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Technology and Innovation in Africa: Which lessons can be learned from the ‘Silicon Valley’ Model?

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First of all, what *is* Silicon Valley?

Silicon Valley, far from its humble beginnings as a quaint business district in the heart of California, has become emblematic of the idea of “Big Tech”, bringing with it the promise of investments, opportunities, and technological innovations.

In conversation, Silicon Valley is heralded as emblematic of 21st century's economic success and a harbinger of the digital revolution for good reason. Some of the biggest companies in the realm of information technology, research and development (R&D) call the fertile valley their home: Apple, Meta (the parent company of Facebook, Instagram, and WhatsApp), Alphabet (parent company of Google), Tesla, and Adobe Systems, just to name a few.

Indeed, this economic success story has inspired entrepreneurs and imitators the world over. From Togo to Japan, Brazil to Cameroon, financial speculators, investors, and engineers have given birth to their own 'start-ups' and businesses, all in the hope of reaching some semblance of the riches, fame, and success associated with Silicon Valley.

Understandably, given that seven out of ten of the richest people in the world made their fortune in technology, Elon Musk, Jeff Bezos, Bill Gates, and Larry Page all serve as world-renowned examples. In large part thanks to these companies' presence, the combined earnings reports of these companies vastly exceed the GDP of the majority of nations in the world.

The question on everyone's mind is obvious: Is it possible to harness the "spirit of Silicon Valley" and create a company that will change the world and the very way we think about technology? And if so, how?

This article will seek to pull lessons and recommendations from the Silicon Valley model to serve African entrepreneurs in the pursuit of technological growth.

Silicon Valley, Separating Myth from Reality

Before attempting to understand how Silicon Valley gained its dominant global social status and became the economic powerhouse that it is today, it would be helpful to first identify what are the facts of the situation and

what is simply fiction.

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Contrary to how it may sound, Silicon Valley is not a census designated location or formal township in the United States, but rather an informal name given to the strip of land just south of the San Francisco Bay, between San Francisco and San José in California. As of the most recent census, the region welcomes roughly three million habitants, a number that only continues to grow each year as businesses continue to prosper and more and more entrepreneurs call the region their home.

According to the author-journalist Fabien Benoit in his recent exposé The Valley (Arènes, 2019), California has become “the El Dorado of American Pioneers in the second half of the 19th century during the taming of the West,” going on to say that “Silicon Valley is [] by a mythology that is uniquely American”.

Far from Those Humble Beginnings

These days, far from those humble beginnings, the biggest names of Silicon Valley traded in their hats, and have become monoliths in their fields, almost synonymous with the very term bureaucracy and unchecked power. Indeed, after the events of Cambridge Analytica in 2016, it’s become clear that individual social-media giants, such as Facebook, can be used as powerful tools to influence elections and global geopolitics.

But what economic and social conditions allow such a powerful company to come into existence in the first place?

It may help to look at other global leaders in the tech sector for guidance, such as Japan, South Korea, and India. When we consider the social factors that are also present in other advanced nations, a socio-economic environment friendly to technological advances first requires an infrastructure of communication and development between the state and the private sector. In other words, maybe the idyllic conditions of Silicon Valley have less to do with the ingenuity of its original founders, but rather by the public policy, communication infrastructure, and economic regulations already present in the United States.

The Silicon Valley model could be difficult to apply directly to another country because it would require changing an entire system of regulations and economic and social structures. To lay the groundwork for such a system would require the development of a complex interrelated and mutually-beneficial network of human resources, capital finance, a powerful internal university system, an integrated primary school track, research and development, a legal code that lends itself to the maintenance of the above-mentioned systems, and finally an organized state capable of supporting all of these moving pieces.

Inequality of Access

Nevertheless, despite the strengths of the Silicon Valley model, it has been severely critiqued for its lack of diversity and inclusion. As Silicon Valley provides opportunities for billions of people who benefit from the extravagance of the technological environment, it can prove ruthless to others.

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in reality, the ladder to success seems to be missing some of its bottom rungs. At the heart of Silicon Valley dwells a contradiction between the widespread idea of "easy access" and the difficulties of access for hundreds of entrepreneurs.

According to sociologist Olivier Alexandre, "The 'network' is the form of sociability which provides the most structure in Silicon Valley, and a network is strongest when it is open to all".

Moreover, if we look more closely, the purported egalitarian network of Silicon Valley increasingly resembles a traditional hierarchical power dynamic, that is to say, structured, closed, nepotistic, and homogeneous. To be precise, the social structure of Silicon Valley is in line with that of the dominant class structure: the majority of entrepreneurs and CEOs are white men, usually graduates of 4-year universities.

According to an interview with Elsa Jungman, a French entrepreneur and founder of Elsi Skin Health, "Other women investors have been more sensitive to my project than men. In the beginning, there were no doors open to raise the initial funds."

Echoing this sentiment, Saritha Rai, a journalist covering the technology sector for Bloomberg News, said, "the representation of women [in the technology industry] is far from what it should be."

In conclusion, despite the challenges at the heart of Silicon Valley, the American model can inspire other countries in other parts of the world, such as West Africa, to learn important lessons without falling into the same traps.

Will Africa see the birth of the next Silicon Valley?

Over the past ten years, many questions have been raised to African leaders and heads of state, such as: Could a "West African Silicon

Valley" allow its country's citizens to reap the benefits of the next generation of technological innovation? Will Africa see the birth of the next Silicon Valley?

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On the other hand, many argue against the systematic comparison between Africa and Silicon Valley. According to Rebecca Enonchong, co-founder of Afrilabs and the African Business Angels Network (ABAN), in an interview with LADN: "Every country in Africa has its own model that offers something different. If we take entrepreneurs from Silicon Valley and place them in Cameroon, they may not succeed because the environment there is very different from the United States." She goes on to say, "Skills are not systematically transferable."

More than a lack of skills transfer, the continent's objectives, conditions and challenges are not necessarily comparable with those of the United States. Each country and region in Africa has its own strengths and obstacles.

Having provided this caveat, the second half of this article will seek to respond to questions concerning the concept of a technological independence, the physical challenges in our modern society, and obstacles for the African continent.

What are the indicators of an emerging power?

In today's world, in the face of globalization, the pandemic, and ever-changing industrial fields, the development of a powerful technological sector represents not only the opportunity for economic competitiveness,

but also the ability to innovate in the face of uncertainty.

What are the indicators of an emerging power? According to a report published by the Policy Center for the New South, a Moroccan think tank based in Rabat, when considering a region's ability to succeed, we must take account of that country's gross domestic product (GDP), the culture of scientific innovation, and that country's spending on research and development (R&D).

At the international level, gross domestic product (GDP) is the definitive measure of a country's power. A country's GDP reflects a country's internal economic activity and is often used as an indicator of growth and industrial potential.

The culture of scientific innovation of a nation depends on the educational network, the social fabric, and the ability of start-ups to obtain financing from local and international investors.

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Another key indicator that is often used to measure a government's ability to expand its technological capability is the amount of money spent on R&D. This index can be difficult to measure since it is meant to measure the total of R&D across both the private and public sectors. As many spending reports across the private sector are inaccessible, this can leave giant holes in the data.

In short, bringing together all the indicators of an emerging power requires an ethical, practical and rigorous commitment and a partnership between the public and private sectors.

This truth represents the first obstacle for countries wishing to apply the 'Silicon Valley' model to their own economy. Nevertheless, when discussing a continent as diverse as Africa, not all countries are at the same level of technological development.

Some countries, such as Nigeria, Kenya, and South Africa, have already witnessed the emergence of many start-ups in their capitals and urban areas. However, there is a lack of innovation in Central African countries, a problem that contributes to the technological gap between central and eastern and western countries.

The African continent is not a monolith, and it cannot directly apply a foreign model built on a complex system of financing, technology, and institutional education.

Which obstacles stand in the way of development?

In the coming years, in order to achieve a level of development sufficient to build a structured technology and IT sector, Africa must face its own challenges. These issues can be summarized as: the weakness of the state education system, the delay in the development of information and communication technologies (ICT), and the lack of R&D funding.

As far as the education system is concerned, the African continent has so far lagged behind other regions of the world. This educational gap extends from preschool to higher education, and can be explained by the inadequacy of the expenditures dedicated to the school environment and the slow rate of development of an educational system updated for the 21st century.

To update the education system, more funding needs to be devoted to educational infrastructure and innovation. For example, STEM fields (science, technology, engineering and mathematics) can take a more central role for universities and high schools to better prepare students to

respond to the technological challenges of the future.

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Some other African countries already have an excellent education system in secondary schools, for example, Morocco and Egypt, but they still lack a sufficient university structure to accommodate their future students pursuing careers in fields such as software, technology, and engineering. In order for Africa to adequately prepare its future students to tackle the obstacles related to Western dependence, there must be an educational overhaul.

Another obstacle that Africa must overcome in the struggle to establish its own technological power is the delay in the development of information and communication technologies (ICTs). According to a report by the International Telecommunication Union (ITU) ,“Africa’s ICT Development Index has by far the lowest average value [2.53%], less than half the average of other regions of the world”, a figure that has hardly changed in the last three years. The central challenge is the combination of a lack of communication infrastructure and a lack of digital connectivity. Together, these two factors can pose a significant hurdle to Africa’s development.

Finally, in order to achieve sufficient power to push new companies and encourage new startups to start up in Africa, a new strategy must be put in place to attract funding for R&D, both locally and internationally. To put the gap in perspective, a publication of the UNESCO Institute of Statistics entitled “How much do countries invest in R&D?” revealed the ranked R&D spending of all the countries of the world. On this list, the United States, China, Japan, and Germany took the lead. In general,

African countries remain quite far from the top of the list, averaging 1% of GDP spent on R&D.

Conclusion

In conclusion, the systematic comparison between Silicon Valley and African companies is simply not fair given the countless differences concerning the developmental history of the two regions.

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In any case, entrepreneurs in Africa can learn from the experience of other countries such as China, India, and Brazil, by launching an "imitation phase" when the means are lacking to initiate their own R&D. Under this model, start-ups in Africa can design their new innovations as they become dependent on R&D already established in other developed countries.

What is clear is that African states cannot skip an essential period of development in hope of reaching an era of faster growth. To achieve excellence in technology and innovation, African states and the private sector must first address challenges and invest in education, ICT, and R&D.

Photo: Cercle Promodul INEF

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