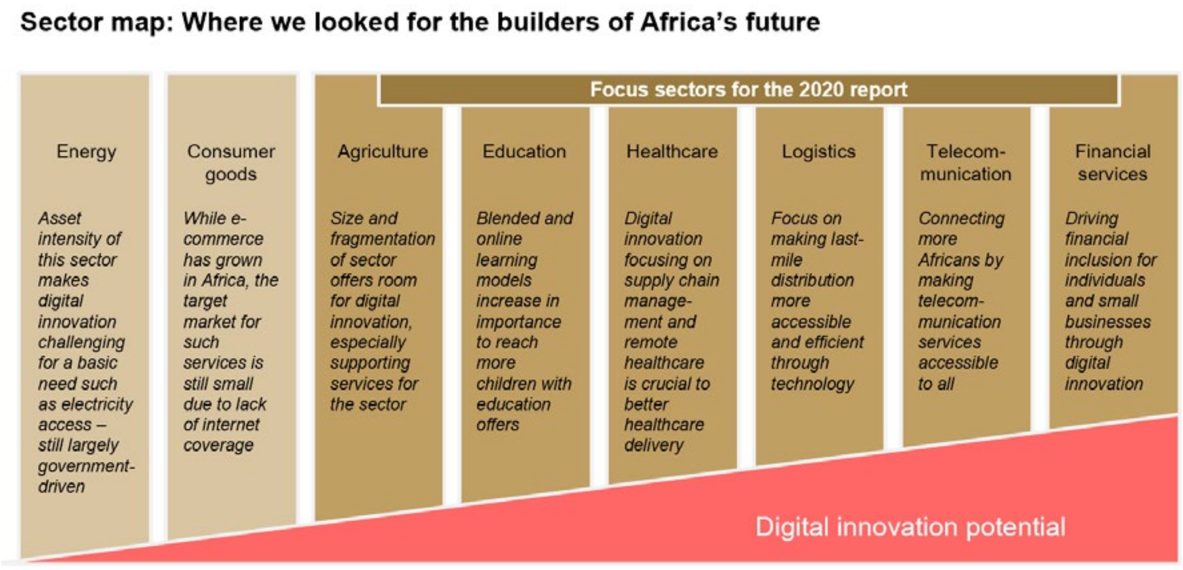

Figure 6: Explanation of industry focus

Telecommunications

Telecommunications is important to the growth of innovations across the continent because it underpins a substantial portion of the tech sector. Access to telecommunications networks allows mobile and internet-based innovations to spread into marginalized areas and to reach last-mile consumers. However, telecommunication infrastructure across Africa still requires substantial improvement. Africans pay the highest rates for internet access and yet receive some of the slowest data speeds in the world. Furthermore, the continent has some of the lowest internet penetration rates, thereby limiting the reach of the internet and data-based innovations.

Globally, almost 60% of households had internet access in 2018, compared to 20% in 2005. In developing countries this number drops to less than half, and in 2005, it was merely 8.4%.[2] However, in Africa, internet penetration rates across the continent remain lower, less than 40%, and uneven.[3] In South Africa, internet penetration stands at 56%, above the average, but in Mozambique, it stands at 20%, and in Burundi, it stands at 5%, far below the average.[4] With regard to cost, Africans pay the most for internet access globally. On average, a user would spend 8% of their monthly income for 1 GB of data, far above the Alliance for Affordable Internet's recommendation of 2% for the same amount of data.[5]

The combination of the importance of telecommunications to the spread of innovation, the low rates of penetration, and high cost make the sector inherently significant. Innovations in the telecommunications sector have the potential to transform the growth and efficacy of startups across sectors.

There are currently developments in African telecommunications to address this challenge. In the private sector, notable growth in global

[2] Mendes Artur, The future of telecommunications in Africa (2019), The future of Africa's Telecom market, Africa Cube, (2019)

[3] African internet users, population and facebook statistics, (2019)

[4] African internet users, population and facebook statistics, (2019

[5] Affordability report, Alliance for affordable internet, (2019)

submarine cable networks has led to an increased understanding of the potential for establishing new telecommunications connectivity infrastructure to address the low internet penetration rates. For example, a South Atlantic Cable System (SACS) which connects Africa and the Americas with a direct, low-latency route, went into commercial operation at the end of 2018.[6] Governments have also recognized the need to systematically address telecommunications challenges. In 2018, to reduce the cost of internet provision, Uganda implemented a new rule where telecommunications firms would have to utilize existing infrastructure, instead of laying new internet cables, to prevent the duplication of infrastructure whose cost would inevitably be passed on to the end consumer. Exemptions were made for the companies laying cables in less populated areas, to encourage the outward growth of internet access.[7]

Education

Innovations in the education sector are poised to solve one of the largest problems facing the continent.[8] Today, in sub-Saharan Africa, 32.6 million children of primary school age and 25.7 million adolescents are not in school.[9] In addition to the issue of access, the quality of education also remains a significant concern. It will take the average student in sub-Saharan Africa almost 100 years to catch up to the average student in high-income countries, with regards to the number of years of schooling and level of learning.[10] Education is one of the core prerequisites that can reduce the barriers to uptake of innovations. Advances in the education system facilitate the spread of innovations in other industries; leveraging other innovations across sectors requires some degree of both traditional and digital literacy.

In addition to the growing number of private educational facilities across the continent, there is the possibility of technology providing low-cost solutions to this challenge of education. Mobile learning, in particular, offers access to affordable teaching materials and flexible teaching methods that can be used to complement both teacher training and student education. Furthermore, mobile learning presents the opportunity for standardized education materials to reach last-mile students who do not have access to private tutors and private educational facilities. Although internet penetration is low and uneven across the continent, 90% of the continent is covered by 2G, and the development of SMS and SSID based teaching materials provide a way to reach marginalized populations.

The growing ed-tech market suggests that investors have realized both the need for and potential of the ed-tech market in Africa. The openness to innovation demonstrated in sub-Saharan African schools, once given access to alternative educational tools, shows great promise for the uptake of such tools in schools across the region and the potential for companies that succeed in addressing key pain points to be widely used and very profitable.[11] As of 2017, the K-12 African education market was worth $720 million, and in 2018 the e-learning market reached a value of more than $792 million, exhibiting a CAGR of around 14% during 2011-2018. This is expected to reach a value of $1,813 million by 2024, making it an intersection of a necessary and economically profitable sector.[12] Furthermore, the need for solutions to gaps in the education system has made Africa a core source of education innovations. This creates an opportunity for successful local companies to branch into other developing regions.

Logistics and Mobility

Logistics and mobility are a rapidly growing sector. In 2018, the total amount raised by mobility and logistics start-ups was 5.9% of the total amount raised in the year, coming third behind financial services and hospitality sectors. In Q2 2019, mobility and logistics start-ups took the highest share of the total funding raised and by Q3 2019, the sector accounted for almost 80% of total investments, up from 50% in

6 Mendes Artur, The future of telecommunications in Africa (2019)
7 Uganda introduces new rule for telecommunications firms to share infrastructure, Africa business chief, (2018)
8 Globe news wire, $1.8+ billion African E-learning Market growth explosion analysis (2019-2024)
9 See D'aiglepierre Rohen, The Conversation
10 Winthrop Rebecca, Foresight Africa Viewpoint – can technology help leapfrog education in Africa? (2018)

11 Winthrop Rebecca, Foresight Africa Viewpoint – can technology help leapfrog education in Africa? (2018)
12 Globe news wire, $1.8+ billion African E-learning Market growth explosion analysis (2019-2024)

the second quarter.[13] Motorbike taxis alone raised about $12 million just between May and June of 2019. In Egypt, Swvl, a bus-sharing service, broke the record for the largest-ever funding round for an Egyptian startup when it raised $42 million in June.[14]

The rapid growth of investment in the sector makes it a sector worth paying attention to in the coming years. It is very active, with many firms seeking to ease transportation across Africa. There were 180 mobility-related start-ups launched across Africa between 2010 and 2019, with the most common type of company being shared mobility, which includes ride-hailing and ride-sharing services, like Uber and Bolt, as well as app-based motorcycle services, like SafeBoda.[15]

Despite passenger-based transportation currently dominating the industry, there are several sub-sectors within transportation and logistics that make it a versatile and dynamic sector. There are services that enhance transportation technology and improve performance, such as Kiira Motors Corporation, services that improve the mobility experience for users by providing information, mobile ticketing, and trip navigation services, such as the tap and go payment systems for buses in Rwanda, services that provide insight for better transport planning, such as traffic flow management, freight logistics, and fleet tracking, such as Bwala in Kenya, and services that provide short to long-distance transportation, such as Egypt's Swvl, to name a few.[16] The versatility of this sector allows companies to combine services into new and unique product offerings. For instance, MAX.ng offers both low-cost ride-hailing options and last-mile delivery services on the same platform.

There also exist external forces that create greater potential for the transportation and logistics sector. Most notably, the signing of the African Continental Free Trade Area (AfCFTA) agreement by country leaders eased the cross-border movement of goods. The potential this agreement unlocked brought to light the challenges of navigating trade on the continent.[17] A single trade zone creates the need for players in the logistics space who have the structure to provide multi-country, multi-division, and end-to-end supply chain services. Currently, there are few African players who can meet this new market demand, thus there is a gap in a new and highly profitable market space.

Financial Services

Africa's banking market is worth approximately $86 billion in revenues before risk cost. Given that 66% of the adult population is unbanked, there is a large market gap in terms of financial inclusion and significant potential to be realized by reaching this unbanked population. Many existing financial institutions and start-ups are attempting to leverage technology to address this challenge. Fintech has been the most popular investment sector in Africa over the past few years. African fintech companies have raised $320 million in funding since January 2015 and the ecosystem has surged 60% in the last two years.[18] From 2015 to 2018, start-ups in the sector received more investment than other sectors, indicating a widespread understanding of the inherent potential of the African financial sector.[19]

The success of the fintech sector is not due so much to the disruption of traditional financial services, as it is to building up a historically underdeveloped industry and trying to include the unbanked adults in Africa.[20] For example, Kenya's M-Pesa allows users, whether or not they have bank accounts, to pay bills, and send each other money, through mobile phones or an agent network. Since launching in 2007, the service has impacted local access to financial products and services: today, financial inclusion in Kenya stands at 83%- up from 27% in 2006.[21]

The success of the fintech industry illustrates the potential gains to be made from leveraging technology to address the critical infrastructural

13 Techpoint Africa, How mobility and logistics startups are overtaking fintechs as darlings of the Nigerian startup ecosystem, (2019)
14 Techpoint Africa, How mobility and logistics startups are overtaking fintechs as darlings of the Nigerian startup ecosystem, (2019)
15 Tech startups offer new answers to African transport woes, The City Fix, (2019)
16 Tech startups offer new answers to African transport woes, The City Fix, (2019)
17 Technology trends that will define the African Tech space in the new decade, Technext, (2020)
18 Forbes, Shapshak, Toby - Africa's Fintech Ecosystem Raised $320m And Grew 60% In Two Years
19 Quartz Africa, Everything you need to know about African fintech right now
20 Quartz Africa, Everything you need to know about African fintech right now.
21 Quartz Africa, Everything you need to know about African fintech right now.

needs of society. Across West Africa, the reach of the mobile money sector is 13 times wider than local banks.[22] Furthermore, the increasing diversification of financial products and service offerings makes them even more attractive investment opportunities. Though payment and lending services remain most prevalent, the fastest growth is occurring elsewhere, with the number of start-ups active in areas such as investment and insurance technology more than doubling in the last few years.[23]

Companies in this space are also becoming international and offering cross border services. For example, M-Pesa services are now offered in countries as diverse as Albania, D.R. Congo, Egypt, Ghana, India, Kenya, Lesotho, Mozambique, Romania, and Tanzania.[24] Since 2018, South Africa, Nigeria and Kenya have remained the main three markets each boasting 141, 101 and 78 active ventures respectively, accounting for 65.2% of Africa's fintech start-ups. However, the share of the overall total in these three countries is declining as more start-ups appear in other countries.[25] This indicates the uptake power of fintechs and suggests that this sector still has the ability to reach even larger, more marginalized populations across the continent.

As fintechs in Africa begin to diversify their offerings and move toward fully-fledged, all service digital banks, there will also be correspondent increases in the amount of investment the sector is able to attract.[26] This fact makes this sector one worth continued attention and interest.

Healthcare

Access to quality healthcare remains an essential need across the continent. The International Finance Corporation estimates that over the next decade, $25-$30 billion in new investment will be needed to meet Africa's healthcare demand, with better production facilities and distribution/retail systems for pharmaceuticals and medical supplies remaining crucial to improving the continent's healthcare system. In 2005 $16.7 billion was spent on healthcare in sub-Saharan Africa, about 50% of this expenditure went to private providers.[27] This statistic, coupled with the growth in Public-Private-Partnerships (PPPs) indicates the strong presence of the private sector within the core framework of African healthcare provision.

The pronounced role of private healthcare providers has facilitated the entrance of start-ups into the healthcare space and, over the years, healthcare start-ups have attracted a noticeable amount of investment. The ability of start-ups in the healthcare sector to attract investment lies in their addressing of a key societal need in innovative and accessible ways.

Healthcare start-ups leverage technology to create unique solutions that bridge the information and healthcare access gap. Companies such as Lifebank and Zipline use mobile apps, motorcycles, and drone delivery systems to quickly and efficiently, deliver essential medical products to hospitals. Companies such as Safermom offer prenatal advice to expecting mothers through SMS messages and voice calls, thereby allowing them to reach expecting mothers in areas not covered by 3G networks.

The healthcare sector is dynamic because of the range of services that can be offered including data and record management, consulting services, scheduling services, prescription management, to name a few. It is also a low barrier to entry market because of the necessity of private support, which allows regulations that facilitate private involvement in the healthcare sector, and the lack of pre-existing infrastructure, which reduces the cost of participation. The lack of pre-existing systems means there are fewer compatibility issues with regard to new improvements in the healthcare sector.

Agriculture

The enhancement of sustainable agricultural and rural development is fundamental to the attainment of the Millennium Development

[22] Quartz Africa, Everything you need to know about African fintech right now.
[23] Forbes, Shapshak, Toby - Africa's Fintech Ecosystem Raised $320m And Grew 60% In Two Years
[24] Brink News, Fintech in Sub-Saharan Africa, a potential game changer, the edge of risk
[25] Forbes, Shapshak, Toby - Africa's Fintech Ecosystem Raised $320m And Grew 60% In Two Years
[26] Forbes, Shapshak, Toby - Africa's Fintech Ecosystem Raised $320m And Grew 60% In Two Years
[27] World Economic Forum, 5 ways the private sector can help towards universal healthcare in Africa

Goals (MDGs) in Africa.[28] Therefore, developments in the agricultural sector are key to attaining these goals. More than 60% of Sub-Saharan Africa's population is smallholder farmers, and 23% of the region's GDP comes from agriculture.[29] Yet estimates suggest that Africa could produce two to three times more cereals and grains, adding 20% to the global output, with similar increases possible in the horticulture and livestock markets.[30]

Barriers to the realization of this potential are due to a lack of resources such as fertilizer, improved seeds, adequate storage technology, and transportation services.[31] Smallholder productivity is set to be the biggest growth driver in the agriculture sector, yet the marginal return due to poor market access and low crop prices makes the investment needed to make the necessary changes to farming systems unjustifiable.[32] Private companies are taking notice of the potential of the agriculture sector to grow and develop, and Africa's agribusiness sector is expected to reach $1 trillion by 2030.[33]

There has been increasing start-up activity in the sector. These start-ups aim to provide grassroots solutions to the challenges facing local farmers. For example, farmer aggregation cooperatives such as Githunguri Dairy in Kenya, which serves close to 40,000 farmers in East Africa, allows farmers to pool together their resources and produce to reach larger markets. Farm to Market start-ups such as Twiga enables smallholder farmers to directly access reliable markets, thereby ensuring fair produce pricing and increasing their revenue. BRCK, a hardware and software start-up, is attempting to leverage its tech solutions to introduce IoT systems into agriculture to help farmers monitor weather patterns and soil changes, so they can make more informed farming choices. Additionally, financing options such as Akellobanker enable farmers to buy needed inputs on credit, while TroTro tractor allows farmers to book and rent tractor services for their farmers, thereby reducing the cost of using industrial machinery on farms. The diverse range of grassroots solutions emerging to address the needs of the crucial smallholder farmers, coupled with the untapped production potential of Africa's agricultural sector makes agriculture a dynamic and promising sector for investment.

28 African Agriculture, African Development Bank, Building today, a better Africa and tomorrow
29 McKinsey – Winning in Africa's Agricultural market
30 McKinsey – winning in Africa's Agricultural market
31 Oxford Business Group, Agriculture in Africa, (2019).
32 McKinsey – Winning in Africa's Agricultural market
33 Africa Development Bank, Agribusiness: Africa's New Investment Frontier

Overview of winning ventures

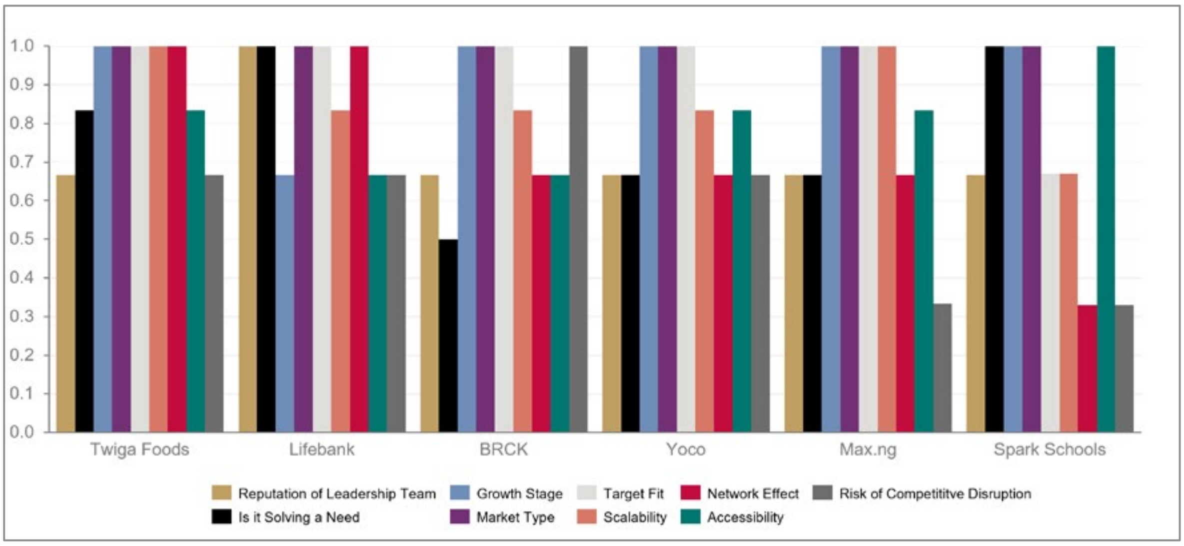

Figure 7: Scoring results of 6 winning ventures

The graph above details how the six ventures were measured based on the selected metrics designed to evaluate their current market position, impact, and potential, with 1 being the best score a venture could obtain. Twiga and Lifebank scored the highest when their metrics were averaged. Both ventures possess a rather impactful solution that fits their target audience and addresses a unique need in a scalable manner. MAX.ng and BRCK also achieved high scores offering well developed, scalable solutions that fit the needs of their target audience.

However, whilst BRCK faces low competitive risk because of the high knowledge barrier required to enter BRCK's market, MAX.ng faces a highly competitive risk due to the rapid growth of low-cost ride-hailing and delivery services.

Yoco offers a well-developed solution that fits the needs of its target audience and has broad market appeal. However, the scalability of its solution is hindered primarily by the differing banking regulatory standards across states. It performs well across the other metrics, with all metrics remaining above the halfway mark.

Spark Schools has a great reputation and its solution fits its target audience. However, its scalability is nonetheless hindered by its focus on corporate and university clients, who are a small segment of the continent's population. It scores low on impact and growth stage, and its niche market means it does not have broad-based appeal. Furthermore, its low accessibility due to the type of education it provides and the data requirements to view its video material also reduces its accessibility score.

4.3 Redefining agricultural trade: Twiga Foods

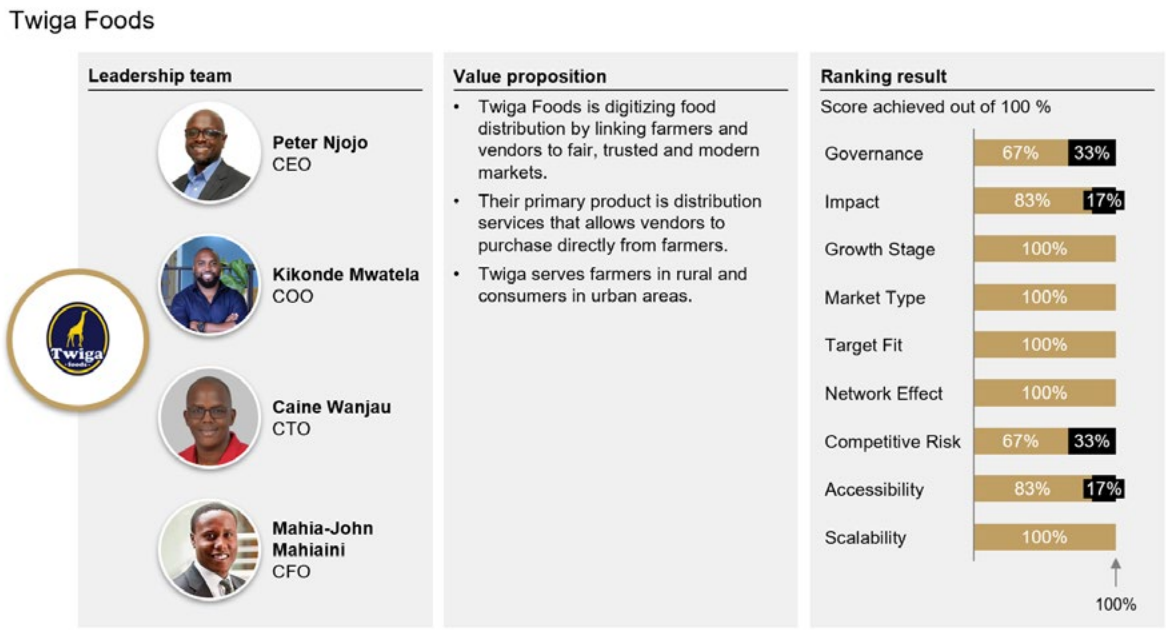

Figure 8: Snapshot of Twiga Foods

Introduction

Twiga Foods aims to transform the agricultural trade system by transitioning informal trade into the digital era by offering competitive pricing, convenience, and a quality selection of products. Twiga aggregates retail demand in cities and connects this demand directly to farmers and producers to provide low cost, quality produce while allowing farmers to obtain fair and competitive prices for their goods. They operate primarily between urban and rural areas in Kenya, providing full delivery chain services from farm to market.

Industry environment of the venture

Agriculture in Africa has a massive social and economic footprint. More than 60 percent of the population of sub-Saharan Africa are small-holder farmers, and about 23% percent of sub-Saharan Africa's GDP comes from agriculture.[34] Given the fragmented supply chains, companies have an opportunity to reduce costs and increase value by streamlining and expanding distribution, and to increase farmer revenue by ensuring market access. Improvements in distribution could also come through stronger partnerships with other input companies to share the costs of distribution and warehousing across the value chain, again relieving the burden on agro-dealers.

Competition in this sector is rapidly increasing as agritech is billed as the next big investment sector.[35] Agritech start-ups have grown by 110% in the past two years.[36] Naturally, Twiga has a number of competitors across Africa including Tulaa, M-farm, Taimba, Aggrigator, and Yagro. These agritech companies all provide some form of farm-to-market channel. However, among its competitors, Twiga foods has the highest number of employees, the highest revenue, and has received the most funding.[37]

Despite the growth of the sector, actors within it face challenges including poor digital literacy and internet access, which slow the rate of progress, a general distrust of technology among rural farmers, and low-income rates that make it difficult for smallholder farmers to afford agritech solutions.[38]

[34] McKinsey – Winning in Africa's Agricultural market

[35] This includes 1200 hotspots and 200,000 active customers across 22 cities in Kenya

[36] Forbes, Shapshak, Toby- African Agri-tech Startups Boom With 110% Growth Since 2016

[37] Tech Crunch - Kenya's Twiga foods eyes West Africa after $30 million raise led by Goldman (2019)

[38] Techcabal, "Why Africa needs more Agritech entrepreneurs

Why this is a market-creating innovation

By tackling the pertinent challenge of local farmer access to markets, the venture can generate massive demand for its product. Adding convenience, customer service and quality enables the business model to scale and address a global need for better quality foods at an affordable price. The result is a digital marketplace for basic staples that lets vendors skip time-consuming, early-morning trips to wholesalers. Instead, they can order high-quality bananas, tomatoes, onions, and potatoes on the Twiga platform. The company then collects the produce from farmers and delivers it straight to its clients each morning.

One of the major challenges for small-scale farmers is access to markets at a fair price. By allowing this direct connection between farmers and their demand markets, Twiga is giving local farmers access to reliable markets, and to fair market rates. This incentivizes farmers to use their platform. The transparency within the system further incentivizes consumers who seek responsible patronage and knowledge of the source of their food.

Successes and challenges to date

Twiga has managed to reduce supply chain waste by over 80% by focusing on efficient handling of produce across the supply chain and passes on the benefits of this reduced waste to farmers and vendors they serve. They work with more than 15,000 farmers and 8,000 vendors, processing over 18,000 orders a week.[39]

As of 2019, Kenya's Twiga Foods had raised a total of $30 million from lenders and investors led by Goldman Sachs.[40] The B2B food distribution company financed $6.25 million of the funding in debt and $23.75 million in equity, classified as a Series B round.[41] IFC, TLcom Capital, and Creadev joined Goldman on the VC side.

Twiga plans to use the funds to set up a distribution center in Nairobi and deepen its conversion to offering supply chain services for both agricultural and FMCG products.[42] Twiga's financing comes 11 months after a $10 million raise and announcement and would create additional revenue streams by moving into the B2B supply chain for fast-moving and other consumer products. Prior to this, Twiga focused primarily on agricultural goods and connecting more efficiently to marketplaces for farmers' produce.

As a company that sits on the crossroads of logistics and delivery and small to mid-sized agriculture, Twiga faces digital literacy challenges as growing the reach of its platform includes educating farmers. They also face the logistical challenges of transporting agricultural products into city centers and coordinating the necessary trucks along, at times, underdeveloped road networks. Delays in delivery of fresh produce affect the quality of goods delivered, which is compounded by poor road infrastructure.

39 Twiga Foods
40 Crunchbase, Twiga Foods
41 Kazeem Yomi, Quartz Africa - A Kenyan Agritech startup is going Pan-African with a $30 million round led by Goldman Sachs

42 Tech Crunch - Kenya's Twiga foods eyes West Africa after $30 million raise led by Goldman (2019)

4.4 A bold vision: BRCK

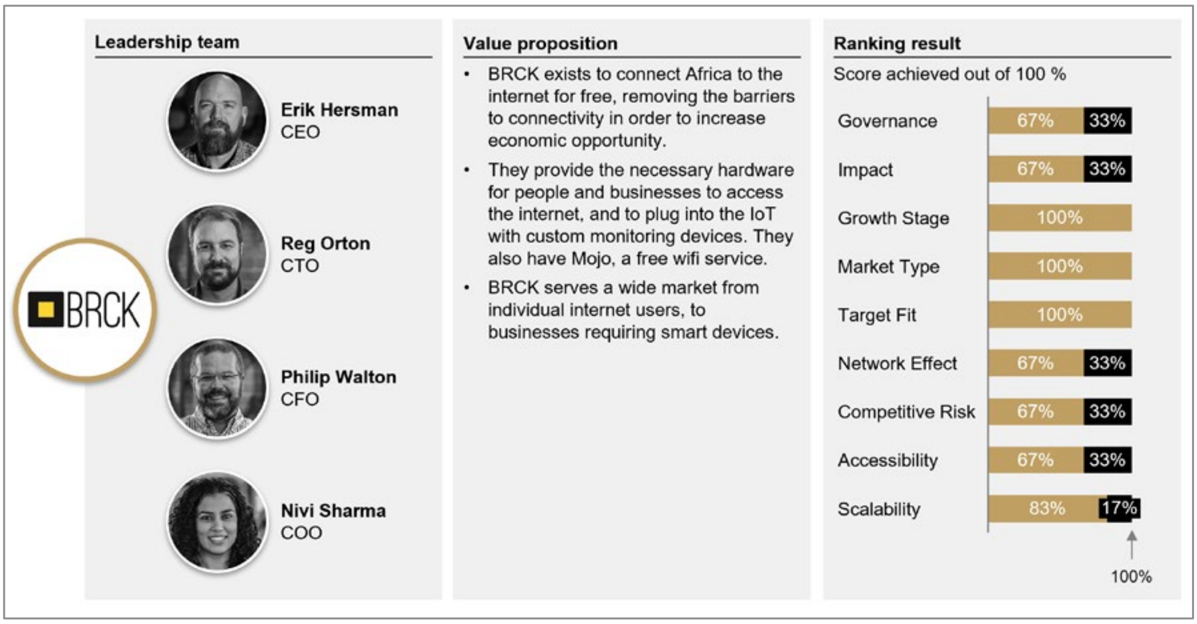

Figure 9: Snapshot of BRCK

Introduction

BRCK provides the necessary hardware for people and businesses to access the internet and to plug into the Internet of Things (IoT) with custom monitoring devices. They also provide Mojo, a free limited Wi-Fi service. Their key value proposition lies in providing affordable hardware and networking solutions in order to reduce the cost of internet access. As BRCK is also a lab, they have a wide range of potential future devices.

BRCK serves a wide market, from individual internet users to businesses requiring smart devices. They began in Kenya as a rugged internet router for marginalized areas, but they aim to expand across Africa, providing affordable internet access and IoT solutions in both rural and urban areas. Despite this aim, their first steps include leveraging and improving existing structures, to improve access to the internet.

Industry environment of the venture

Connectivity, particularly access to the internet, is crucial in Africa as people look increasingly to technology-based solutions to address key infrastructural gaps. Start-ups which leverage technology permeate every sector, ranging from healthcare to logistics, to agriculture. A key motivator of many start-ups is increasing access to resources, particularly for marginalized populations. However, internet penetration across the continent remains expensive, and low, less than 40%, and this rate varies between, and within states, with urban populations having much higher rates of access than rural populations.[43]

Given the low rates and high cost of internet access, companies have an opportunity to reduce costs and increase access by providing a low-cost alternative to hardware and to Wi-Fi subscriptions. Low-cost options could increase the internet access of marginalized populations, the target audience of many tech innovations in Africa, and thereby drive the growth of other sectors. Improved access could come through partnerships with traditional telecommunications companies, aimed at leveraging the low-cost hardware and Wi-Fi options to boost internet connectivity across the region.

Competition for BRCK is fragmented because BRCK offers several solutions, some of which have competitors. As an internet provider, they face competition in the form of established telecommunications networks and start-ups offering affordable internet plans. Their competitors include iway Africa, Faiba, and Access Group Kenya, all of which aim to address the prohibitive cost of internet access.

[43] African internet users, population and Facebook statistics, (2019).

However, BRCK's unique selling point is its free Wi-Fi service, Moja, which has no significant competitor and is currently partnering with transportation services, and their ruggedized hardware that is designed for low-income areas. [44]

Despite the growth of the sector, actors within the space face challenges including poor digital literacy, which slows the rate of progress and currently confines their most impactful work to areas in which people have pre-existing traditional and digital literacy.

Why this is a market-creating innovation

By providing IoT solutions, BRCK creates a market for smart devices across industries ranging from transportation to agriculture. Additionally, by reducing the cost of network connectivity, it creates a market of internet users out of the currently overlooked sections of the population that have limited, or no access to the internet due to the high cost of hardware and data transmission.

Successes and challenges to date

To date, BRCK has had 300,000 unique monthly users and 3.7 million sessions per month on their network providing devices.[45] In January of 2016, they raised $3 million in an undisclosed venture round, and to date, they have raised $4.2 million. In November of 2019, they expanded their field of operation by launching in South Africa. They also acquired Surf, an internet provider competitor in Kenya and its parent company Everylayer, allowing them to obtain Surf's 1200 hotspots and 200,000 active customers across 22 cities in Kenya.[46]

Their Moja Wi-Fi has also been successful in expanding access to the internet. They have 2,700 Wi-Fi hotspots in Kenya and Rwanda providing 7 million sessions per month, to almost 700,000 monthly active unique users on the platform.[47] They have signed up a number of partners including Swvl, a bus transportation company, to provide free Wi-Fi to passengers to bring as many people as possible online. BRCK also offers SupaBRCK to matatu drivers, to enable passengers' access to the Moja network.

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44 BRCK
45 BRCK
46 Shapshak Toby, Forbes, Kenyan Public WiFi Sensation BRCK Launches In South Africa
47 Shapshak Toby, Forbes, Kenya's BRCK Acquires Surf To Become The Biggest Public WiFi Network In Sub-Saharan Africa

4.5 Making financial inclusion work for SMEs: Yoco

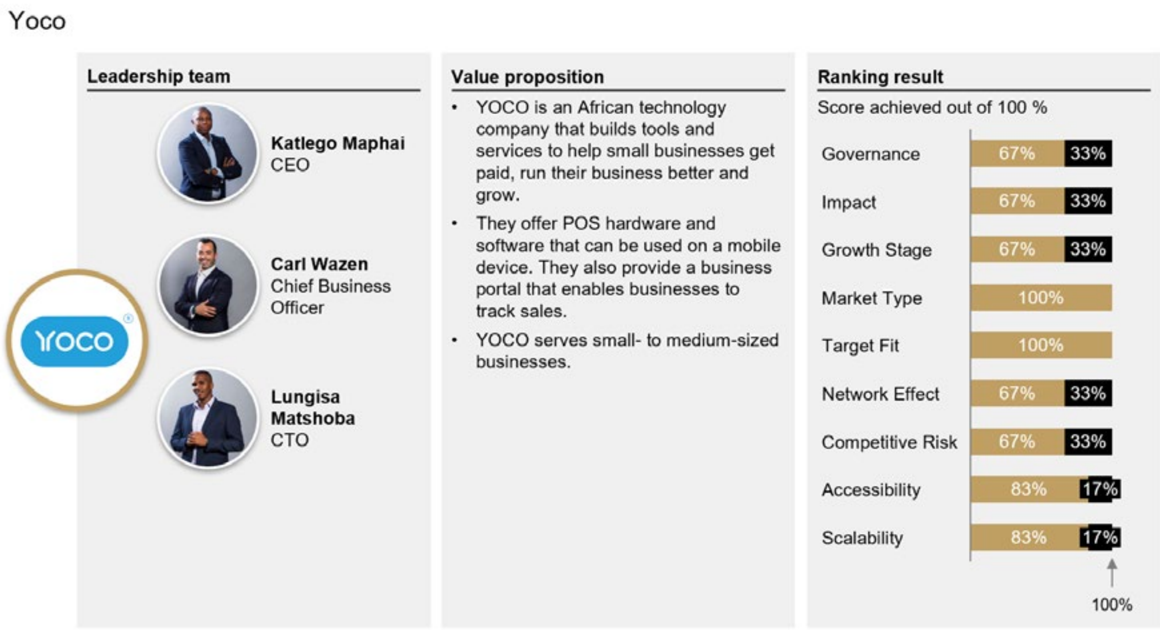


Figure 10: Snapshot of YOCO

Introduction

Yoco is an African technology company that builds tools and services to help small businesses get paid, run their businesses better, and grow. They offer two key value propositions. Firstly, they offer low-cost POS hardware that enables SMEs to provide cashless transactions to their customers, thereby allowing small businesses to be more financially included. Secondly, they offer transaction software that works on mobile devices and enables business owners to easily keep track of transactions over time and generate quick and accurate financial reports.

Industry environment of the venture

Financial inclusion, particularly for small businesses that do not have the capital to opt for traditional POS systems, is essential to their growth, especially in an increasingly cashless trade system. Cash has several negative implications for merchants and small businesses. Not only does it cost businesses to secure and transport cash, but it can also negatively affect business growth if they do not accept electronic payments as they can also lose out on revenue when their customers don't have enough cash to pay for goods.[48]

Given the relatively high cost of a traditional POS system, companies have an opportunity to increase financial inclusion among small businesses by offering low-cost alternative POS systems. They also have the potential to partner with banking services, especially mobile banking and micro-lending fintechs that seek to reach unbanked populations and further increase access to banking and cashless transactions.

Yoco's top competitors include Snapscan, Ikhokha, and wiGroup, all of which provide some form of mobile payments and digital banking solutions for retail. Among their start-up competitors, Yoco has raised some of the largest amounts of funding.[49] Their unique selling point lies in their growing range of small and low-cost POS options which allow increasingly small businesses to afford their systems. The financial reports offered by the company also gives businesses a convenient and accessible way to track their sales.

Despite the growth of the fintech sector, actors face challenges including poor digital literacy, which slows the rate of progress, and the fact that funds may take a day or two to reflect in a business owner's account makes business owners who are not familiar with cashless payment more reluctant to take up the device.

48 CNBC Africa, Creating a Cashless Africa, (2019)

49 Yoco

Furthermore, the licensing requirements of the banking sector in different African states will impact the ease with which Yoco can expand their business outside of South Africa.

Why this is a market-creating innovation

The primary innovation of the company is its low-cost POS offerings. By reducing the barrier to SMEs going cashless, they can improve the flexibility of small businesses as they are able to take cashless payments without having to purchase the typically expensive POS system. Their provision of a financial report also allows small businesses to track their sales and balance their accounting books, thereby allowing small business owners to have an easily accessible overview of the performance of their business more easily.

Successes and challenges to date

Yoco is viewed as a major player in bridging the gap in financial inclusion. They have raised $23 million to date, and in September 2018 they raised $16 million in their series B funding round.[50] They plan to double their customer base from 50,000 to 100,000 in the next year, and to do so they plan to expand outside of South Africa. To increase their accessibility to small business owners, they have launched Yoco Go, an even smaller, cheaper, and more accessible POS.[51] Yoco has numerous success stories, many of which center around the low cost, ease of use, and the accompanying sales report that made it easy for merchants to track sales over time.

50 Yoco
51 Crunchbase, Yoco

4.6 Reliable last-mile delivery: MAX.ng

Figure 11: Snapshot of MAX.ng

Introduction

MAX.ng is a ride-hailing and delivery service that operates primarily in Lagos, Nigeria. They have two primary value propositions. The first value proposition is their ability for users to hail rides on okadas (motorcycles), this offers an efficient means through which customers can hail one of the city's most popular forms of public transportation with the same ease and security with which they hail an Uber. The second value proposition sets them apart from competitors as they use their okada drivers to also provide last-mile delivery services, which address a key gap in the Nigerian logistics market. The dual functionality offers two potential sources of revenue for their okada drivers.

Industry environment of the venture

The logistics and mobility markets are growing rapidly. In Nigeria, in the second quarter of 2019, mobility and logistics start-ups took the highest share of the total funding raised, overtaking the fintech sector. By the third quarter of 2019, the mobility and logistics sector accounted for almost 80% of total investments, up from 50% in the second quarter. Currently, one of Egypt's biggest startups is Swvl, a transportation company, and in 2019 Kenya's digital logistics firm, Lori Systems expanded its market and entered Nigeria. The rapid growth of the logistics and mobility market shows the importance of the services rendered to the African population and the applicability of transportation and logistics models across countries.

Ease of transport is essential to the movement of people and goods within cities. Transportation companies seek to provide this ease by allowing customers to digitally hail rides ranging from individual transport systems such as okadas to larger methods of transportation such as trucks. This addresses a key customer and provider communication gap, thereby making it easier for people to obtain access to transportation.

MAX.ng has numerous competitors across the continent and within their home-base of Nigeria. In Nigeria, their competitors include Opay and Gokada, the most recognizable names in low-cost transport hailing. Their unique selling point lies in their logistics arm, where they provide last-mile delivery services thereby increasing their value proposition. Furthermore, their rumored partnership with kekes enabled more diversified low-cost ride-hailing services, further setting them apart from their competitors who focus mainly on motorcycles.

Low-cost transport hailing companies face several challenges. In August of 2019, Gokada shut down for two weeks in August to retrain drivers in customer service, hygiene, driving, and navigation use, among others. Furthermore, these firms are vulnerable to sudden regulatory changes, evidenced by the recent keke and okada ban in Lagos that now threatens the core of their business model.

Why this is a market-creating innovation

Their market innovation lies in tying their okada driver services to their last-mile delivery services. In so doing, they allow users to hail both rides and track and send deliveries through a single app. They allow drivers to take on dual roles, increasing the efficiency of the motorcycles they have on the road. MAX.ng has demonstrated a strong commitment to exploring low-cost and accessible transportation in Lagos and across Nigeria. They also have plans to expand into ten cities across West Africa and have named Ghana and Ivory Coast as major targets. The innovation in their expansion plans lies in their potential to translate low-cost transportation options in one country, such as the okadas in Nigeria, into another country such as Ghana and thus introduce new means of transport into cities.

Successes and challenges to date

So far, they have over 1,000 riders and have completed over 200,000 rides. They began as a delivery service. Therefore, in the beginning, they focused on expanding their last-mile delivery capacity. More recently they have worked to expand their ride-hailing capacity. They have raised a total of $8.1 million. In June of 2019, they raised $7 million in an undisclosed venture round, in which they received backing from Yamaha. In January 2020, a new regulation banning okadas and kekes in Lagos threatened the viability of their business, and they, along with their major competitors, launched a petition for an exemption to the ban.

4.7 Saving lives by the hour: Lifebank

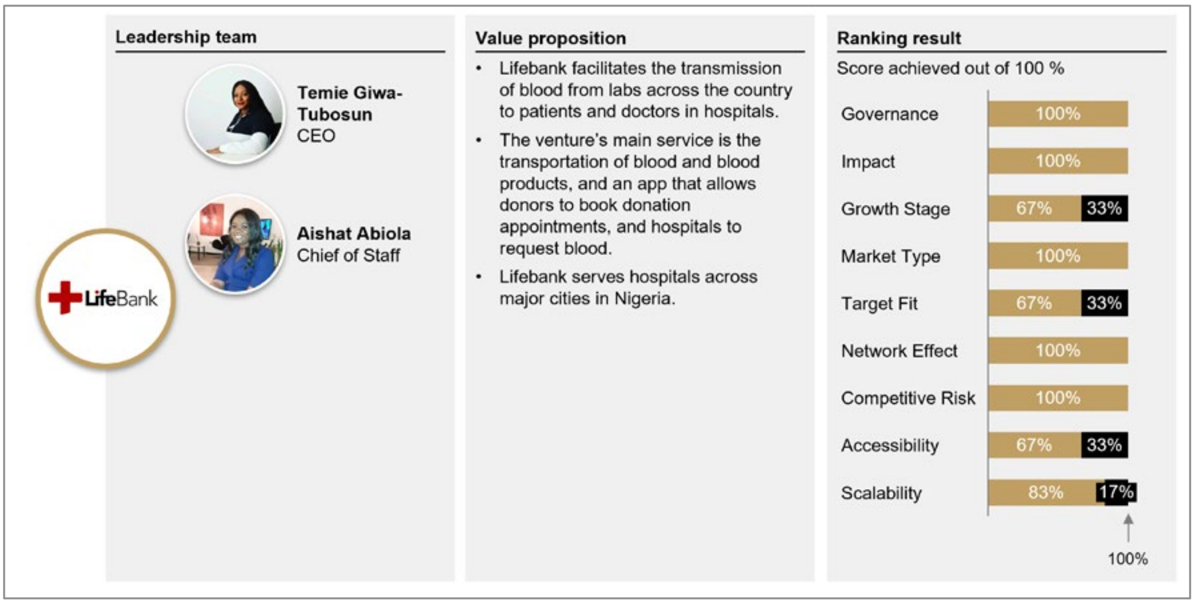


Figure 12: Snapshot of Lifebank

Introduction

The focus of the business is the delivery of blood and blood products from blood banks to medical storage facilities, with the eventual aim of delivering vaccines to hospitals. Their core value proposition lies in their ability to facilitate communication on both ends, allowing the hospitals to easily request items, and the storage facilities to easily see, and fulfill these requests in real-time. The second dimension of their core value proposition is their ability to deliver the needed items, thereby facilitating the transmission of blood and blood products from labs across the country to patients and doctors in hospitals. By serving as both the facilitator of orders and the delivery system, they address a key communication and organization gap in the healthcare sector.

A secondary value proposition is an ability for donors to book appointments to donate blood. This system simplifies the donation process, thereby saving the donors time and making them more likely to opt to donate in the future, as the smoother a process is, the more likely a user is to return. This system is especially valuable to healthcare NGOs who seek to organize blood drives, and to blood banks who seek to increase the number of donors.

Industry environment of the venture

The health technology market is recognized as crucially important across Africa. Although in 2018, it received the seventh largest amount of funding, behind edtech, its ability to address lifesaving issues makes it a point of focus for NGOs and developmental organizations.

Access to health is one of the sustainable development goals, and a variety of health tech firms have been developed to address various gaps in the health provision market across Africa. Lifebank does not have any direct competitors as their choice to deliver blood products and facilitate communication between donors and donation centers was, until their establishment, an unaddressed issue. They focus primarily on large cities, where people travel to have blood work done and undergo major procedures, and they leverage motorcycle delivery systems to deliver the needed blood products quickly and efficiently.

The health technology industry faces several challenges. A health technology delivery system such as Lifebank needs to ensure its drivers are properly educated on how to handle and transport medical products. The lack of access to data complicates healthcare delivery systems, and while there exist e-medical record start-ups attempting to address the recordkeeping system, their nascent stages mean their full benefit cannot yet be realized across all hospitals in all regions. A shortage of government funding makes it difficult for health technology companies to address key problems as a start-up that aims to connect patients with doctors requires the state to provide the infrastructure of enough medical doctors alongside a functional hospital system.

Why this is a market-creating innovation

Lifebank's product is creating a market for donors and hospitals. By facilitating communication between hospitals and blood banks, they create necessary synchronization between the two types of institutions and build the supply chain engine of health systems across Nigeria. They have made blood donation easier, therefore making them the ideal platform for bodies such as the Red Cross that seeks to organize blood drives. They have also made it easier for hospitals to request blood and blood products, and for blood banks to deliver such products. By creating a much-needed supply chain, they have facilitated the existence of a much-needed market.

Successes and challenges to date

Lifebank raised $225,000 in their seed fundraising rounds, and in October 2019 raised an undisclosed amount during their Series A funding round. In November, they also won $250,000 in the Jack Ma Foundation Africa Netpreneur Prize Initiative. To date, they have served 936 hospitals, helped 5800 donors donate blood, and moved 19192 units of blood. They operate primarily in Nigeria and have one office in Lagos, but they have plans to expand across Africa. In 2019, they tested their first drone delivery system in Ethiopia with support from the Ethiopian Government's Information Network Security Agency (INSA) and The Drones Doing Good Alliance (DDG).

4.8 Disrupting the cost-benefit ratio of education: SPARK Schools

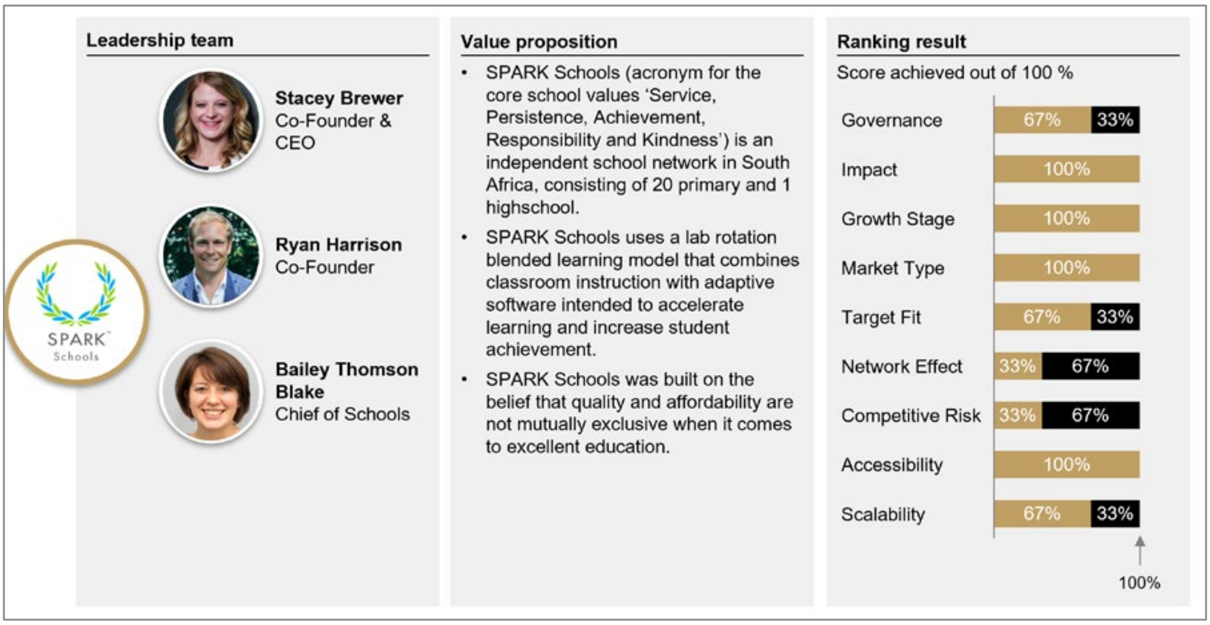


Figure 13: Snapshot of Spark Schools

Introduction

SPARK Schools is an independent school network in South Africa founded by Stacey Brewer and Ryan Harrison in 2012. SPARK Schools uses a blended learning model that combines an adaptive software program with individualized learning modules to accelerate student learning and increase achievement. The schools have attracted funding from various kinds of investors including for-profit impact investors and non-profit foundations focused on high impact philanthropy.

Industry environment of the venture

Education technology is making education more accessible and comprehensive across the continent. Numerous edtech companies focus on improving the classroom experience of students and giving students access to educational materials. Africa is becoming one of the most dynamic e-learning markets, with revenues reaching $355 million in 2013 and more than doubling to $792 million in 2018.[52]

The availability of educational materials is crucial to the improvement of education across the continent. Edtech companies have the potential to fill this educational need by providing targeted material to specific populations, including material in local languages, material that can be accessed over 2G networks, and revision materials that can be delivered digitally, thereby addressing the shortage of physical books.

In 2013, SPARK Ferndale was the first school to open in the SPARK Schools network in Johannesburg. Since then, the network has expanded to serve more than 10,000 SPARK scholars at 21 schools in Gauteng and the Western Cape.[53] Despite the rapid growth of the edtech sector, actors still face many challenges including a lack of reliable and affordable internet access, which forces companies to offer an offline version.

Billing and revenue collection also pose a challenge for edtech companies, as the students who are targeted by edtech companies often struggle to pay with online credit or debit cards and direct billing through telecommunications networks often results in an unfair split in revenue and requires the negotiation of special billing systems.[54]

Why this is a market-creating innovation

SPARK schools' approach to education technology is market-creating because adoption of the SPARK Schools blended learning model has allowed for cost reduction in both the cost of infrastructure and the cost of human resources. SPARK Schools estimates their savings on infrastructure to be R500K per grade level deployed, and their yearly operation cost savings to be R1.6 Million for a full school[55].

The SPARK labs across their schools are equipped with Google Chromebooks; they were the first to use them on a large scale in Africa. In 2019, they also introduced a learning management system that enables students in grades 4-7 to alternate between teacher-led small group instruction and online personalized learning. SPARK schools provide dedicated professional development for teachers and school leaders and partner with families and the local community to facilitate student achievement.

Their schools prepare students for university and successful careers via curricula that emphasize creative thinking skills and demonstrating core values for cooperative citizenship and love of learning. SPARK Schools is making high-quality education affordable for some of the poorest children in South Africa. The school in Lynedoch, for instance, serves over 600 children of the working-class village.[56]

Successes and challenges to date

The SPARK Schools' greatest challenges are two-fold but coalesce around the choice to adopt the blended model. It has been challenging for the schools' leadership to convince cautious parents that blended learning can be effective in a school environment. Technology-based education is foreign to South Africans, especially those in the demographic that the SPARK schools serve. The school has also struggled to find high-quality online content providers who are willing to work with South African schools at an affordable cost. Similarly, finding literacy content providers that use British English, common in South Africa, is another challenge.[57]

[52] Seedstars - The Edtech revolution: who is the trigger? WeeTracker annual report, (2018)
[53] Sparks Schools
[54] World Remit
[55] Christensen Institute

[56] Vanderark Tom, Forbes, Sparks Schools Scaling Affordable Excellence in South Africa
[57] Christensen Institute

Perspectives on sustainability: How African ventures can win

5. Perspectives on sustainability: How African ventures can win

5.1 Cultural strength and global markets as winning factors?

Harambean companies have traditionally had a strong track record in building powerful founding teams and raising capital, even when early stage. It is common knowledge that strong teams and capitalization of ventures are key determinants of the success of a business, regardless of whether they are in Africa or elsewhere.

In this chapter, the authors chose to take a critical look at other factors that have proven to have a lasting impact on the sustainable success of a venture within the African context. To arrive at these factors, one had to ask the question: *What is different about ventures in Africa compared to start-ups elsewhere?* Given the budding development stage of most African economies, it probably holds true that a high number of ventures on the continent have a strong impact focus that serves Africa. Such commitment to impact likely affects the culture of an organization. Staff members will probably feel more attached and engaged with a company when the broader purpose of the organization speaks to them. Hence, the first hypothesis tested in this chapter is *to what extent do impact-driven ventures in Africa stand out with above-average culture?* A long-established Harambean company, WomEng, is used as a case study in the next section to analyze this concept.

While access to capital for African ventures has shown an upward curve, there are still very few tech-driven businesses that have raised a combined amount of more than $100 million. It is unlikely that this is a result of a lack of innovation, insufficiently compelling founding teams, or weak technology builds. It is more likely that it is a result of the infant market sizes for most products and services in Africa. According to the World Bank[58], the GDP of Sub-Saharan Africa in 2018 amounted to $1.7 trillion while the US alone has a GDP of $20.5 trillion. This chapter thus dedicates a second case study to the hypothesis that *African ventures will likely have larger expansion and fundraising potential if they tackle global opportunities instead of just focusing on their home market*. Andela is used as a case study to illustrate this.

[58] Worldbank Data

5.2 WomEng: Winning through culture

Figure 14: Overview of WomEng

Naadiya Mosajee from South Africa co-founded Women in Engineering (WomEng) in 2005. She describes the purpose of the organization as the creation of gender parity all along the STEM pipeline from attraction, development, retention, and ownership of the industry. Ms Mosajee started the organization when she was still an engineering student herself, after realizing that being female and of color suddenly rendered her a significant minority. At the core, WomEng focuses on offering different types of training programs to encourage girls' pathways into STEM from an early age. The company has garnered support from world-leading organizations such as UNESCO and Unilever and has set an ambitious goal of reaching one million girls with their STEM education programs by 2027.

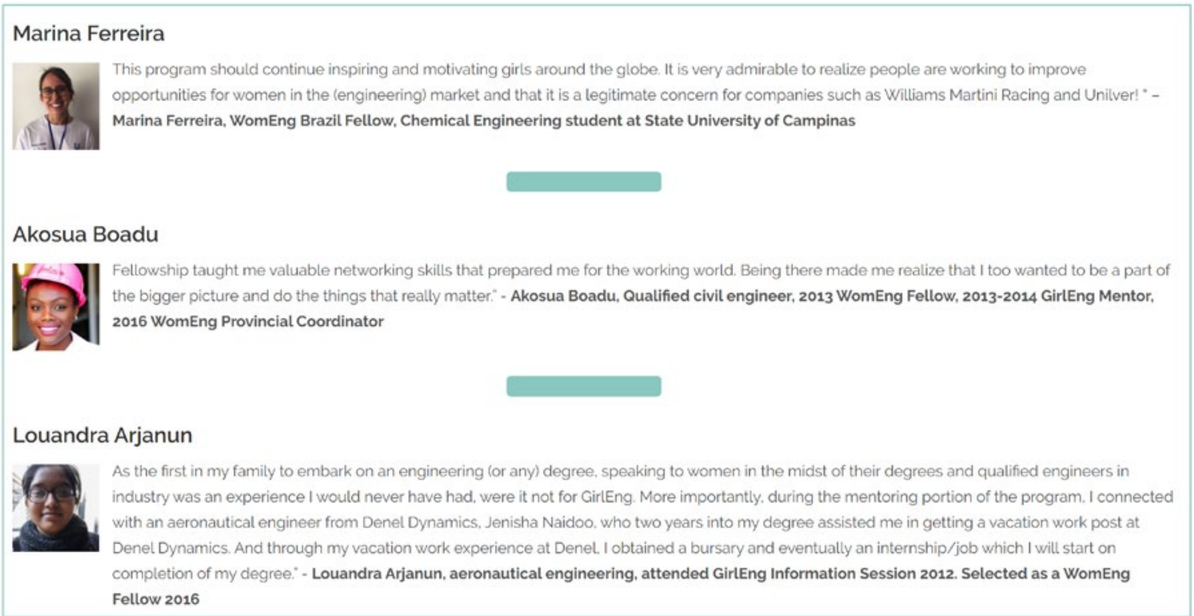


Figure 15: Customer stories of WomEng

The impact of WomEng becomes the clearest when looking at the customer stories of the organization. Reaching women as far as in Brazil, Naadiya Mosajee and her team clearly delivered on the promise of impacting the decision-making of females in favor of careers in STEM. Interestingly, this impact is driven by an all-female team around Ms Mosajee and her co-founder Hema Vallabh with most colleagues coming from the engineering industry where they gained first-hand experience of the gender disparity in the sector. "Engineers design our world and our society, and if we don't have women at the design table, we exclude 50% of the population,"[59] says Mosajee reciting the idea she managed to build the dedication of her team around.

For this report, the WomEng team agreed to participate in an experiment that involved the completion of an organizational health assessment by all team members of the organization. The goal of the assessment was to understand to what extent the culture of WomEng is above or below average across different dimensions. The organization health survey used by the Africa Foresight Group for this assessment has been conducted in many African companies spanning different industries, from agriculture to logistics. The usual result hovers around the marker of 2, which stands for average organization health.

Interestingly, WomEng managed to outperform on all dimensions of the assessment, with their focus on customers and experimentation reaching the highest score. While it is not too surprising that an engineer-led organization excels in the field of experimentation, it is still an insightful result since ventures often end up underinvesting in building a culture of experimentation to achieve product-market fit. Setting a cultural priority on experimentation goes hand in hand with championing customer focus and, looking more closely at the model of WomEng, it turns out that the organization has put structures in place that constantly allow the team to learn about customer needs.

Two of these structures are *The Hub* and *@Network*. *The Hub* is an online platform that allows female engineers, from student level all the way to well-established professionals, to connect from across the globe. Aside from connecting for individual mentorship, the platform also allows users to upload content and have discussions in forums where they can exchange ideas and grow.

Meanwhile, *@Network* is a series of events hosted in different community locations of WomEng to bring female engineers together in person for the discussion of the latest engineering topics. Their industry level programs create opportunities for their stakeholders to gain insights into the market, allowing them to support them on attraction, development and retention strategies for building high-value talent pipelines. It is a creative and efficient way of engaging with the organization's target group to ensure that the service offer always focuses on the most needed aspects of service while also amplifying impact. Thus, WomEng supports not just the participation of women but ownership of the industry as it structurally changes the landscape for women in STEM.

On the other hand, the dimension of "seeking experience and insight" is not among the top-performing ones in the survey results. While still yielding an above-average score, this dimension belongs to the bottom two in the assessment of WomEng. To shed more light, this survey question focuses on the extent to which a company institutionalizes and stores knowledge that can then be accessed to make decisions. Even though WomEng champions customer focus and has managed to build structures to constantly engage with the needs of their target group, there might be a potential development area in the field of knowledge management to ensure that historical insights can be made use of when arriving at business decisions.

[59] Harambe Entrepreneur Alliance

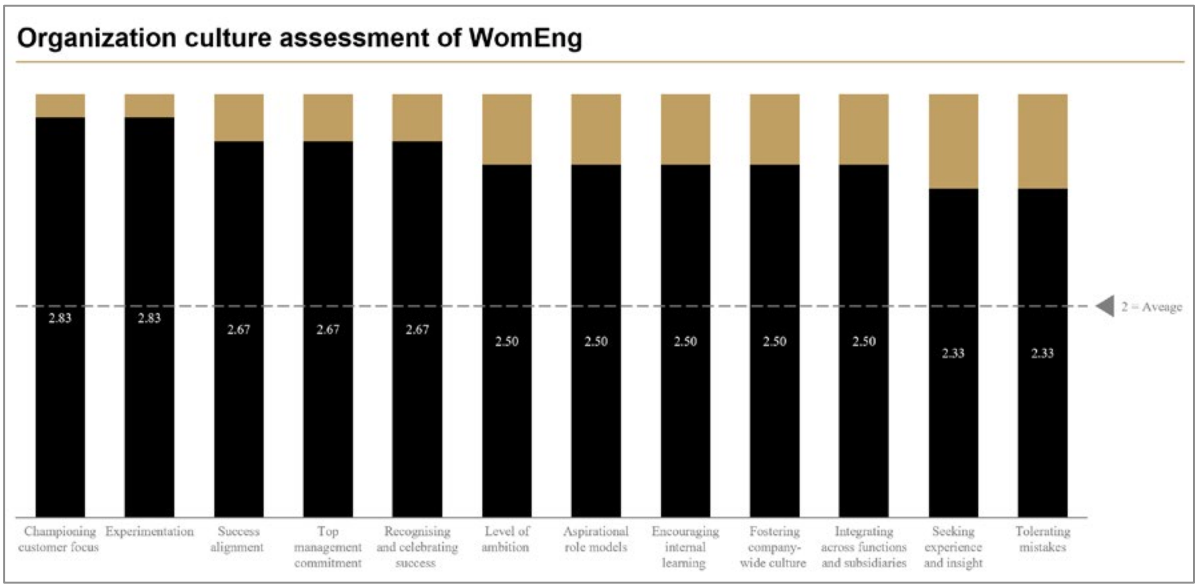


Figure 16: Organization culture assessment of WomEng

The toleration of mistakes is the other dimension in the assessment with the lowest score. It is of value to know that the survey conducted with WomEng was also run with another Harambean company. Equally, the venture had above-average results; yet the toleration of mistakes also became a bottom two dimension of the survey score. Likely, the fast pace of the market environment these ventures find themselves in and the focus on delivering innovation can create a culture of high achievement where the toleration of mistakes can take a second place in view of the strong dedication to impact.

Our team is mainly from a STEM background, either engineers themselves or have worked in the industry. With a deep understanding of the sector and being minorities, they give 100% because they believe in the vision and mission. They go above and beyond, working weekends or long hours. It is that sense of doing something greater than themselves, and that purpose-driven mission that has been the key to the success of our staff staying, even during trying financial times.

– Naadiya Mosajee, Founder of WomEng

Ben Horowitz, the co-founder of multibillion-dollar investment fund a16z, recently published an entire book, *What You Do Is Who You Are*, focused on culture in ventures and how to get it right. It is telling that notable investors like Horowitz spend time analyzing this as a key factor for the success of their portfolio. There has also been a shift of Africa-focused private equity investors to focus increasingly on human capital in businesses they funded, recognizing that the right people and culture have a direct impact on IRR. From one case study, it is impossible to tell the extent to which the culture of many African ventures is a winning factor for their success. However, the case of WomEng certainly shows that the cascading down of the impact focus of an African founder such as Ms Mosajee can leave a lasting mark on people, improve retention and, as a result, drive performance, even in a difficult market environment.

5.3 Andela: Capturing global market opportunity

Certainly, Africa is yet to play a more significant role on the global stage when it comes to being home to businesses that have an international footprint and have scaled accordingly to join the ranks of the top companies in the world. The annual Forbes Global 2000 ranking analyzes year on year what proportion of the largest 2,000 companies in the world come from which continent and country. While there has been an evolution over the years for some African countries, such as Nigeria and Kenya, the overall picture that emerges annually in these maps is still consistent. The African continent is home to very few global companies. This matters because the lack of global companies limits the access of local African economies to hard currency and global employment opportunities.

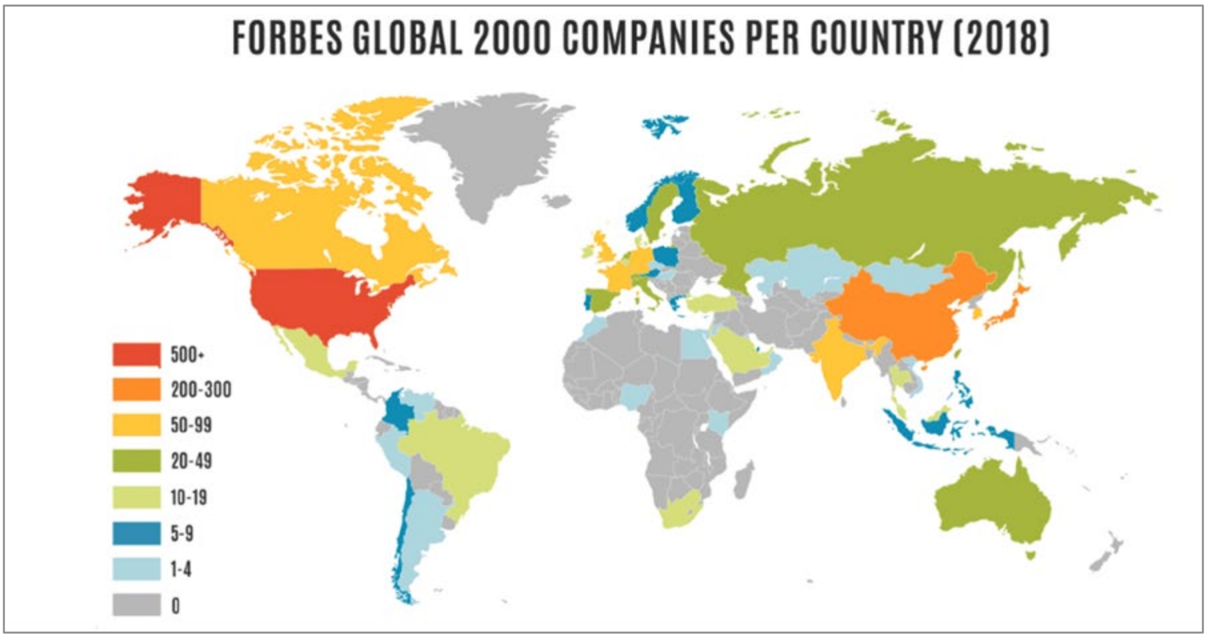
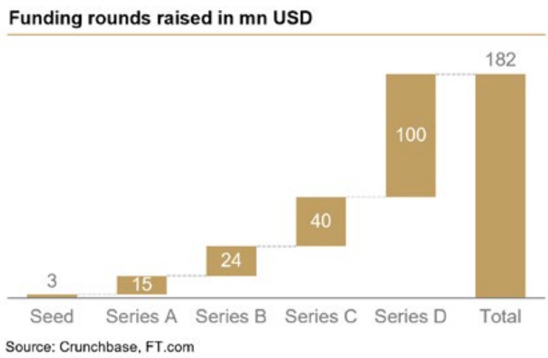


Figure 17: Distribution of global companies (in terms of domicile)

The software development company Andela was co-founded by a team of four – Ian Carnevale, Iyinoluwa Aboyeji, Jeremy Johnson, and Christina Sass, in 2014. Now in its 6th year of operation, Andela has been on an exciting trajectory followed by most investors and entrepreneurs in Africa. Since its inception, Andela has raised more than $180 million in capital over five funding rounds and expanded its office footprint to 7 locations across five countries, including the United States. The motto of the company has traditionally been: "Brilliance is evenly distributed, opportunity is not." In line with that, Andela's flagship software development training program has focused on the identification of hundreds of young talented individuals from across the continent who become engineers with the company upon completion of the in-house classes offered by the company.

Andela announced revenue traction of more than $50 million for 2019, and has, to date, served more than 200 clients with their (mostly remote) teams of engineers. The investment of the Chan Zuckerberg Initiative, which led to a visit by Mark Zuckerberg to the Andela offices in Lagos, Nigeria created a media storm about the company that further built their pipeline of talent and clients. Nigerian employer rankings list the company as one of the top employers to work for in the country. All around, Andela seems to have managed to create a success story.



Projected revenue for 2019:	Number of clients:	Number of engineers:
~50mn USD	**200+**	**~1,200**

Figure 18: Overview Andela

The problem Andela seeks to solve addresses a global need that Africa can solve: the shortage of software engineers and the cost of such talent. The worldwide IT-outsourcing industry has a market value of $90 billion and the remote service culture of Andela allows the business to tap into this global revenue opportunity, making it an interesting sell to global investors, and thus facilitating the raising of larger rounds of capital.

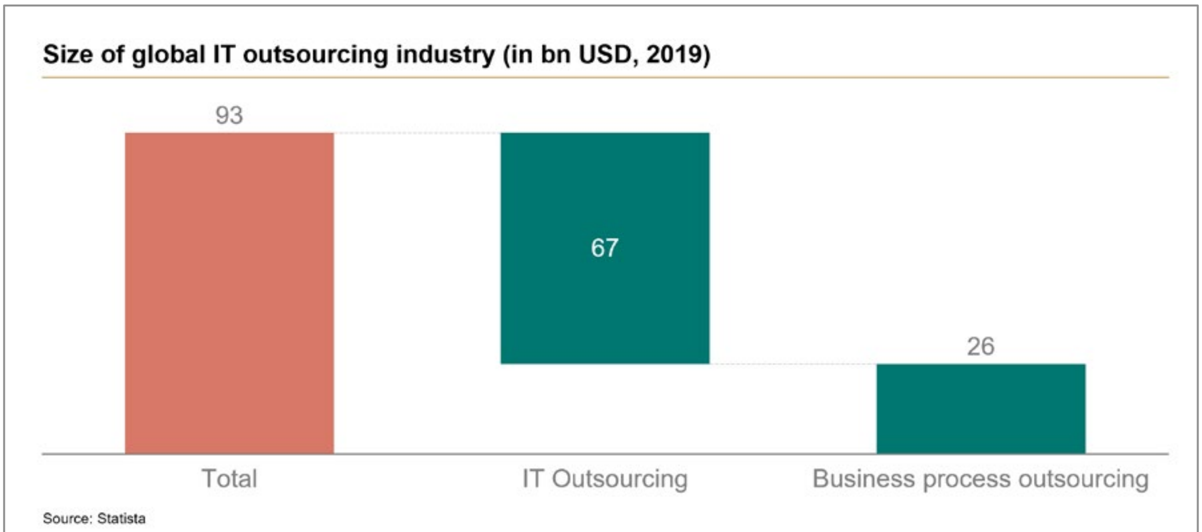


Figure 19: Global market size for outsourced IT-services

Of course, the model has challenges like any other business. In 2019, the business had to let go of a significant number of junior software engineers due to the demand for senior engineering talent by the global talent served; moreover, the cost of African software engineering talent has to compete with other low-cost locations for hiring such engineers such as China. Nonetheless, Andela can be credited with showcasing that Africa can be home to emergent large global companies.

There exists the question of how the consideration of global market opportunity can become a similar winning factor for other African ventures to thrive and be successful. Andela seems to have done a few things right that venture builders on the continent can learn from. Firstly, from the beginning, Andela tied its business model to a global opportunity. Often, the expansion of African businesses across the world is an afterthought, post capture of local market opportunity. Likely, there are specific businesses where the creation of local products and services is needed prior to worldwide expansion. But there are sectors where the consideration of global markets creates a much more compelling case for investors, business growth, and employment alike.

Another such example is Moringa Connect, a business co-founded by Harambean Kwami Williams in Ghana, which mostly generates revenues from exporting organic cosmetics products to the United States. Secondly, Andela sought investment from the markets it aimed to sell to. This likely created much faster revenue traction for the business than it would have been able to sign without a shareholder base that is connected to the geographies or sectors it is operating in. Hopefully, Andela can soon begin serving as an example and inspiration for the creation of more global businesses developed within the continent.

Concluding remarks by Efosa Ojomo

6. Concluding remarks by Efosa Ojomo

Africa is at a major crossroad: the number of young people who will reach working age over the next 15 years is estimated at 450 million, yet, at its current trajectory, the continent is expected to create just 100 million jobs by 2035. At the same time, not only is Africa the youngest continent, with a median age of 19.7 years, the number of people living in poverty continues to increase. How can Africa's leaders, including its entrepreneurs, executives, and politicians, respond to this imminent demographic shift?

Continent	Median age
Africa	19.7
Asia	32
South America	32
Oceania	32.7
North America	38.6
Europe	41.7

Figure 20: Median age by continent

The answer lies in its ability to leverage the power of innovation.

Understandably, innovation is often thought of as an activity that happens only after a society develops—that is after it builds its infrastructure and develops its institutions such as courts, legislatures, financial markets, etc. In reality, however, innovation is the process by which society develops itself. When innovations create, or connect to, new markets by transforming complicated and expensive products into simple and affordable ones, they enable so many more people to access them. In doing so, these innovations create the necessary jobs and tax revenues which in turn enable societies to build their infrastructure and develop better functioning institutions. We call this kind of innovation market-creating innovation.

By no means will innovation alone solve the many governance challenges Africa faces, but on a continent where most governments are severely burdened with debt and barely have enough funds to pay salaries and provide basic services, innovation provides the best vehicle to catalyze widespread development and shared prosperity.

The power of market-creating innovation

In our book, The Prosperity Paradox: How Innovation Can Lift Nations Out of Poverty, we describe the importance of market-creating innovation. From innovations such as the Ford Model T to the Sony transistor radio, market-creating innovations have resulted in exponential growth and have caused companies to grow from small start-ups to global innovation icons. The same thing can happen in Africa. In fact, the same thing has happened in Africa.

The mobile telecommunication revolution in Africa might seem obvious today, but when Sudanese entrepreneur, Mo Ibrahim tried setting up Celtel in the late 1990s, his friends laughed at him. Where he saw an opportunity, they saw poverty and corruption. But he was undeterred and built a mobile telecommunications company that catalyzed significant growth and development in Africa. In just seven years, Ibrahim created more than 5,000 jobs, generated more than half a billion dollars in revenue, and sold Celtel for $3.4 billion. But that was only the beginning.

His market-creating innovation showed other investors and entrepreneurs that they too could successfully build their own mobile telecommunications companies in the poorest continent on earth. And so, they did. From barely anything in 2000, today there are more than 100 mobile telecommunications companies in Africa providing close to one billion subscriptions to customers. The telecommunications ecosystem has resulted in close to four million jobs, provides annual taxes of around $15 billion, and is estimated to be worth around $200 billion. That is the power of market-creating innovation.

While it is encouraging to celebrate the success of Celtel and the telecommunications revolution in Africa, it is also quite sobering. Since the mobile telecommunications revolution, there has not been such a powerful and continent-wide impact of market-creating innovation. The question that constantly haunts me is: how can we do for healthcare, education, logistics, housing, and food production and processing, what we did for mobile phones? Historically, the response to such a question has been for the government to create an enabling environment. But top-down measures often yield unsatisfactory results when they are not connected to market-creating innovations.

Market creation in Africa, for Africa: Supporting the market creators

Growth and development in Europe and the United States happened over centuries, in a world that was not as globally connected. In Japan, China, and other East Asian nations, growth happened more rapidly, and with the authoritative help of governments and state-owned (or supported) enterprises. Africa can neither wait centuries for growth nor will all African governments play such a deliberate and authoritative role in Africa's growth story. Africa's growth and development will take a shape of its own and must be anchored in the thinking of market-creating innovation.

In *The Prosperity Paradox*, we write that a "market-creating innovation is more than just a product or service. It is an entire system that often pulls in new infrastructures and regulations and has the capability of creating new local jobs." In other words, if we successfully create new markets - like Mo Ibrahim did - we ignite the fire of development that can truly lead to sustainable prosperity in Africa. And so, if developing a system that fosters market-creating innovation is the goal, the question becomes, how do we get there? Here are three practical steps.

1. **Support market-creating ecosystem developers**

   Over the past several years, there has been a growth in innovation and technology hubs in Africa. However, many of these hubs have not succeeded in cultivating the sorts of companies that can create new markets. By supporting organizations, such as Harambe and Endeavor, that are focused on finding and supporting brilliant and high-impact entrepreneurs trying to solve many of the continent's challenges, we can begin to change the narrative on Africa's growth prospects.

   Harambe, for instance, has made it its mission to create a network with the necessary resources to find, build, and scale entrepreneurs solving Africa's challenges. To that end, the organization launched the Harambe Prosperity Fund in 2019 to support its mission. Supporting more Harambe-type organizations is one way governments, development organizations, and investors can speed up their impact in Africa.

2. **Focus on outcomes, not activity**

   Organizations interested in doing good in Africa have scaled up their activities since the United Nations Millennium Development Goals (and subsequently the U.N. Sustainable Development Goals) were created. The number of children attending school has increased dramatically, and the number of institutions that now resemble Western-style institutions have skyrocketed. However, much of this activity leads to subpar outcomes. Many children in school are not learning and the few who are cannot find gainful employment upon graduation. Our focus needs to change.

   As this report highlights, there are significant non-consumption challenges or opportunities that market-creating innovators can solve. What if economic development stakeholders focused less on activity and more on outcomes? What if we began annual market-creating innovation challenges targeted at several African problems, from electricity and water to housing and healthcare? A market-creating innovation challenge would simply ask solution providers to increase access to a specific product or service in a region. That kind of challenge could begin to make a dent in some of the issues the continent faces, and in the process create the jobs necessary to prevent future issues.

3. **Think big, start small, leverage technology**

   In some ways, Africa is at a significant advantage when compared to many other previously poor regions. The continent has the benefit of advanced technology that can help accelerate the development of many sectors. For example, a company like MAX.ng leverages technology to connect its motorcycle riders with people seeking a ride in Nigeria's busy cities. In addition, the company also has a logistics arm that helps organizations move parcels and packages around more swiftly. This has resulted in increased productivity, created thousands of jobs, and provided taxes for governments to spend on infrastructure. Imagine if MAX.ng scales across the entire continent of Africa. Technology enables African entrepreneurs to think on a much bigger scale than ever before.

The end of poverty in Africa

For too long Africa has been synonymous with poverty, underdevelopment, and suffering. And although Africa has experienced periodic bouts of growth over the past two decades, much of that growth has not benefited the growing 1.3 billion people on the continent. Inclusive growth is unlikely to come from governments where the average annual expenditure per African citizen hovers around $800. Contrast that with Norway, Denmark, and Sweden who spend $36,871, $30,415, and $27,000 per citizen, respectively. Africa's population continues to grow, if the continent does not create new sources of revenues, it will find itself in much worse shape. But there is hope.

Africa's growing market-creating innovators, as highlighted by some of the most promising Harambeans hold the key to ignite the continent's prosperity engine. Through my research, I have learned that prosperity is a process, not an event; it happens over time when the right pieces come together. The critical missing piece in Africa's prosperity puzzle has been market-creating innovators. Harambe is a big, bold step in the right direction. For Africa's future, we must ensure its success.

About Harambeans and Africa Foresight Group

7. About Harambeans and Africa Foresight Group

Harambeans

The Harambe Entrepreneur Alliance is the premier network of African innovators (Harambeans). Harambeans have spawned a series of tech-enabled ventures such as Andela, Yoco and Flutterwave. Collectively Harambeans have generated over 3000 jobs, raised over $500m from Google Ventures, Chan Zuckerberg Initiative and Alibaba.

Africa Foresight Group

Africa Foresight Group (AFG) is the largest online network of top management consultants in Africa. Focused on the elevation of African people and companies to the global level, AFG builds remote and on-the-ground teams to support clients with impact-driven talent in projects ranging from several weeks to years in duration. AFG brings innovative solutions and support that enables African businesses, investors and development partners to thrive in our dynamic market.

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