

The State of Crypto

Africa

Arcane Research

2020

In collaboration with

LUNO



Arcane
Research



Disclaimer

This report is made in collaboration with Luno, the leading cryptocurrency exchange in Africa. The report is written and compiled by Arcane Research. Luno has provided valuable data and feedback, but Arcane Research has had full autonomy.



Arcane Research

Arcane Research is a part of Oslo-based Arcane Crypto, bringing quantitatively-driven analysis and research to the cryptocurrency space. After launch in August 2019, Arcane Research has become a trusted brand, helping clients strengthen their credibility and visibility through research reports and analysis. In addition, we regularly publish reports, weekly market updates and articles to educate and share insights.

Luno

Luno is a cryptocurrency exchange that makes it safe and easy to buy, store and learn about cryptocurrencies like bitcoin. They have over 4 million customers across 40 countries, backed by leading investors including Balderton Capital and Naspers. Their platform has processed over 8 billion dollars since launch. They have one of the world's most international cryptocurrency teams with 26 different nationalities working across the United Kingdom, Singapore, South Africa, Indonesia, Malaysia and Nigeria.

Authors

Ben Whittle
Torbjørn Bull Jensen
Bendik Norheim Schei

The State of Crypto: Africa



Summary

Africa is one of, if not the most promising region for the adoption of cryptocurrencies. This is due to its unique combination of economic and demographic trends. While the overall adoption is relatively low, the potential is enormous, the growth is rapid, and the development is likely to become defining for the cryptocurrency industry going forward.

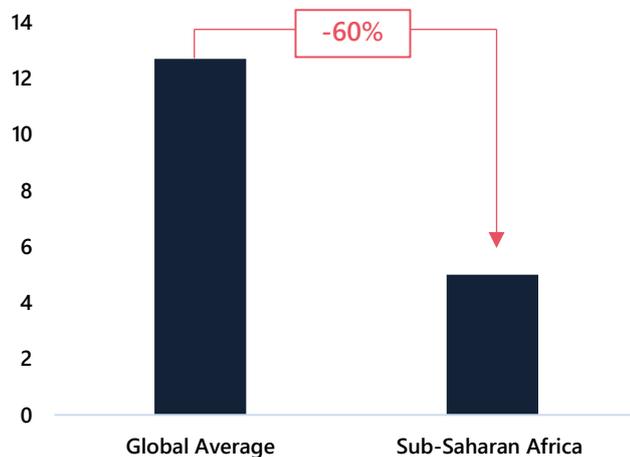
A young population, failing currencies and costly payments

Although it is a diverse region, African nations share some key similarities and trends. Economic problems, from high inflation rates and volatile currencies to financial issues such as capital controls and a lack of banking infrastructure, create a fertile ground for an alternative to germinate.

Cryptocurrencies are positioned to become the ideal antidote to these challenges.

Bitcoin and some other crypto assets are unique in that they combine the wealth preservation properties of hard assets such as gold with the portability of digital currencies, combined with an unparalleled degree of censorship resistance.

Commercial Bank Branches (per 100,000 adults)



Source: *The World Bank*

A real use case

Remittances are an important source of income to many families and a source of foreign currency to many countries. Last year, expats sent around \$48 billion back to families in Sub-Saharan Africa according to the [World Bank](#). Yet, traditional money transmitting services charge very high fees, with an average of 9% for \$200 remittances sent to the region. Similarly, intra-African payments struggle with both high costs and low speed.

Services like Bitpesa leverage bitcoin to overcome these issues, and P2P-platforms like [Paxful](#) are used in innovative ways to move money faster. In addition, the use of stablecoins and decentralized finance (DeFi) can help overcome many of the problems experienced by those who are currently underbanked and excluded from international finance. Add the demographic and societal trends, with a fast-growing, young and mobile-native population, there is no doubt that Africa is well-suited to the rapid adoption of cryptocurrencies.

While much of the focus elsewhere has been on investment, speculation, and trading, Africa, more than any other continent has a need for the utility of cryptocurrencies.

Lacking infrastructure and hurdles to overcome

Cryptocurrency adoption in Africa is somewhat of a dichotomy. Although researchers have identified high ownership rates in certain countries, there is a significant lack of the typical infrastructure we see elsewhere such as nodes, mining operations, supporting merchants, ATMs and exchanges.

To realize the potential of cryptocurrency in the region and see swift adoption, there are some major challenges that are still to be overcome.

Among these are inadequate internet coverage, competition from mobile money services and hostility from national governments.

The legality of Bitcoin and other crypto assets varies significantly across the region, with over 60% of African governments yet to clarify their position. This uncertainty, while not an absolute barrier, is a drag on the speed of adoption.

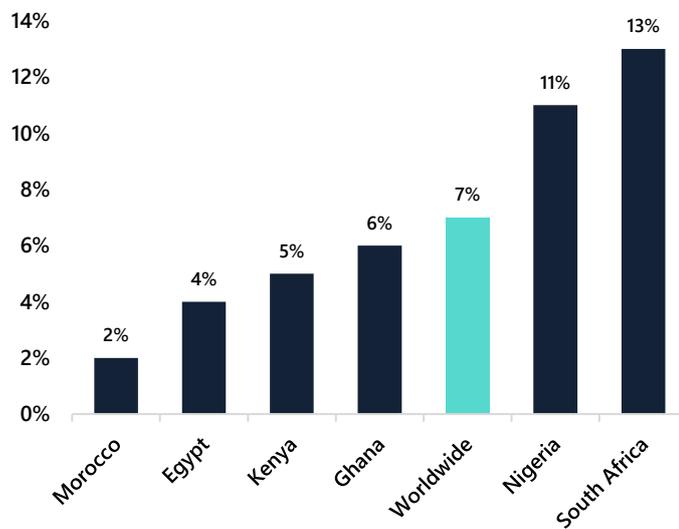
Competition from mobile money services

When it comes to the competition from mobile money services, it is a double-edged sword. Mobile money has become incredibly popular in some African countries such as Kenya and Zimbabwe. Cryptocurrency adoption may struggle in the face of such dominance due to the business moats and network effects that have developed around these services.

At the same time, these services have made users comfortable with digital and mobile payment solutions, perhaps paving the way for alternative mobile solutions such as cryptocurrency wallets.

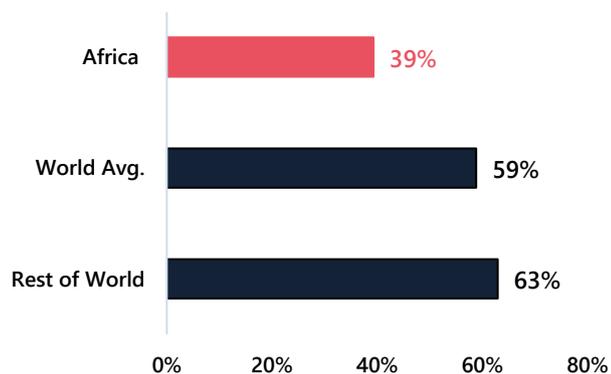
Furthermore, cryptocurrency solutions can compete on cost. While mobile money services rely on a centralized business model to operate, extracting fees from customers of up to 11%, cryptocurrencies can often function with negligible costs to users.

*Africa Overview: Ownership of Cryptocurrency
Percentage of Internet Users Aged 16 to 64*



Source: *Digital 2020 Global Digital Overview*

Internet Penetration (% Population) in Africa



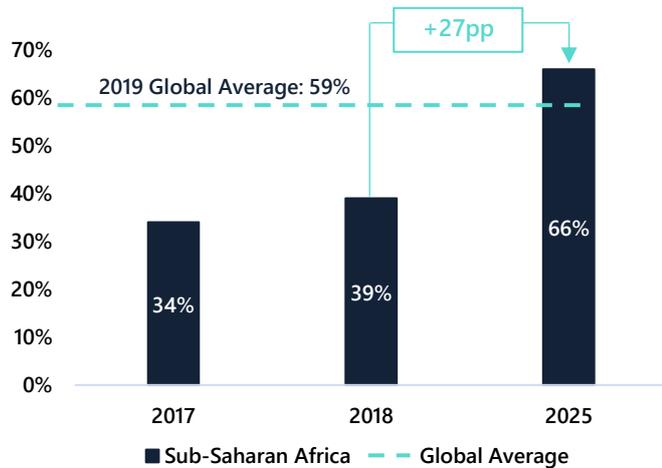
Source: *Internet World Stats*

Low smart phone penetration

A perhaps bigger hurdle is the relatively low smart phone penetration. Most cryptocurrency wallets only work on smartphones, unlike most of Africa’s mobile money services, which operate on more basic devices. Sub-Saharan Africa lags the global average (59%) in terms of smartphone usage, making cryptocurrency adoption more difficult.

Over time, this hurdle is expected to decrease, as the adoption rate of smart phones is growing rapidly.

Projected Smartphone Growth in Sub-Saharan Africa



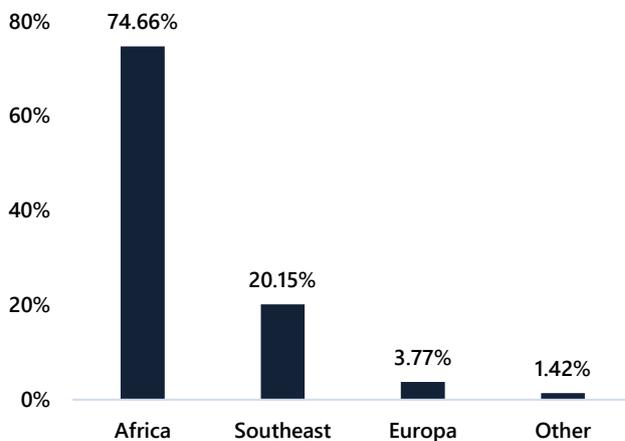
Source: GSMA

Business opportunity

There is no doubt that the continent still requires significant investment in both general and crypto-specific infrastructure such as internet and electricity networks as well as exchanges.

However, this underdevelopment presents a large opportunity for projects and companies to take advantage of. Building out the necessary infrastructure, drive adoption and secure customers in one of the fastest growing markets.

Luno Customers by Region



Source: Luno

Luno is one example of a company successfully seizing this opportunity. Luno is probably the most in-demand and conventional cryptocurrency exchange that services African markets, with 4 million customers, most of which are African. Launched in 2013, the exchange has offices in Cape Town, Johannesburg and Lagos and has processed approximately \$4.5 million per day on average in 2020.

Paxful, a P2P exchange, is also highly popular across Africa, with 1,350,000 wallets, accounting for 45% of its global count. Volumes have been increasing significantly, with the platform in October last year reporting a yearly increase of 64% in the number of trades across the continent.

South Africa, Nigeria, Kenya, and Ghana account for the majority of demand, while the Ugandan and Zambian markets are growing consistently. Beyond its business interests, the company also conducts an education program across Eastern and Southern Africa, teaching young people about the industry.

Luno and Paxful are just two examples of ever more exchanges and projects building out much needed infrastructure. This will form the foundation for explosive growth in the African cryptocurrency industry over the next decade. We already see a lot of growth and expect development to accelerate over the next years.

Some notable crypto companies in Africa

Luno

LUNO

Paxful

PAXFUL

AZA Group



Binance



Huobi



The Sun Exchange



Acoin



Coindirect

coindirect.

NariaEx



PayPlux



Ice3x

ICE3

Bundle



AltCoinTrader



Quidax



VALR



Remitano

Remitano

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The State of Crypto: Africa

Jack Dorsey recently caused a stir when he announced his intention to move to Africa in order to work on Bitcoin. In his tweet, Dorsey stated that “Africa will define the future (especially the bitcoin one!)”. On the face of it, this declaration might seem strange, although, on closer inspection, there are many reasons to be bullish on the continent’s prospects for Bitcoin and other cryptocurrencies.

Although it is a diverse region, African nations share some key similarities and trends. Economic problems, from high inflation rates and volatile currencies to financial issues such as capital controls and a lack of banking infrastructure, as well as demographic and societal trends, with a fast-growing, young and mobile-native population, make Africa well-suited to the rapid adoption of cryptocurrencies. While much of the focus elsewhere has been on investment, speculation, and trading, Africa, more than any other continent has a need for the utility of cryptocurrencies.

At the same time, there has been very little discussion or analysis of the state of cryptocurrency in Africa. In this report, we examine the infrastructure, growth catalysts, roadblocks to adoption and possible solutions as well as some of the projects and crypto assets best positioned to capitalize on the potential across the continent.



Catalysts for Adoption

High potential for cryptocurrency adoption with several catalysts: Economic, Political Instability, Financial Infrastructure, Digital & Mobile Trends & Demographics



Obstacles to Overcome

Still important obstacles: Internet Coverage, Competition from Mobile Money Providers & Resistance from Regulators



Exchanges, Crypto Assets and Projects

Growing exchange infrastructure with notable development across the continent, including players like Luno, Binance and BitPesa.

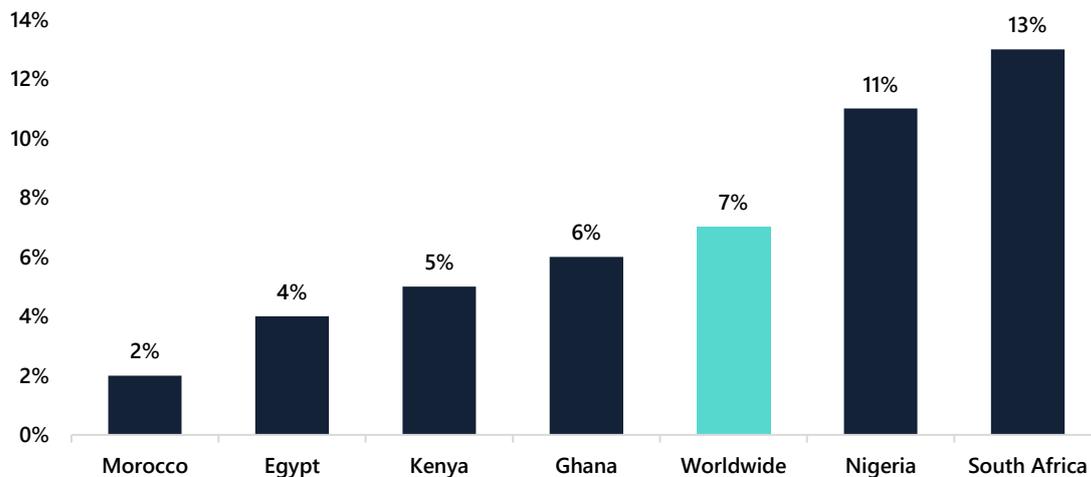
A Mixed Picture

Cryptocurrency adoption in Africa is somewhat of a dichotomy. Although researchers have identified high ownership rates in certain countries, there is a significant lack of the typical infrastructure we see elsewhere such as nodes, mining operations, supporting merchants, ATMs and exchanges.

Popular on google and high ownership rates

For instance, over the past 12 months, Google Trend data shows that Uganda, Nigeria, South Africa, Kenya and Ghana are all ranked in the top 10 on the topic of cryptocurrency. Although this data is relative and not necessarily indicative of absolute values, it does demonstrate a growing interest in cryptocurrency in these countries. Similarly, between two recent surveys, one showed that among internet users who owned cryptocurrency, South Africa ranked third highest worldwide at 13% with Nigeria ranked 5th at 11%, while another showed that 16% of South Africans with internet access had either used or owned cryptocurrency, ranking only behind Turkey, Brazil and Colombia.

*Figure 1: Africa Overview - Ownership of Cryptocurrency (Selected Countries)
(Percentage of Internet Users Aged 16 to 64)*



Source: *Digital 2020 Global Digital Overview*

Lack of low-level technical adoption

However, these ownership rates are mirrored by an extremely underdeveloped infrastructure. Of the 10,267 Bitcoin nodes worldwide, just 20 (0.2%) are located in Africa. For Ethereum nodes, the number is smaller (12), but the percentage about the same (0.2%). Of the nodes that do exist, the vast majority are based in South Africa. Bitcoin's Lightning Network is similarly immature. Africa accounts for just 0.24% of BTC Lightning nodes, contributing just 0.07% of total network capacity, yet again with almost all contributions stemming from South Africa.¹ Even though these numbers might be an underestimation, as many operate nodes out of data centers like AWS, it clearly indicate a lack of low-level adoption of the technology on the continent.

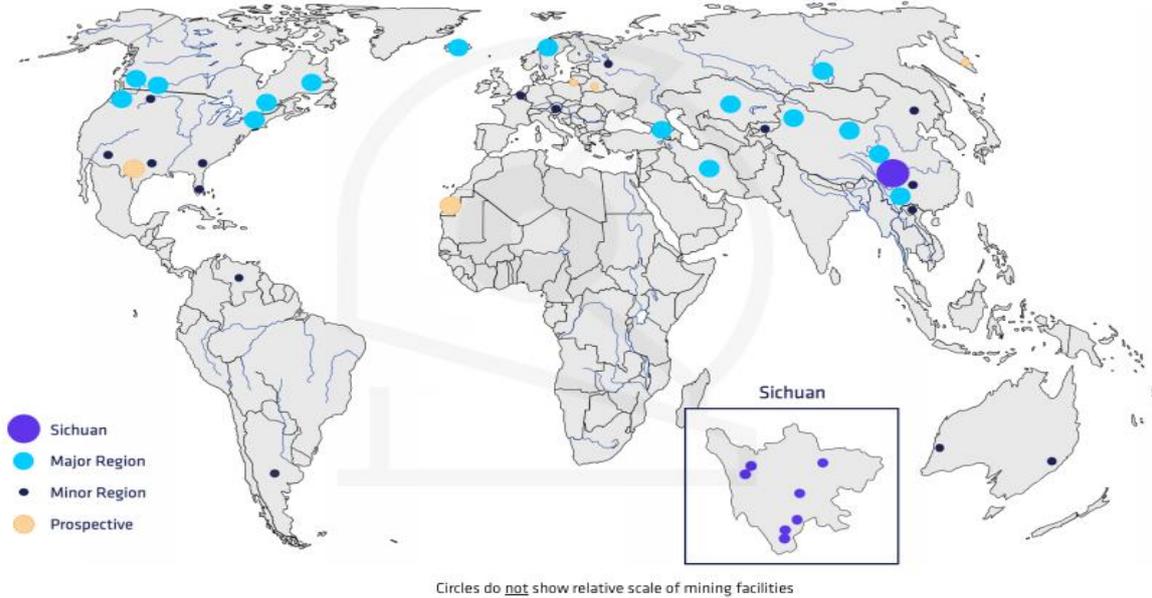
¹All node data is collected on April 22, 2020.

Limited mining activity

Furthermore, despite anecdotal reports of mining operations across the continent, the latest research from CoinShares shows that there is zero meaningful Bitcoin mining activity across Africa.

Figure 2: Global Overview of Bitcoin Mining Regions (December 2019)

Figure 5: Global Overview of Bitcoin Mining Regions. Regions With Large Relevant Regions Shown in Teal, Sichuan in Blue and Remaining Minor Regions in Black

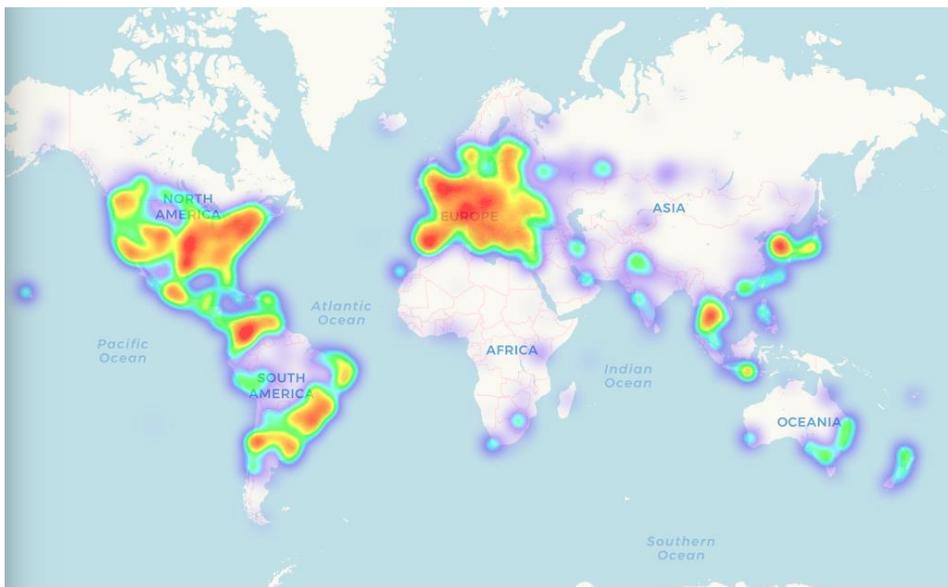


Source: [CoinShares](#)

Limited merchant adoption

Similarly, the number of merchants accepting cryptocurrency and ATMs is seemingly lower in Africa than in any other region.

Figure 3: Merchants that Accept Cryptocurrency Worldwide



Source: [Coinmap](#)

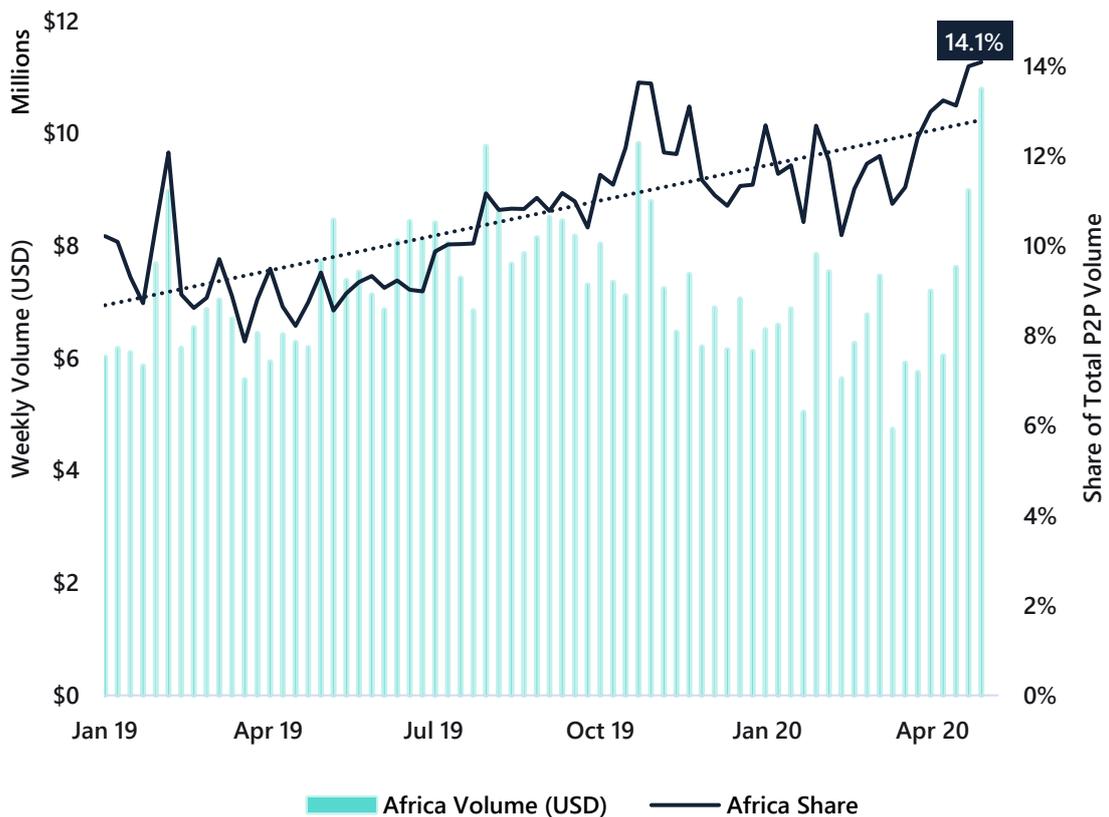
Low trading volume

Trading volumes tell a similar story. Of the publicly available trading data, across non-P2P exchanges, there is normally less than \$10 million in daily trading volume across different African currency pairs. Luno contributes the majority of this volume, with Binance accounting for a moderate amount, according to data from CoinGecko.

More P2P trading

On the other hand, Africa accounts for a comparatively much larger share of the P2P trading market, although the absolute numbers are smaller than across non-P2P venues. As can be seen in the graph below, trading across Africa now accounts for more than 14% of LocalBitcoins' and Paxful's global weekly trading volumes with activity focused in Nigeria, Kenya, and South Africa. The volumes have also seen a significant boost in 2020, just surpassing \$10 million in weekly volume across the two platforms, based on numbers from Coin Dance.

Figure 4: P2P Weekly Volume in Africa



Source: Coin.dance

Africa's Bitcoin Lady

| Alakanani Itireleng



"I'm not saying I'm perfect like I'm super good in this Bitcoin thing, but I'm learning almost every day, so the knowledge that I get, I'm able to share with the people that come to my meetups."

Widely known as the "Bitcoin Lady" for her work in cryptocurrency and blockchain education, Alakanani Itireleng is the founder of the Satoshi Center. From Gaborone to the world she has been helping people get started with cryptocurrencies since 2013. As an international influencer she advocates for cryptocurrencies as she believes in the power of technology to help emerging markets, particularly in Africa, leapfrog modern economic and banking problems.

Catalysts for Adoption

Despite Africa's currently underdeveloped infrastructure, there are several major catalysts that are conducive to the widespread adoption of cryptocurrency over the next decade. Many of these factors are unique to the African continent and present an excellent opportunity for projects that can leverage the region's potential.

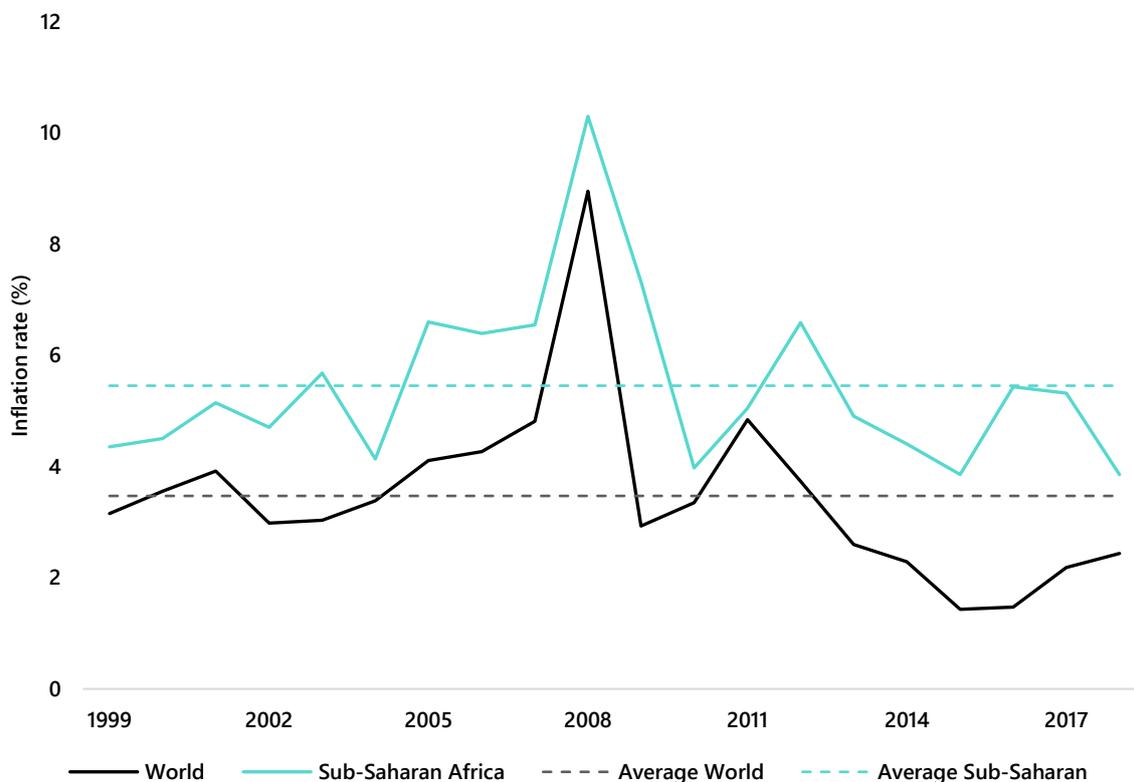
Economic

Over the past 20 years, the majority of African nations have suffered from high inflation rates, robbing citizens of wealth and purchasing power. Bitcoin and other cryptocurrencies that have limited supplies, disinflationary monetary models, and decentralized governance, offer protection against such effects.

High inflation

Inflation rates across Africa have historically been much higher than the global average. Extreme examples such as Zimbabwe's hyperinflation distract from the point that most citizens are subject to high and chronic inflation rates.

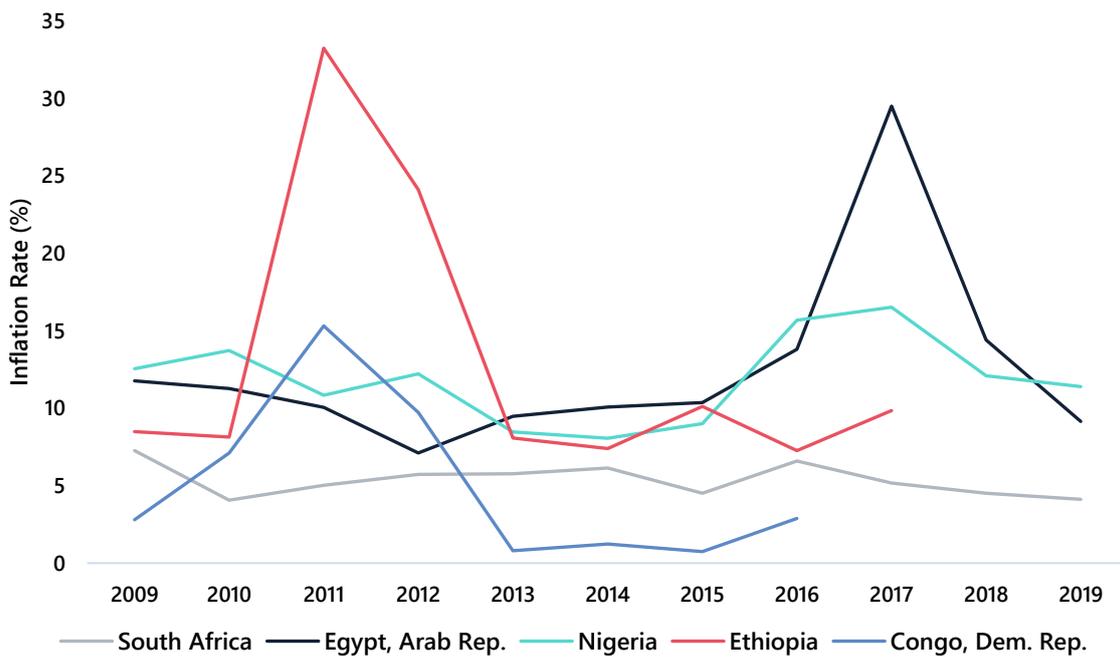
Figure 5: Inflation Rate for Sub-Saharan Africa vs Global Average 1999-2018



Source: [The World Bank](#)

Among the five most populous African countries, inflation over the past 10 years has typically ranged between 5-15%. High inflation affects not only underdeveloped countries but also the more developed nations such as Nigeria, South Africa, and Egypt.

Figure 6: Inflation Rate for 5 Most Populous African Nations 2009-2019



Source: The World Bank

Mirroring the effects of inflation, many countries suffer from depreciating and often volatile national currencies.

The best example over the past 10 years has been the South African Rand (ZAR) that, despite recent stability, has lost over 50% of its value against the US Dollar, while also being one of the most volatile FX currencies. Other African currencies such as the Nigerian naira (NGN), Egyptian pound (EGP), Algerian dinar (DZD), Ethiopian birr (ETB) and Ghanaian cedi (GHS) have fared similarly.

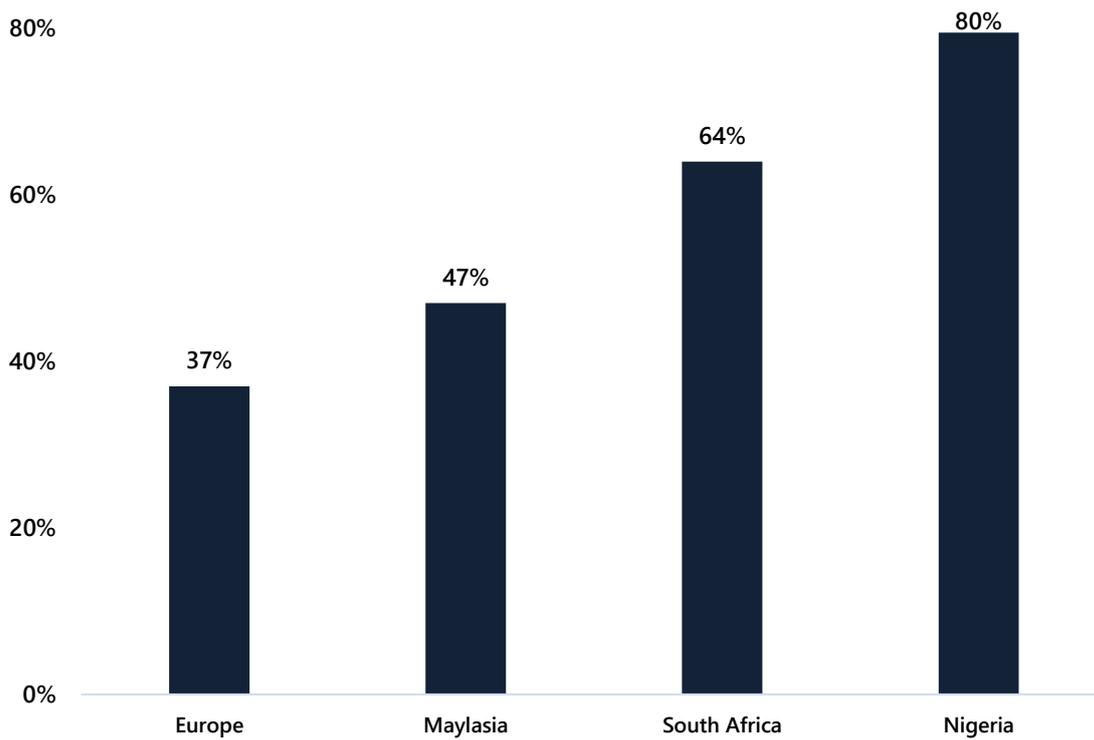
Figure 7: ZAR/USD 4-Week Average (2010-2020)



Source: Tradingview

Disinflationary crypto assets that enjoy digital scarcity are certainly one option for citizens to escape these effects. Stablecoins pegged to fiat currencies such as the US Dollar that have historically outperformed African currencies also present an effective solution. Data from a survey recently conducted by Luno, shows that their African users are much more interested in a USD backed stablecoin compared to their users in other regions. As shown in the graph below, 80% of the Nigerian users expressed an interest in buying a USD stablecoin. Amongst the European users, only 37% expressed such an interest.

Figure 8: Luno customers - Demand for USD stablecoin



Source: Luno

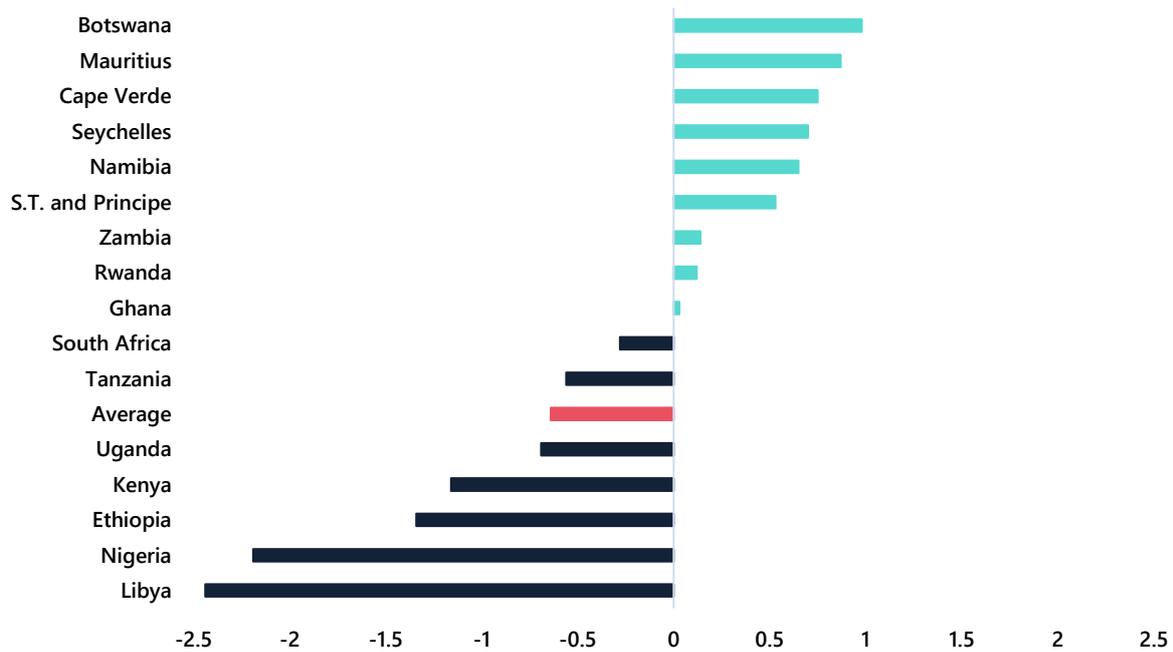
Political Instability

The fragility of national politics and unstable government structures can also be partly addressed by cryptocurrencies. Not only does political instability exacerbate inflation and currency volatility but it can also have far deeper effects such as forced migration, GDP collapse, and wealth confiscation, all of which have been prevalent over recent decades.

Bitcoin and other cryptocurrencies are unique in that they combine the wealth preservation properties of hard assets such as gold and land with the portability of digital currency, combined with an unparalleled degree of censorship-resistance. These properties, in combination, make cryptocurrencies the ideal antidote to political chaos.

Africa has been beset by regime change, civil wars, and mass migrations for much of the past 70 years. Data from the World Bank lists just 9 of the 53 African nations with a positive score on the political stability [index](#).

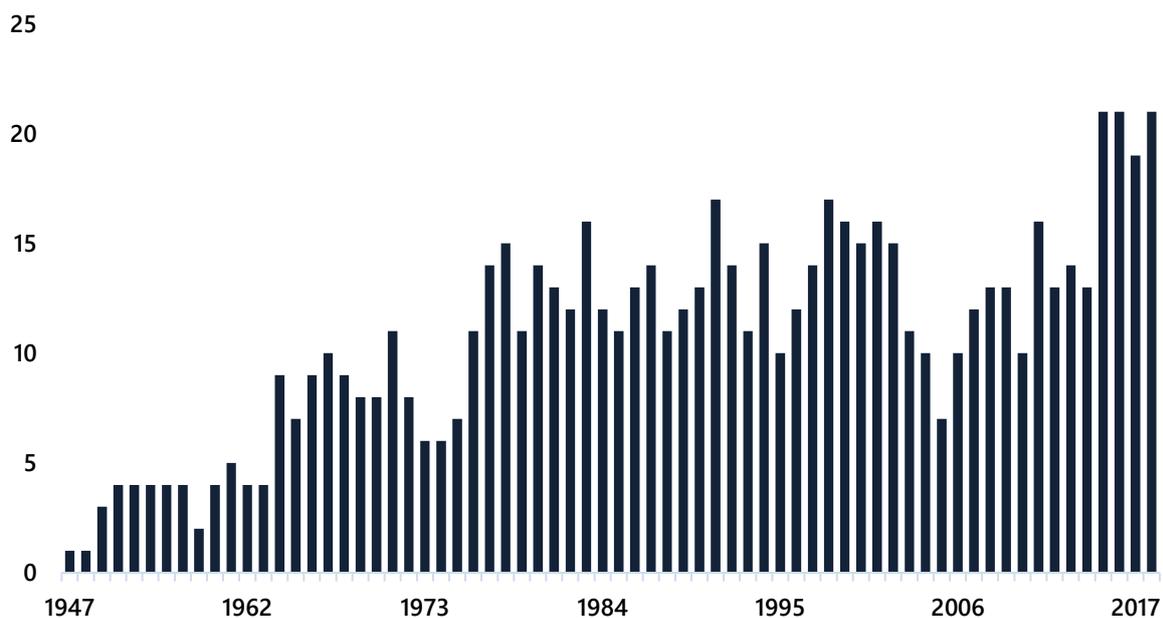
Figure 9: Political Stability Index in Africa – Selected Countries (-2.5 weak; 2.5 strong)



Source: The World Bank & [The Global Economy](#)

The number of conflicts across the continent has been increasing in recent years, with 2018 registering the highest amount of civil conflicts since 1946. Over the past five years, Burkina Faso, Mali, Chad, South Sudan, Ethiopia, Central African Republic, Congo (DR), Mozambique and Nigeria have seen significant violence and civil disorder. Beyond this, land seizures have occurred in Zimbabwe, while, in South Africa, the government intends to carry out land seizures without compensation, with an estimated 10% of privately held land already appropriated. In many of these cases, cryptocurrencies, offer at least some financial and economic protection, that is almost impossible to achieve with other asset classes.

Figure 10: Africa - Number of State-Based Conflicts (1947-2018)

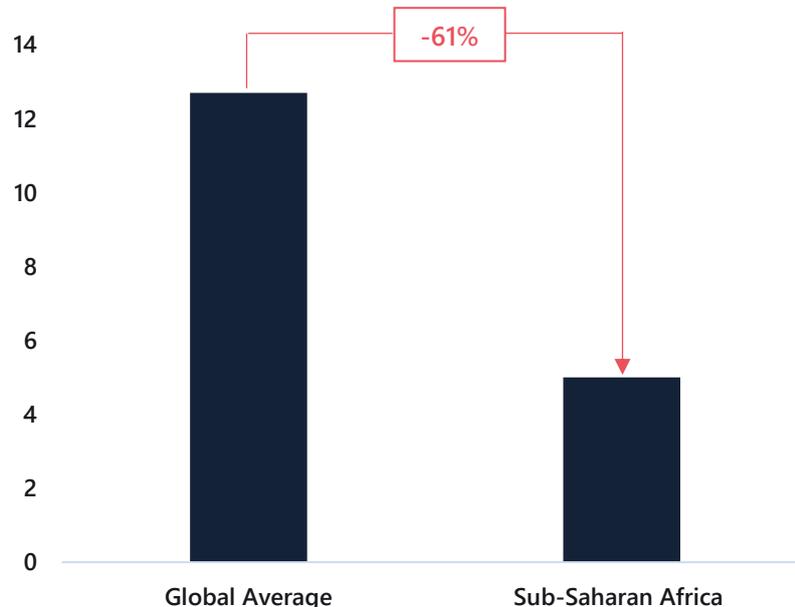


Source: [PRIO](#)

Financial Infrastructure

Aside from economic and political instability, the majority of Africa is underserved by traditional financial services. The number of commercial banks per 100,000 adults is 61% lower across Sub-Saharan Africa than the global average and as of 2018, 66% of those living in Sub-Saharan Africa had no access to a traditional bank account.

Figure 11: Commercial bank branches (per 100,000 adults)



Source: [The World Bank](#)

Inadequate banking services puts a limit on entrepreneurship, business growth, lending, and saving, all of which hinders economic development. Cryptocurrencies and more complex financial primitives such as decentralized finance (DeFi) can overcome these limitations and encourage development across the continent.

Costly remittances and cross-border payments

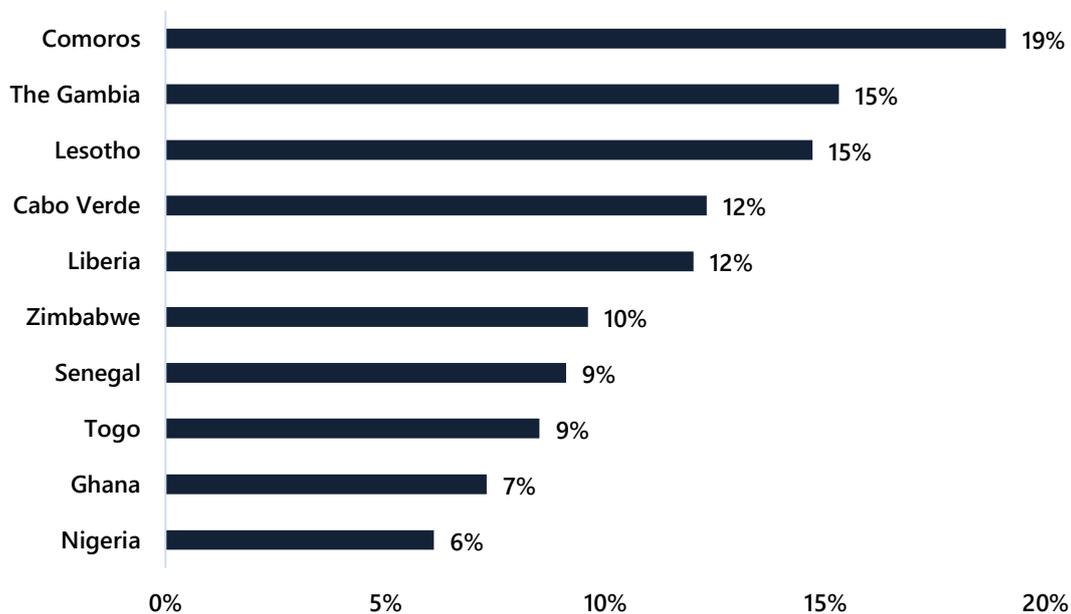
Cryptocurrencies also offer the ability for lower-cost and faster remittance payments than is currently available. Remittances below \$200 to Sub-Saharan countries, cost an average of about 9% compared to the global average of 6.8%, while payments between countries are even more expensive. For example, sending money from South Africa to Zambia cost 18%, according to the World Bank. These overburdensome costs are due to a combination of an inefficient and uncompetitive banking market as well as a reliance on legacy financial communications systems such as SWIFT. Cryptocurrencies are a possible solution to these problems, especially the solutions that prioritize lower fee payments.

Regardless of the high costs, remittances are hugely important in Sub-Saharan Africa and a key component of economic income. It is estimated that over 25 million people are expats from Sub-Saharan countries as of 2017, and that this group remitted more than \$48 billion in 2019. A study from Pew Research Center shows that Sub-Saharan African countries account for 8 out of the 10 fastest growing international migrant populations since 2010. The number of emigrants from each of these sub-Saharan African countries grew by 50% or more between 2010 and 2017, significantly more than the 17% worldwide average increase for the same

period. Only Syria had a higher rate of growth in the same period. The overall growth for all Sub-Saharan African countries combined grew by 31%.

It is estimated that these remittances account for a large share of gross domestic product (GDP) in the Sub-Saharan Africa countries.

Figure 12: Remittances to Sub-Saharan Africa in percent of GDP (2018)



Source: [Statista](#)

Capital Control

We're also seeing many African countries that are rapidly imposing capital controls in order to shore up their foreign exchange reserves. This is often compounded by authorities trying to defend currencies from losing value which leads to sudden restrictions on foreign exchange, providing a big risk for the inhabitants. As for remittance, crypto assets provide a potential solution, mitigating this kind of currency risk and gives the opportunity to overcome expanding capital controls.

At the same time, capital controls make trading cryptocurrencies more difficult, as one need to "import the coins", given the low level of local mining.

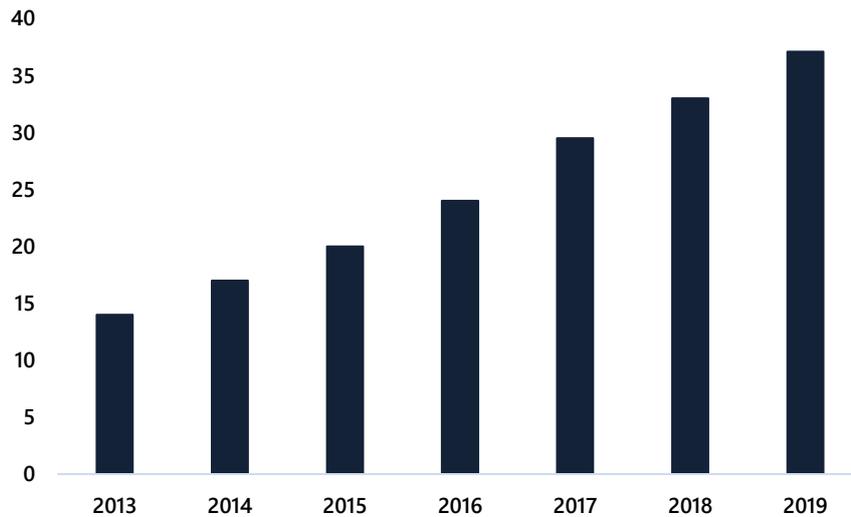
Digital & Mobile Trends

Although Africa's traditional financial infrastructure has been maturing, its continued growth requires large investments. Given how sparse much of the continent's population is with almost 60% of the Sub-Saharan population living in rural areas, mobile and digital solutions make far more sense. Unlike other regions, for most of Africa, countries have leapfrogged traditional finance entirely, going straight to mobile banking. This trend is also ideally suited to cryptocurrency adoption which is suited to mobile devices.

Mobile payment is already big

The success of M-Pesa, the mobile money transfer service, is the best example of the growing dominance of mobile finance. Having debuted in 2007, it now has over 37 million active user across Kenya, Congo (DR), Egypt, Ghana, Lesotho, Mozambique and Tanzania, processing 11 billion transactions per year.

Figure 13: M-Pesa Active Users 2013 -2019



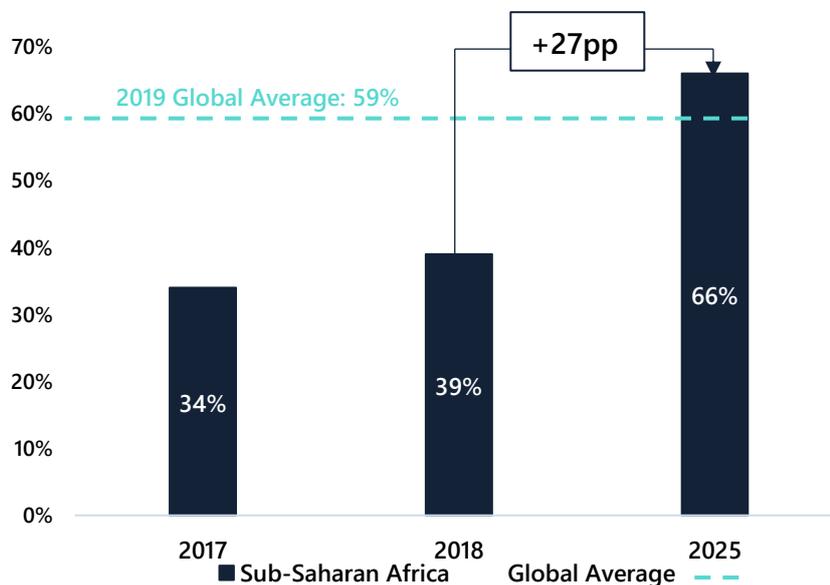
Source: Vodafone

More broadly, 21% of Sub-Saharan Africans now use a mobile money service, with more users of mobile accounts than traditional bank accounts. However, mobile money providers charge high fees, even on simple payments, which average 2% of transaction total values. Conversely, most cryptocurrencies, have fees that are far lower.

Few smart phones but rapid growth

At the same time, most cryptocurrency wallets only work on smartphones, unlike most of Africa’s mobile money services that operate on more basic devices. While Sub-Saharan Africa lags the global average (59%) in terms of smartphone usage, the adoption rate is growing rapidly. While there were 250 million smartphone connections in 2017, accounting for 34% of total phone connections, this is projected to increase to 690 million in 2025, with smartphones accounting for 67% of phone connections. For now, South Africa leads smartphone usage with an estimated 51% owning a smartphone.

Figure 14: Projected Smartphone Growth in Sub-Saharan Africa



Source: GSMA

Governments exploring digital currencies

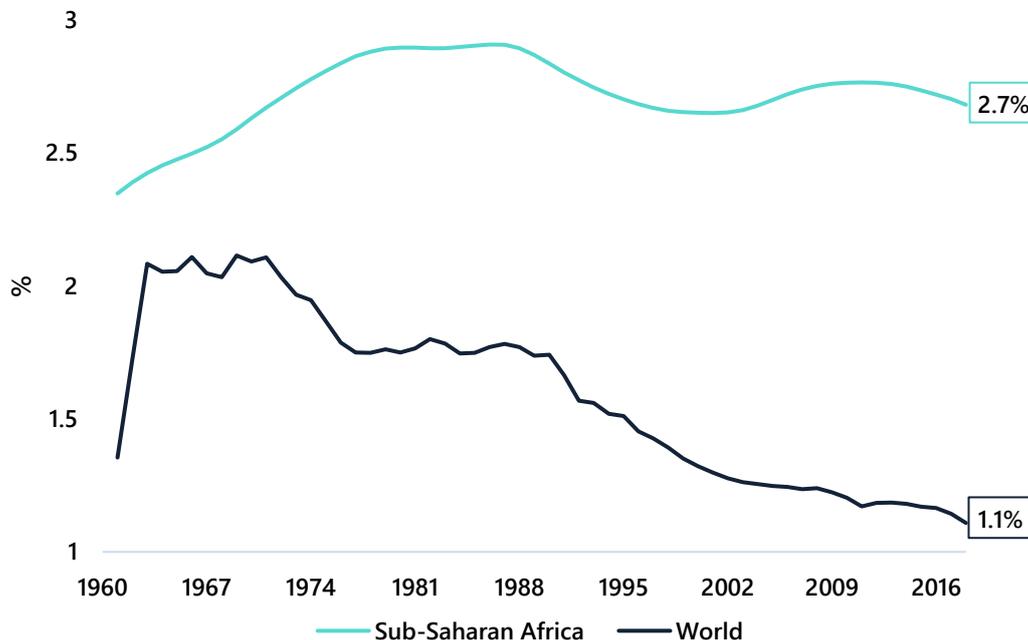
In addition to the trend towards mobile, there is a growing movement from governments towards digital currencies. Tunisia has been rumored to issue a central bank digital currency (CBDC) which was later denied, but the country stated that they remain open to experiments with the tech. Senegal has piloted an eCFA and Ghana and Rwanda are exploring the development of their own CBDCs. The rollout of digital currencies will generally be a positive influence on cryptocurrency adoption since it validates the use of non-physical currency.

All in all, these trends towards mobile and digital finance are supportive of cryptocurrency adoption across the continent.

Demographics

These trends are further supported by Africa's demographics. The continent is home to 1.27 billion people, 17% of the global population. Importantly, compared to developed economies, Africa's population is far younger and growing at a much faster rate. Africa's median age is just 18 while 97% of Sub-Sahara Africa's population is below the age of 65, and the population is growing at 2.7%, which is 142% higher than the global rate.

Figure 15: Population growth (annual %) (1960-2018)



Source: [The World Bank](#)

Overall, this points to a fast-growing user base for cryptocurrencies as both the total and youth populations expand rapidly.

Crypto has no borders

| Manenga Mungandi



"I have family across the world, and it's always been really tough to send money to them, so this makes it so much easier, and I love it."

An iOS developer for Luno, Manenga Mungandi is working on building the future of finance. As part of a global community with family around the world, he sees the power that borderless transactions have. It's part of what fuels his passion for innovation and working to create safe and easy access to cryptocurrencies.

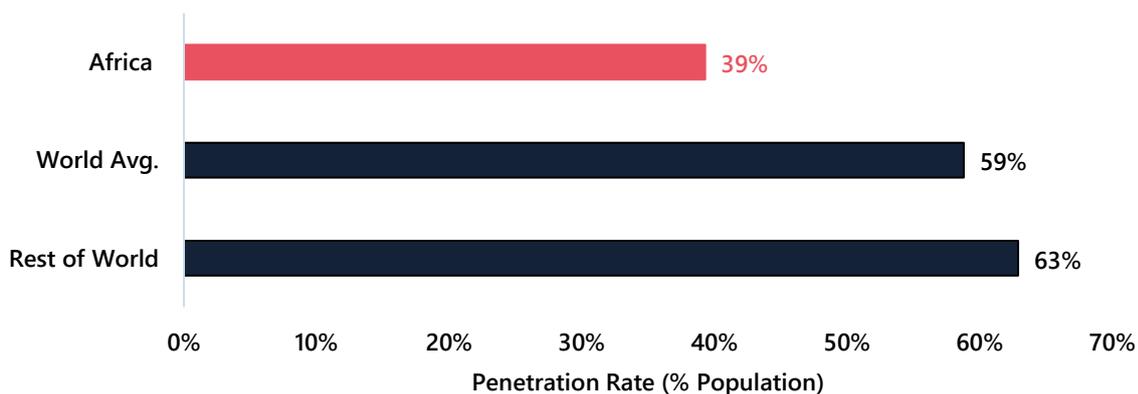
Obstacles to Overcome

Although there are powerful catalysts to drive the swift adoption of cryptocurrencies, there are some major challenges that are still to be overcome. Among these are inadequate internet coverage, competition from mobile money services and hostility from national governments.

Lacking Internet Coverage

Unlike mobile money services, cryptocurrency wallets, by and large, require internet connectivity to send and receive transactions. M-Pesa and other similar services rely only on SMS text messaging without the need for cellular internet access. Unfortunately, internet coverage is inadequate across most of Africa, with 39.3% of the population having some form of access, compared to 62.9% across the rest of the planet. Seven African countries have internet penetration rates below 10%. A UN report estimates that \$100 billion of further investment is required across Africa over the next 10 years to increase coverage to a reasonable standard.

Figure 16: Internet Penetration in Africa 2020



Source: [Internet World Stats](#)

This lack of coverage can be largely explained by a lack of infrastructure and the resulting high costs. Sub-standard electricity supplies are also a contributing factor in many parts.

Africa lags other regions when it comes to fixed telephone lines, cable connections and cellular towers. Given that many African countries have very dispersed populations, often with low average incomes, there is far less financial incentive for companies to invest in infrastructure development, creating a vicious cycle, between a lack of connectivity and economic underdevelopment.

One result has been the increasing monopolization of the telecoms markets within Africa, with companies like Millicom leaving the market entirely. These issues only serve to keep and possibly elevate consumer prices, all of which hinder the adoption of cryptocurrency for payments.

As a result, internet use and mobile data, in particular, remain prohibitively expensive for much of the region's population. Across the continent, 1GB of data on average costs 7.12% of a person's monthly salary, costing over 20% in some nations.

Satellites can become a solution

There are however some emerging solutions to Africa's poor internet coverage. Over the past several years, the satellite internet industry has grown tremendously. Companies such as SpaceX, Amazon, Viasat, and OneWeb are building low orbit satellite mega-constellations that aim to provide high-speed internet across the globe, including to rural and remote regions. While the costs are still too high for most of Africa's underconnected areas, it is expected that satellite internet could compete with more traditional methods in the coming years.

Sending bitcoin without internet access

At the same time, there is an increasing focus on the transmission of cryptocurrency payments without internet connectivity. So far, Blockstream has been the pioneer in this area, having created a [satellite network](#) with global coverage that broadcasts the Bitcoin network for free.

Another company, goTenna, allows users to transmit transactions without internet via its mesh network. Although goTenna's network across Africa is relatively underdeveloped, Blockstream and goTenna have [partnered](#), combining their satellite and mesh networks in a bid to increase access globally to the Bitcoin network.

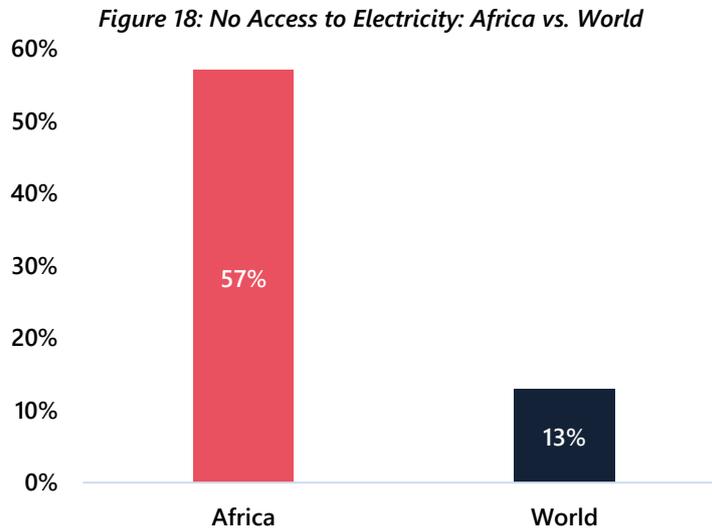
Figure 17: TxTenna Nodes in Africa



Source: TxTenna

Poor electricity coverage

Beyond internet connectivity, poor electricity coverage presents another roadblock. Across the Sub-Saharan region, an astonishing 57% of the population still lack access to electricity. This hinders the use of devices connected either by SMS or cellular broadband entirely, presenting a major roadblock to cryptocurrency adoption.



Source: [Brookings](#)

Competition from Mobile Money Providers

The success of mobile money services may also pose a challenge to cryptocurrency payments and blockchain-based services. Mobile money has become incredibly popular in some African countries such as Kenya and Zimbabwe. Cryptocurrency adoption may struggle in the face of such dominance due to the business moats and network effects that have developed around these services.

At the same time, though, these services have made users comfortable with digital and mobile payment solutions, perhaps paving the way for alternative mobile solutions such as cryptocurrency wallets.

Furthermore, cryptocurrency solutions can compete on cost. While mobile money services rely on a centralized business model to operate, extracting fees and revenue from customers, cryptocurrencies can often function with negligible costs to users.

For instance, in the Kenyan market, users of Safaricom's M-Pesa are subject to fees of as much as 11% on smaller transactions (101-500 KES) to other M-Pesa users and 45% to unregistered users.² While blockchains such as Bitcoin and Ethereum are not currently competitive for payments of these sizes, higher throughput blockchains such as Ripple, Bitcoin Cash, and Stellar can offer on-chain transactions far cheaper than mobile money providers, while second-layer solutions such as Lightning payments can also offer almost-free transactions.

What is more, cryptocurrencies allow users to transact across borders, without KYC or AML checks and in some cases with far superior privacy.

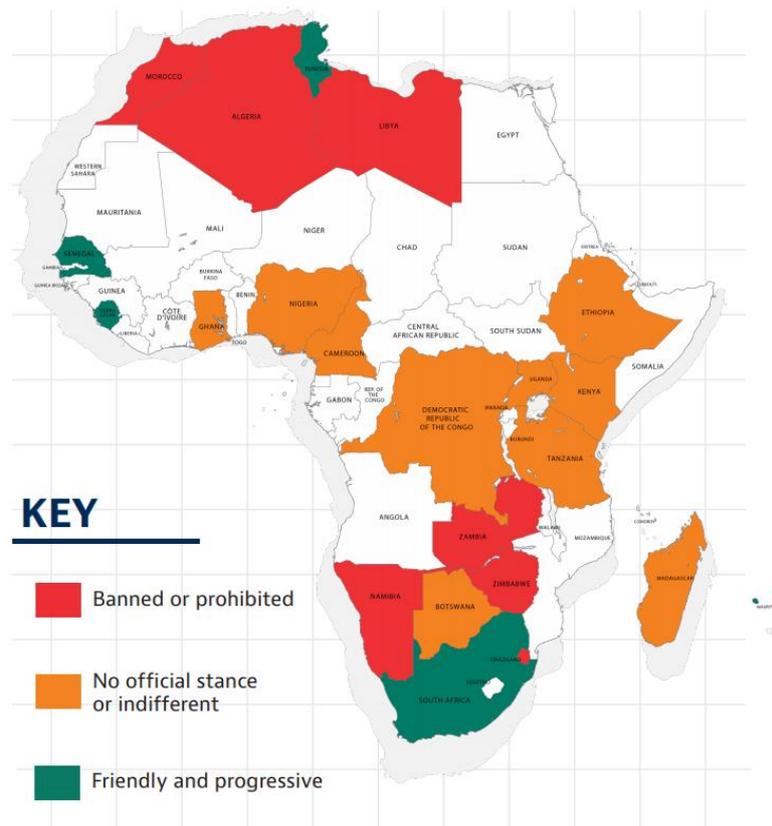
² 101-500 KES is equivalent to \$1.00-\$4.94.

Mobile money services, for now, have a major advantage in terms of their market penetration and the breadth of services they offer (yield on deposits, insurance, and loans). However, developments in the decentralize finance (DeFi) space, should allow crypto-based services to steal market share.

Resistance from Regulators

Ultimately the largest short-term hindrance for cryptocurrencies is unfavorable action from lawmakers and regulators. The legality of Bitcoin and other crypto assets varies significantly across the region, with over 60% of African governments yet to clarify their position.

Figure 19: Blockchain and Cryptocurrency in Africa - Geographical Overview



Source: Baker McKenzie

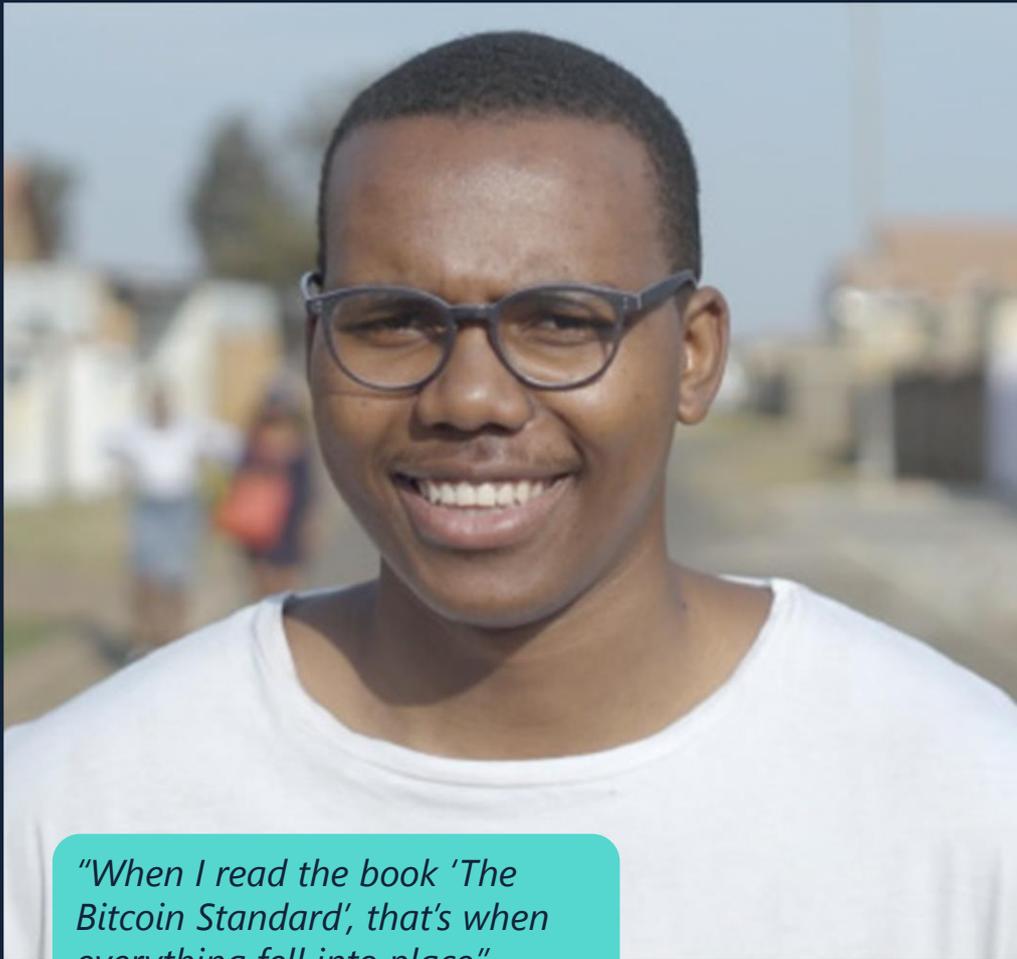
While some nations maintain a positive stance, multiple countries have issued complete or partial bans. For whatever reason, North African countries have taken the most hostile position. Algeria, Libya, and Morocco have all issued bans against the use of cryptocurrencies, while Egypt's religious legislator has passed a decree, prohibiting their usage.

The most common position, however, is one of caution. Countries such as Kenya, Ghana, Lesotho, Swaziland, Uganda, Zambia, and Zimbabwe have advised discretion regarding cryptocurrency usage while not actively banning them. Other countries such as Namibia and Burundi, while also not banning usage, have issued bans against trading, citing the lack of consumer protection as the motive.

The opacity of cryptocurrencies has so far motivated the majority of decision making among governments. Regulators so far have focused their actions on the effect that cryptocurrencies can have on their citizenry. Volatility, lack of governance, and the prefiltration of scams are the most commonly cited motivations.

Crypto is money's next chapter

| Bheki Mahlobo



"When I read the book 'The Bitcoin Standard', that's when everything fell into place."

An economics student at the University of South Africa, with a curiosity for the next chapter in the history of money, Bheki Mahlobo has been studying the opportunities that cryptocurrencies . He believes cryptocurrencies like bitcoin can be the way of the future as we move away from practices such as quantitative easing.

Exchanges, Crypto Assets & Projects

Despite the challenges hereto discussed, there have been some notable developments across the continent with growing investment from international and African companies. This has been especially true in the last year.

Exchange Infrastructure

Until recently, there have been few African exchanges. The majority of venues have served South African, Nigerian, Ghanaian and Kenyan users.

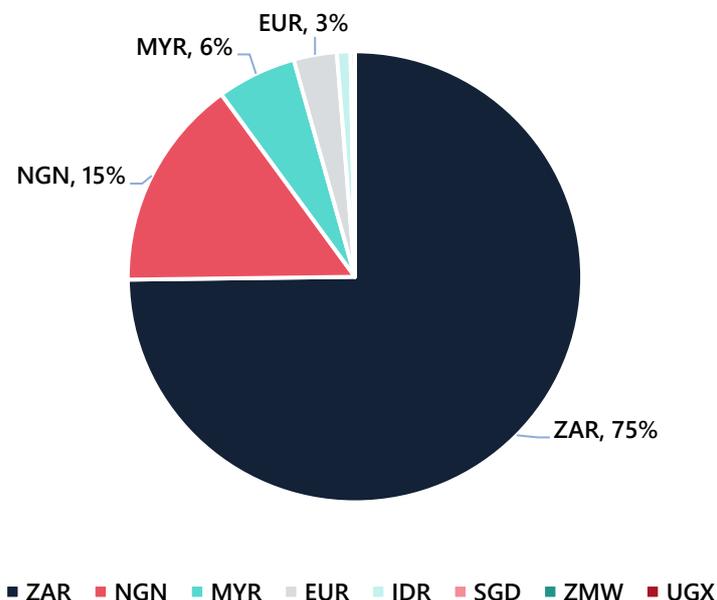
The lack of public statistics for many platforms means that it is difficult to identify the most popular venues. On the data available, however, Luno appears to be the most popular centralized exchange, with Paxful and LocalBitcoins also seeing significant volumes. Beyond these, Binance, Binance Uganda, VALR, AltcoinTrader, Ice3x, AZA Group, Coindirect, PayPlux, Remitano, NairaEx and Quidax are other examples of venues covering the African market.

Luno is leading in Africa

Luno is probably the most in-demand, conventional exchange that services African markets, with 4 million customers. Launched in 2013, the exchange has offices in Cape Town, Johannesburg and Lagos and processes approximately \$4.5 million per day on average in 2020, mostly in the South African market.

This is reflected in the overview of Luno's fiat-to-crypto volume, where 75% of the trading volume has been in South African rand (ZAR) so far this year. Nigerian naira (NGN) has accounted for 15% of Luno's trading volume this year, and Malaysian ringgit (MYR) and the Euro (EUR) being used for 6% and 3% of the trades in 2020, respectively. Indonesian rupiah (IDR), Singapore dollar (SGD), Zambian kwacha and Ugandan shilling (UGX) accounts for less than 1% each.

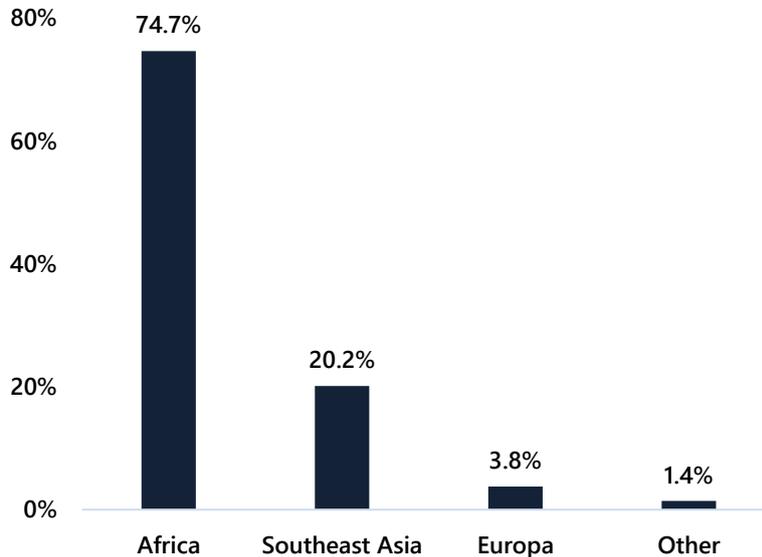
Figure 20: Luno YTD Trading Volume: Fiat-to-crypto



Source: Luno

Not only are the African currencies dominating on Luno's platform, but as expected, a large portion of the users are also based in these countries. As seen below, almost 75% of Luno's customers are based in Africa. That is mostly dominated by South Africans and Nigerians, with a small group from Zambia and Uganda as well.

Figure 21: Luno: Customers by Region



Source: Luno

Paxful is also popular

Paxful, a P2P exchange is also highly popular across Africa, with 1,350,000 wallets, accounting for 45% of its global count. Volumes have been increasing significantly, with the platform in October last year reporting a yearly increase of 64% in the number of trades across the continent. South Africa, Nigeria, Kenya, and Ghana account for the majority of demand, while the Ugandan and Zambian markets are growing consistently. Beyond its business interests, the company also conducts an education program across Eastern and Southern Africa, teaching young people about the industry.

AZA Group, focusing on payments

AZA Group, formerly known as BitPesa, is probably the next largest service provider, and leverages blockchain settlement to significantly reduce the cost and increase the speed of business payments to and from frontier markets. BitPesa was founded in 2013, and AZA Group is now the parent company of BitPesa, a cross-border payment service (BFX) and a white-label money transfer service (TransferZero). The company currently serves customers across Kenya, Ghana, Nigeria, Morocco, Senegal, Uganda and Tanzania. While it states that it has traded over \$500 million since its inception, there are no public statistics on trading volumes or active users.

VALR, a challenger in South Africa

VALR is a relatively new cryptocurrency exchange and is already one of the biggest venues in South Africa, although it launched in 2019. The exchange is backed by Bittrex and offers a wide range of cryptocurrencies, where only bitcoin, ether and XRP have direct market pairs with the South African Rand.

Quidax, fast settlement in Nigeria

Quidax is a popular cryptocurrency exchange in Nigeria, established in 2018. Users can trade a small range of cryptocurrencies with Nigerian Naira. They settle to local bank accounts instantly, and their CEO, Buchi Okoro, says that they have reduced settlement time from 12 hours to just 2 minutes.

PayPlux, a currency exchange embracing crypto

In Ghana, PayPlux is the dominant player, offering different virtual currencies, including cryptocurrencies. The service allows users to transact via mobile money and has purportedly served over 85,000 users.

The international giants are looking to Africa

The growing demand for cryptocurrency has also attracted interest from international exchanges such as Binance and Huobi, who are both looking to increase their presence in the region.

Binance has opened a new subsidiary in Uganda while offering NGN trading and ZAR deposits on its main exchange, in addition to KES deposits that just launched. To expand its services further, the exchange also recently partnered with Paxful, widening its presence across Africa.

Binance has also funded a new social payments app called Bundle, led by the Nigerian Yele Bademosi, who became director at the venture capital arm of Binance last year. This startup aims to get the African countries to use cryptocurrency, not as an investment vehicle, but as a global means of payment, similar to Venmo and Square's Cash App. The app will let users send, receive and spend bitcoin, ether, Binance coin and Nigerian naira, with little more than the recipient's phone number.

Meanwhile, **Huobi** is now marketing a white-label service to African exchanges that offers Huobi's liquidity and security, with the SaBi exchange in Nigeria and the upcoming HIZA exchange in South Africa already signed up.

Some Projects & Tokens

Like any other region, there must be robust exchange infrastructure throughout Africa, to facilitate the purchasing of crypto assets. However, for meaningful adoption to occur, projects have to directly motivate citizens to hold and use cryptocurrencies for storing value, payments, and remittances. While still few, there are a growing number of cryptocurrency projects working on adoption across Africa.

Akoin

By far and large, the most ambitious project is the Rap Artist, Akon's Akoin and crypto-native city 'Akon City' in Senegal. The musician recently announced that he had secured the approval from the Senegalese authorities to start the development of the city on a 2,000-acre plot granted to him by the government. The city is expected to have low tax levels, in a bid to attract foreign companies and capital investment, with Akoin serving as the default currency. While there are no technical details, Akoin will supposedly function as a dApp platform as well as supporting the Akoin currency.

Its website lists multiple features and services, all of which will be used to support the growth of the city, such as:

- Currency
- Financial Services (Lending)
- Digital Content (Video & Audio)
- Professional Services (Freelancing)
- Health, Education & Governance

The opacity of Akoin, for now, makes it difficult to judge its potential, however, the upcoming launch of its beta platform should provide more clarity about its prospects. This aside, the project is focusing on services that are otherwise lacking or are insufficient in Senegal.

Rather than attempting to gradually introduce cryptocurrencies into an economy, as most projects do, Akoin is the first serious attempt at a fully crypto-first city. If successful, the musician plans to replicate the model across Sub-Saharan Africa while also introducing Akoin into new African markets, with the ultimate vision of becoming a Pan-African currency.

While the audacity of its ambitions is staggering, the plans should not be dismissed, given Akon's personal wealth (\$80M) and passion for the project combined with the efforts of the Akoin Foundation and blessing and support of Senegal's government.

The Sun Exchange

Based in South Africa, the Sun Exchange is the world's first peer-to-peer solar panel micro-leasing platform. This is a marketplace where customers can purchase solar cells and have them power businesses and communities in South Africa. Customers lease solar cells purchased through the platform to hospitals, factories, schools and other end-users, using bitcoin as payment both for the purchase and the rental income.

This enable anyone to participate in Sun Exchange's crowd-sale, regardless of where they are in the world. The company have completed a token sale of their SUNEX network token, which maximize token holders benefits when using the Sun Exchange platform.

Bitcoin Cash

Among those projects taking a more conservative approach is Bitcoin Cash. Bitcoin Cash, unlike Akoin, is a public blockchain and crypto asset without a foundation or central party to drive its adoption. As such its adoption has been far more dispersed and organic. Since Bitcoin Cash hard forked from Bitcoin in August 2017, the community has focused on merchant adoption. To this end, according to Bitcoin.com, there are 24 merchants across Africa, predominantly in South Africa and Nigeria, who accept BCH as payment.

Recognizing the problem of poor internet coverage, a community project, called CoinText, allows users in South African to send and receive BCH payments via SMS.

Dash

Dash, another project that is focused on merchant adoption has seen its usage concentrated in Nigeria. 49 merchants now accept Dash payments in the West African nation, largely as a result of the on-the-ground efforts of Dash Nigeria, the non-profit entity that encourages Dash

adoption in Nigeria. The organization has focused its marketing efforts on the fast, low fee payments that Dash enables, appealing to the same demands that mobile money services have tapped into. Dash also benefits from an SMS-based payment service, although it is not currently available in any African country.

Both Bitcoin Cash and Dash are optimized for low fees. While there are certainly disadvantages to their architectures, namely the threat of centralization, in facilitating low-fee transactions, these assets have a realistic chance of competing with physical fiat currencies and mobile money services.

Conversely, while their fees may not seem prohibitive in Western markets, the fees of layer 1 transactions on Bitcoin and Ether make them unsuitable for African markets, where averages incomes are far lower. Other assets such as XRP, Litecoin and Stellar all benefit from comparatively low fees also, however, there is no quantifiable evidence of their usage in Africa for now.

Electroneum

In terms of raw users, Electroneum (ETN) is probably the one of the more significant cryptocurrency-project in Africa. The project claims to have over 100,000 users throughout South Africa, Nigeria, Uganda, and Tanzania. As high as these figures are, raising questions about their validity, they have been recently verified by the research firm, Cointelligence. Electroneum has combined several features and services that are driving usage throughout Africa, specifically:

- Instant payments via the Electroneum application
- The Electroneum application rewards users with \$3 worth of ETN per month
- Buying of airtime and data with ETN through the Electroneum application
- A \$80 smartphone, the M1 to facilitate the usage of ETN
- An on-the-ground incentive program targeting merchants called ETN Everywhere
- A freelancing marketplace, called AnyTask and e-learning site, TaskSchool that leverages ETN as its payment network

Electroneum is specifically focused on mobile payments, a strategy well-suited to African markets. Its mobile application facilitates instant payments, clearing through a centralized database rather than the Electroneum blockchain. Although this design choice sacrifices decentralization and possibly censorship-resistance, it focuses on features that users are already looking for, namely, instant and cheap transactions. The distribution of monthly ETN rewards has also helped onboard users in African markets, where a \$3 per month reward has meaningful value.

In addition, the project has partnered with 16 telecommunications companies across South Africa, Nigeria, Uganda, and Tanzania. These collaborations mean that users can purchase airtime and mobile data through the Electroneum application. With its current partners, the project apparently has access to 300 million customers.

Most recently, Electroneum has rolled-out its AnyTask service. AnyTask is a freelancing website that aims to connect sellers in African markets with buyers in developed nations. To compete with existing platforms such as Fiverr and Freelancer, AnyTask does not charge any fees. At the same time, the project is launching a complimentary service, TaskSchool that allows users to

learn skills online for free that they can then market on AnyTask. In light of Africa's poor financial infrastructure, AnyTask allows buyers to pay with credit and debit cards while sellers receive ETN as payment.

What Akoin, the Sun Exchange Bitcoin Cash, Dash, and Electroneum have in common is that by and large, their successes in African markets have resulted from in-the-field action. There is an ethos prevalent in the industry that users will spontaneously adopt cryptocurrencies due to the technological and economic benefits they offer over traditional services. It is clear, however, that success in African markets is dependent on direct action, explaining the benefit of cryptocurrency, listening to and reacting to the demands of users and creating clear incentives around their usage.

How Bitcoin changed my life

| Grey Jabesi



"I realized that I was limited to what I can do and who I can do business with and how big I can go, simply because of how the normal payment networks operate. Then I came across Bitcoin"

A self-taught cryptocurrency evangelist and investor Grey Jabesi is not just a blockchain enthusiast but also an entrepreneur based in Africa. With his podcast and public speaking Jabesi aims to play a role in nurturing innovation and growth across the continent.

Concluding Remarks

Africa is one of, if not the most promising region for the adoption of cryptocurrencies due to its unique combination of economic and demographic trends. There is no doubt that the continent still requires significant investment in crypto-specific infrastructure such as exchanges as well as its internet and electricity networks.

However, this underdevelopment presents a large opportunity for projects and companies to take advantage of, building out the necessary infrastructure and adopting go-to-market strategies similar to the projects discussed in this report.

We already see a lot of growth related to cryptocurrency in Africa and expect this development to accelerate in the years ahead.



Arcane
Research