



THE NEW MODEL FOR PAN-AFRICANISM: EMPOWERING AFRICA'S RISE THROUGH BLOCKCHAIN

By Anthony Kirui and Sepo L. Haihambo

THE PARADOX OF AFRICA

'Divided we are weak; united, Africa could become one of the greatest forces for good in the world. I believe strongly and sincerely that with the deep-rooted wisdom and dignity, the innate respect for human lives, the intense humanity that is our heritage, the African race, united under one federal government, will emerge not as just another world bloc to flaunt its wealth and strength, but as a Great Power whose greatness is indestructible because it is built not on fear, envy and suspicion, nor won at the expense of others, but founded on hope, trust, friendship and directed to the good of all mankind.'

These words spoken by Kwame Nkrumah in 1961 create a compelling vision for strong and united Pan-Africa.

Whilst travelling the continent of Africa one cannot help but observe the “duality” in the economies of the countries’ visited. In the heat of the afternoon sun in downtown Dakar, Senegal, standing in the main city market, we spoke with market traders and vegetable sellers who have owned their stalls, in some cases for generations. We heard the story of one such market trader, whose family had owned the stall she now trades at daily for a period of thirty years. A hard day’s work allows her to feed her family and educate her children like her mother did her. For market traders such as “Rachel”, loans can only be obtained from micro-lenders at high cost. Deposits are made with the resident market money caretaker, who aggregates the trader’s cash to deposit in a local bank, and records every deposit and withdrawal in a ledger book.

In sharp contrast, Senegal is also the home of “Wari” a company that offers an innovative solution for mobile peer to peer money transfers in the country. Wari has over a period of time successfully built a network of agents that its customers can deposit or withdraw cash from when required.

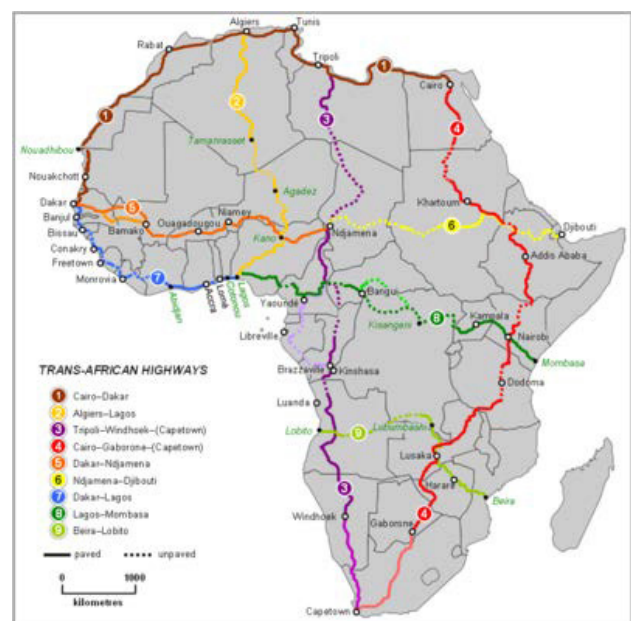
A similar observation of that duality was moving from the local “Nshima” restaurant in Lusaka’s downtown market to interview the restaurant owner, and then proceeding to spend the afternoon at the capital city’s polo club. In observing these parallels, the questions begun to emerge on why Africa’s recent economic growth spurt, that recorded GDP growth of 3.1%-5.4% and birthed the “Africa Rising” narrative, had not necessarily translated to reduced Gini coefficients, even in countries like South Africa that has a score of 0.66 in this respect.

It appeared as though the current model for income growth had come up short in its ability to facilitate transformational change. It hadn’t been able to create a more seamless

way to continue growing the private and public sectors in a manner that could place African economies on a new growth curve. Research done on the topic to date has on occasion identified many variables; but one issue that stands out is “increasing regional cross-border trade”. At face value, this seems easily resolved, however as one begins to delve into the discussion, one quickly realises that there are valid reasons that the trade gap for intra-regional trade in Africa is US\$170bn, according to Africa Exim Bank in an interview with the Guardian. Potentially they estimated that this figure could grow to levels of US\$400bn with the right framework.

In broad terms there are three main issues that negatively impact Africa trade:

1. **Lack of infrastructure**; the size of Africa has for decades been greatly underestimated, and the recognition of its size brings to recognition the significant investment (estimated at US\$93bn per annum by the World Bank) into infrastructure that is required to move goods and services effectively. The unfortunate truth is that the existing rail, road and air routes do not sufficiently connect all countries in the value chain. They have been planned primarily on an East-to-West and North-to-South basis which makes East-to-South or West-to-North movement of goods, services or people problematic when trying to connect cities like Windhoek and Nairobi, as an example. Furthermore security of supply of refined oil and gas would need to be assured across the continent to ensure seamless transportation.



2. **Overlapping trade blocs;** on the continent, these profoundly inhibit regional integration. To date, countries have created trade blocs based on geographical location, which hasn't necessarily resulted in the most economically meaningful partnerships. Given that Africa has 15 countries that are land-locked, there should be wider strategic considerations included to ensure trade and access to markets is effectively increased by membership to a certain trade bloc. Multiple memberships to trade blocs also requires those countries to pay bloc fees to each trade bloc they are members of, potentially placing added financial strain on members. Furthermore, having multiple trade blocs also generates added complexity, in that it means different tariffs become applicable to the same goods in multiple jurisdictions.
3. **Customs friction;** because each country and trade bloc have different requirements for the movement of goods through these countries, knowing what documentation is required to transport goods across borders is challenging, and has a lack of transparency. This has led to actual delays with uncleared goods being left at borders for weeks at a time, which in itself presents a challenge when that produce is fresh. One particular story told is that of a supermarket chain that had a truck delayed at a border, resulting in a real cost of US\$20k, and quickly eroding the incentives for doing business on the continent. These delays also have the unintended consequence of making a cesspool for corruption to "expedite" the speed at which goods are cleared.

WHY INCREASING REGIONAL TRADE IS IMPORTANT FOR AFRICA?

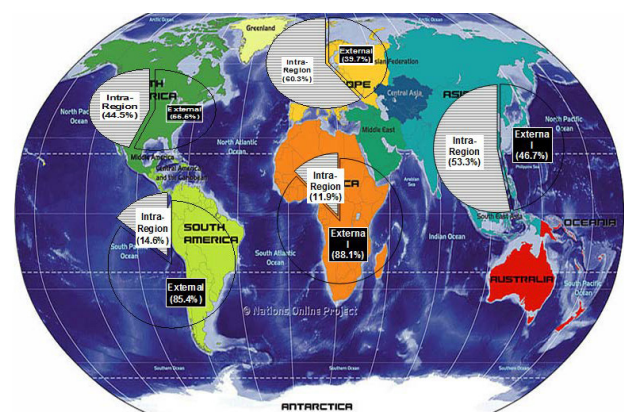
Observations from the impact of the creation of the European Union on European trade can be used to make parallels of what Africa could potentially gain by addressing these impediments to African cross-border trade. The European Union, whose original intention was the creation of a harmonized European trade environment at its inception as the EEC, is a good example of how increasing regional trade through the creation of a single market can benefit nations' income growth. (Although it is not the recommendation of this discussion to create such a framework in Africa). Observing the economic growth trajectory European economies were able to achieve on the back of harmonized trade, warrants that African Banks

begin to explore models that address existing impediments to increase regional trade in the future. In monetary terms, increased trade in Europe meant regional GDP growth of €877 billion*, and an increase of 5,700 additional incomes per household between the years of 1993-2003 alone. The monetary benefits for Africa could be substantially higher given the great scope of raw materials available on the continent. This paper argues that through Block chain similar efficiencies in trade can be achieved in Africa.

Furthermore, an empirical analysis on the impact of the formation of the EU on GDP conducted by the Swedish National board of trade concluded that the single market had impacted European GDP positively. The creation of the single market access European Union led to the creation of arguably the world's strongest trade union, and along with that the EU was able to lessen costs for producers, which translated to lower prices for consumers, and in turn created more jobs and higher income for member states. Removing friction can be achieved through multiple channels. Although creating a homogenous trade framework is the most seamless path, it is also the most political. Therefore, Banks need to explore solutions that remove regional trade frictions and create a trade eco system for both consumers and producers, but that don't require 52 countries to necessarily agree on a single trade tariff for each good or service that could be traded across African borders.

Below map and charts indicate the share of intra-regional trade to the level of external trade for 6 of the largest continents.

- Africa stands out as having the lowest level of Intra Regional trade at just 11% of all trade. South America is marginally better at 14.6%.
- Asia and Europe have more Intra Regional trade done within the continent then outside the continent at 53.3% and 60.3% respectively.



With the rise of Fintechs and constant disruption in the world of Banks, there has never been a better opportunity for Banks on the continent to explore alternative systems and strategies to lead the charge in creating a revised framework that grows regional trade to its full potential, and in turn, to also grow the potential for Trade Finance. Margins on existing products are quickly being reduced with increased competition and risk regulation, therefore alternative models for revenue earning need to be explored to protect the importance of Banks on the continent into the future.

The fourth industrial revolution, although a half a century later, has presented an opportunity for Africa to resurrect key aspects of the pan African dream, and through the use of a widely adopted block chain model, technology can be used to ignite African cross-border trade, placing both the private and public sectors on a new growth curve. The rate at which mobile penetration has occurred in Africa, demonstrates that there is a wide spread willingness to adopt the use of technology, particularly when technology enables a solution that addresses issues that are uniquely African.

ROLE OF TECHNOLOGY

For “Rachel” and her Family in the down town Market in Dakar her local microfinance institution lends her money to stock her stall at an interest of 10% a month and a money caretaker, who holds the savings on behalf of nearly all the traders, recorded in a precious big black book, charges her another 10% as deposit or administrative charge on every CFA she holds on behalf of the trader. This is the system they know and the system they trust. Contrast that with a market trader in East Africa who can borrow money via their mobile phone at 3 to 4% per month and use their mobile e-wallet as a savings account and actually earn interest on their credit balances.

In Zambia, Zoono is leading the way in mobile transfers and payments. Zambians are able to send money via Zoono quickly, pulling the unbanked into structure payment system and through Sunga Pockets, allowing Zambians to save and put some money away. Zoono recognised that their customers did not want a lending but a savings product first, and to begin with, at least, prefer not to send money from mobile to mobile, but from one agent to another. Zoono itself is not a mobile operator, but provides mobile based banking solutions. Next step

for consumers in Zambia will be to realise the flexibility of receiving and paying out for mobile funds via their mobile phones instead of an agent.

A study on increased access to mobile money in Kenya found that the rapid expansion of mobile money had lifted 2% of households or 194,000 out of extreme poverty and enabled 185,000 women to move out of subsistence farming and into business or sales occupations. Pan African trade has the capacity to increase the transfer of knowledge, and through trade and the creation of vibrant trade markets drive efficiencies through competition, which potentially drives efficiencies such as cheaper and more competitive credit terms for “Rachel” and her family. Africa is hungry for credit, savings and markets to trade their wares. This is the traditional role Banks have played, but it's not been relevant to the majority of Africans. We have seen this with growing partnerships between Banks and Telecommunications in some markets, and in others Telecoms acquiring banking licences such as Wari and Orange in Senegal.

So how do Banks remain relevant on our continent and provide digital innovation in Africa that truly empowers the entire continent? We believe there lies an opportunity here for banks to promote trade and engineer Africa's prosperity, and the spread of knowledge, that will ensure that people like “Rachel” and her family are better served and able to access credit at a third of the cost they are currently paying and similarly save, and even earn interest on their savings. By making it easier for countries to trade, we enable the transfer of knowledge through travel and trade. This fact is as relevant today as it was for the Venetians as the Merchants of Venice, who travelled and traded with the world and prospered. And so Africa can prosper also. This happens through the elimination of non-tariff related barriers through the creation of digital economic networks, potentially simplifying trade across the continent, allowing for example, Senegal, who imports 400m dollars a year of rice from India, to buy their rice from Namibia, where the Kalimbeza rice project in the Zambezi region has seen 110 metric tonnes of rice that was harvested in 2016 still stuck in silos.

As trade drove remarkable financial innovation in Venice centuries ago, it has the potential to do the same for Africa through Pan African trade enabled via the blockchain. Blockchain has the capacity to hold the myriad details of every single customs and immigration law and regulation across the continent in digital form, effectively automating long and lengthy bureaucratic procedures.

In his March 2017 paper, published in the Harvard Business Review and aptly titled “We Don’t Need Political Solutions for Global Trade — We Need Practical Ones”, Rob Knight puts forward a thesis that Blockchain is the key to unlocking global trade. This idea underlies The Internet of Agreements™, a vision put forward by himself and his partners at Hexayurt Capital for global supply chains and logistics, integrating local law and regulations with the global economy, mediated by technology like the blockchain.

This approach is relevant for trade on our continent. Blockchain is the catalyst to regional trade, due to its ability to simplify complex and diverse legal and custom frameworks across the continent.

The Merchants of Venice relied on network economics, coordinating multiple trade expeditions from home via their networks of trusted agents. The trust that existed between merchants and agents in Venice is replaced by a digital network that becomes enforced by the distributed ledger. The “contractual innovation”¹ is realised in the new Colleganza² (meaning colleagueship, connection or bond) of Blockchain, with the capacity to unite Africa by creating a new trade-based renaissance that banks must be at the heart of.

PERFECT TRUTH AND FAKE NEWS

The best way to ensure everyone knows the truth is to make sure everyone knows the facts all the time and are constantly agreeing on the facts all the time. The perfect truth operates like a breaking news story, with each and every update going out to everybody in the network simultaneously, informing them of the latest development in an on-going story. But it doesn’t just inform, it also confirms; for everyone who is part of the network simultaneously confirms back to everyone else the correct sequence of events at every step of the evolution. No fake news, just perfect truth relentlessly and constantly verified.

This is in essence of what blockchain is. The network in the world of blockchain is a network of computers and the story being verified is a mathematical sum that all the computers solve, and all agree and arrive at the same answer to; verifying the accuracy and legitimacy of the transaction, each sequence or transaction forms the block that represents the “chain of events”, effectively and quite literally, the blockchain.

GLOBAL TRADE AND TRUSTED THIRD PARTIES

Global trade, as with most transactions, relies on a series of trusted third parties to verify and confirm each aspect of a transaction to give confidence to both buyer and seller that they are dealing with a genuine buyer and genuine seller. Where one agrees to sell their goods at an agreed price, to be paid at an agreed time or upon completion of agreed task, such as the delivery of the goods. Meanwhile the buyer is similarly relying on the seller to deliver the goods they said they would deliver in the time agreed, to the exact specifications, in the exact conditions described and agreed upon. The various trusted third parties act as intermediaries whose purpose is to mitigate the various risk that buyers and sellers face in a transaction, to ensure that the various terms and expectations, as described above and referred to in those terms, are met as the goods are either delivered (buyers risk) or paid for (sellers risk).

Trusted third parties exist to limit or reduce the broadly described seller and buyer risks. This process typifies trade today and contributes to the friction and cost associated with the trade process. Cross border trade is further complicated by the intricacy of varying customs and tax laws and multiplied against the different currencies that together with varying policies and border controls from country to country that combine to slow down the speed and volume of trade, which can all be aptly summarised as “friction of cross border trade”. Often to simplify these countries come together to create common tax zones and single currencies all aimed to unify and accelerate the speed and ease of trade.

¹ Lessons from the Merchants of Venice, Giovanni Tassinari & Loic Sadoulet

² “At its simplest, it was an arrangement between two parties, one an investor, and the second, a traveling merchant. The investor provided goods to the traveling merchant who sailed abroad to sell them, bought new goods with the proceeds, and returned to Venice to sell them. Profits were split in a pre-arranged manner.” How Globalization Created And Destroyed The City Of Venice, Max Nisen Business Insider Sept 8th 2012

REDUCING TRADE FRICTION

Though the arguments for ending or pulling out of custom unions are not always economic, more often the rationale is more politically fuelled by sense of nationalism that may not always be concerned with broader economic implications. A sense of national identity that the electorate often feels has been lost or denied, characterised by fears of jobs being exported overseas or across the border with limited benefit for individual communities, even if there is a broader benefit to the Country as a whole. This in itself is a broad statement, however is fair to say that economic sustainability over time often takes second place depending on who is in office.

Whether due to nationalism or national pride, the battle to grow trade and economic integration may often fall to the wayside. Whether motivated by the electorate themselves or the elected leader, the desire to retain one's own national currency or ways of doing things that may stem from historical or cultural legacies, the perceived need to protect local industries reflected in country specific tariffs, duties and taxes that customs unions inevitably spell the end of.

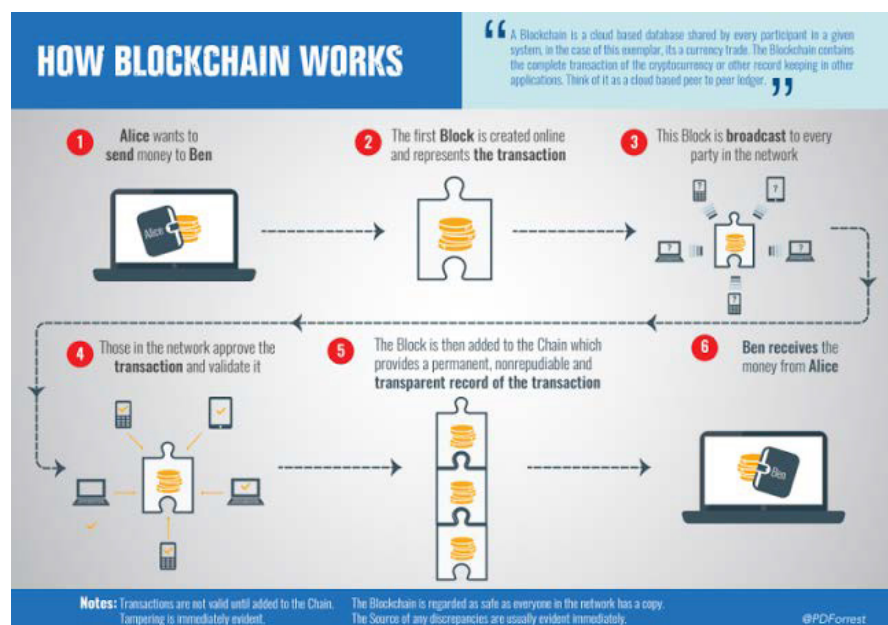
Customs unions are geared towards removing friction to trade and easing and increasing the pace of cross border business for the greater good. They boost economic growth and support member states in growing their economies and levels of trade amongst the members of the customs union.

If we then for this reason take the view that customs unions are good and desirable to have in place, then all the more reason to have more of them. But the realities of national identity and defence of sovereignty however well-intentioned often mean trade is complicated by varying rules, policies and tax structures that remain unique to each country, for each good or product that comes across the border.

Where the need for compliance with multiple varying policies has triggered countries to enter into long drawn out negotiations to simplify and align trade standards and rules

the blockchain presents, a solution that allows each and every country in such a scenario to maintain their varying tax and policy regimes and even currencies by embedding the varying rules and regulations within a blockchain. The goal is to eliminate friction in trade, fuelled by blockchain that serves to dramatically accelerate trade, while allowing each country to maintain its own national identity, both feeding the people (with jobs and economic growth) while

So what is Blockchain and how does it work?



Source: Paul Forrest, January 2016

appeasing the people with no loss of national identity. The above infogram demonstrates how a blockchain works in a cryptocurrency transaction which illustrates the critical part of the blockchain which is the distributed ledger.

A decentralised and distributed digital ledger is at the heart of what makes the block chain exceedingly secure while eliminating the need for trusted third parties to verify the authenticity of transactions. This means records cannot be altered retroactively without the alteration of all subsequent blocks and the collusion of the network. As each miner verifies the transaction and solves a complicated mathematical equation or algorithm and all miners in the network have to arrive at the same and correct answer to approve and validate the transaction adding the 'block' to the chain. The blockchain effectively addresses the issue of double spend as a distributed ledger ensures ownership

cannot be duplicated or shared as a block cannot be reproduced and ownership of goods or cryptocurrency is verified and confirmed by the network.

It's through this immutable truth that the applications for blockchain become vast (see illustration below). Platforms such as Matterum and Ethereum look to take this further through smart contracts which not only embed the conditions of the contract, but also through a distributed ledger verify the accuracy of each stage of the transactions and the completion of conditions as stipulated in the contract between any two or multiple party's. Ensuring that, without trusted third parties and the additional cost this would involve plus the added risk, the execution of the contract becomes essentially seamless.

This presents a huge opportunity for regional trade particularly important in the African context. Leveraging the processing capacity of the blockchain network where the bureaucratic process which is often taxing and insurmountable, requiring an army of experts, custom agents, various policy enforcers, becomes embedded in a blockchain, ensuring that no amount of detail is too much and no level of compliance with the varying tax authorities and customs policy fees and taxes is ever over looked or omitted. Imagine the complexity of protracted negotiation compromise and elusive agreement/disagreement is done away with in a single key stroke and replaced with a virtual union of full automation authenticated via distributed ledger.

THERE IS A SMARTER WAY TO TRADE

Under a smart contract the transaction is digitized, the contract itself is computer generated with predefined rules that runs on blockchain. The conditions under which all parties to the smart contract agree to interact with each other are embedded in the smart contracts, once all conditions are met the contract self-executes.

Embedded in these smart contracts are the details of shipment, the value, ownership and origins of the goods, the buyer and seller. The various customs and duties

payable and to whom, by when. The vehicle the goods are on, ownership, taxes route taken to its destination. All uploaded to the blockchain as the goods move from the factory in Lusaka to the shop in Dakar, from the sugar fields in Mauritius to the restaurant table in Nairobi. This is the power of the blockchain and modern computing power which can transform trade on the continent and bring to reality the Pan African dream of Kwame Nkrumah.

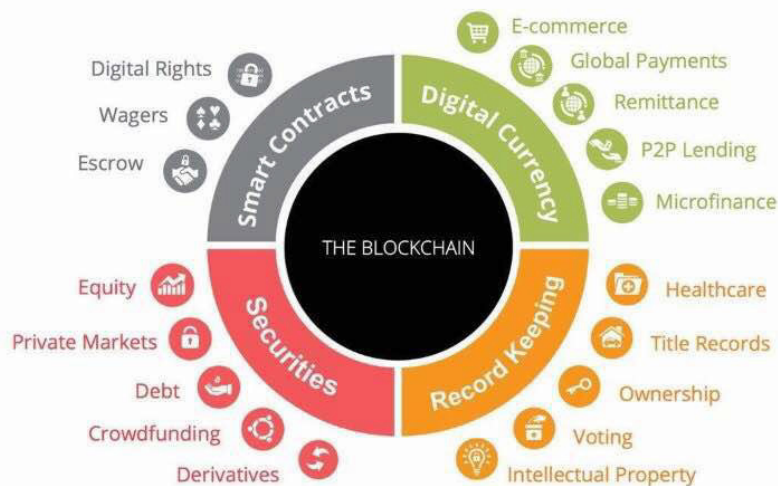
Imagine a world of programmable currency embedded in digital contracts independently verified and completely unforgetable and uneditable. In this world there is certainty around payment, the goods being purchased, duties customs and taxes and all are embedded into the digital contract and currency. This Ensures that at every stage of the transaction the relevant parties and agencies seamlessly receive payment and only upon the completion of predefined tasks or rules embedded in the digital or smart contract.

The currency 'knows' the owner, goods and duties due on the goods, even the buyers account details and the moment at which the buyer needs to pay for the goods and when the seller needs to receive payment, a fully programmed process.

We envision a process that allows businesses to conduct cross-border trading over the blockchain using smart

Blockchain Potential Applications & Disruption

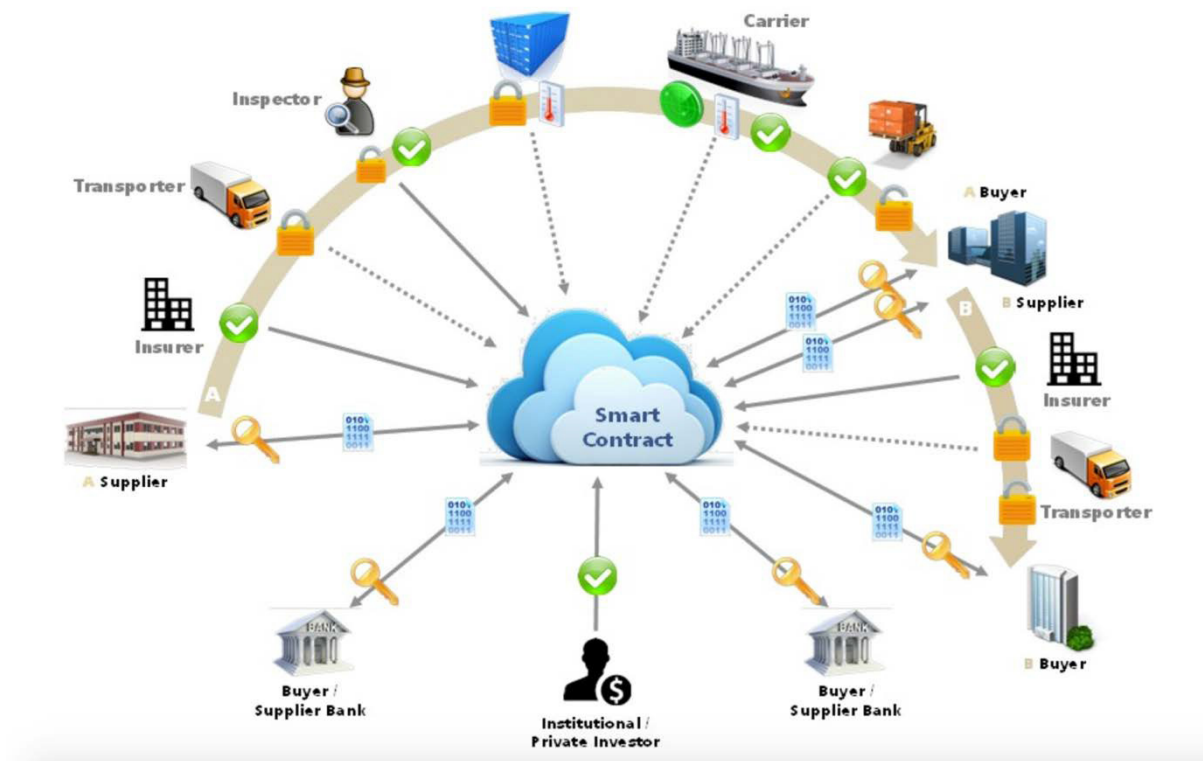
The blockchain is radically changing the future of transaction based industries



Source: Bitcoin Shop Inc, July 2015

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Source: Coindesk, September 2016

contracts in built with the regulatory requirements, financing terms connecting the supplier and buyer seamlessly. At each interval, each stakeholder between the buyer and seller connects to the blockchain via API automate via GPS, triggering payments to the relevant bodies from inspection fees to duties to insurance to transport fees. The blockchain knows what the goods are and can verify their identity and therefore applicable taxes, via APIs the applicable taxes are settled and paid to the relevant bodies. The trucks registration details and ownership and insurance are confirmed and the vehicle is automatically cleared as it crosses the border and insurance and licencing details updated to the blockchain as it enters a new jurisdiction.

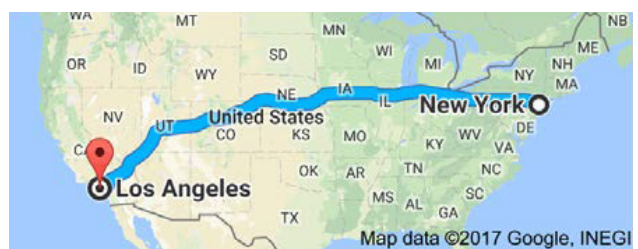
The transparency of the blockchain allows all to see the progress of the shipment, monitor what is being shipped and confirm all necessary duties have been paid based on an accurate valuation of the goods and instantly settled. Each truck/train/ship essentially carries a blockchain enabled passport showing its place of origin its destination and route of travel.

The history of trade is the history of banking; banking followed and enabled trade going as far back as 2000BC to the days of the Assyrians and Babylonians. As we seek to grow as banks on the continent then we must seek to grow trade and leverage the modern mediums that are transforming the modes of exchange and remove the friction in intra Africa trade.



122 h (8,305.2 km)

via N1



40 h (4,495.7 km)

via I-80 W



It's not lost to us the depth and breadth of the various infrastructure challenges the continent faces which form a significant hindrance to pan African trade; however there is a role for banks as institutions that today traverse this great continent to play to create the basis and incentive for the investment. This vast continent needs banks that are prepared to simplify its borders, customs unions and immigration procedures which through the power of blockchain will see her thrive and its people prosper.

THOUGHTS AND CONCLUSIONS

Trade is a notable source of income for nations and foreign exchange proceeds that make up the majority of any nations' foreign currency reserves. These reserves absorb balance of payments shocks. Therefore increased intraregional trade not only allows for scalable GDP growth but ultimately results in better funded governments. Increased income in a country allows for growth in prosperity in that the vast majority of businesses then have more customers resulting in the need for more jobs to service the growing customer base. A direct result of which is lower unemployment, growing the tax base for governments; again increasing government income. Governments that are well funded are better placed to design socio-economic programs that genuinely address the needs of those living below the poverty line and narrowing the economic duality that currently exists.

In the current discussion on ethics one theme that is receiving increased focus is the role and responsibilities of institutions both private and public to play a consensual role in the building of a consensual future that is the desired and accepted standard and aim to increase quality of life in the communities these institutions operate in. This trend has seen the rise of integrated financial reporting which is the next evolution of financial reporting that aims to address the value a company contributes in an economy, society and the global ecosystem creating sustainable intangible value for the twenty first century. King IV discusses these considerations in comprehensive terms and in a number of respects captures the essence of what Pan Africanism seeks to address by recognising that ethics and socio-economic participation create intangible value for communities that ultimately generate a direct benefit for all. However for this to be done an economic model that empowers multiple stakeholders to participate in markets allowing citizens to earn a sustainable living must be spear headed. Growing the customer base for

African businesses through increased intraregional trade ultimately empowers African people by increasing employment and use of resources.

Implementing a trade finance block chain solution for Africa requires leadership that is optimistically brave as it would necessitate large capital investments in platforms and significant buy in from multiple stakeholders to integrate into the platform and courage to navigate uncharted territory. In addition to this as Distributed Ledger Technology (DLT) continues to advance with the creation of iterations like Hashgraph that can process a greater number of transactions using less computer processing power and capacity. This increases the likelihood that in the future mobile phones will have the processing power to operate Distributed Ledger Technology and reach a wide cross section of the continent. With mobile phones being so widely and quickly adopted in Africa, Distributed Ledger Technology could potentially create a platform for niche small business owners that provide creative arts, garments and subsistence farmers an opportunity to market their goods and services to a wider market base across Africa, in turn creating greater economic benefit for these people who are the first pillar of the value chains in their respective sectors. This could therefore mean a coffee grower now has increased the actual amount paid to him for coffee exported to be ground and processed simply because he or she has access to a bigger potential customer base. Advancements in computer processing power does introduce an element of risk making cyber security protocols one of the key contemplations for this debates.

However it is important to note that a block chain solution in isolation does not address all the impediments to intra Africa trade but what it does represent is a potential giant step forward in closing a gap that is at present glaringly large. In doing so a crucial domino effect is created increasing the feasibility of further investment for the construction for more logistic infrastructure projects to further facilitate increased trade flow, paving the way for structural economic transformation. The solution proposed requires an additional investment in infrastructure for IT platforms and the development of new human capital skills to design and build the platforms.

A view would also need to be taken on what currencies should be embedded in the smart contracts, required hardware at borders and software would be used for stakeholders to seamlessly integrate to the blockchain ledger. This investment in IT platforms and software

would be over and above the already identified shortfall in the continent's infrastructure in the form of ports, rail, road and energy to transport goods and services but as highlighted earlier the two issues are conflated and each cannot completely exist without the other. Additional considerations are around the model design that would need to be used to allow for the lowest maintenance cost of the platforms across multiple jurisdictions to not erode the monetary and socio benefits of implementation.

Reducing some of the existing frictions in African trade creates an incentive for investment in other areas if other barriers are removed. There is definitely a larger role for African Banks to play in supporting greater intraregional trade through the use of Distributed Ledger Technology.

This is an opportunity to unite and create a Pan African force bound together under the banner of trade that could ultimately benefit more people and creates greater economic inclusivity and whilst it wouldn't be a simple solution to implement, one needs only think of all the potential possibilities such a solution opens up to start taking the actions to make it a reality.

Banks operating on the continent therefore need to lead the discussion by disrupting their existing trade finance model and begin engaging stakeholders with a view to design an updated regional trade framework that addresses the challenges that are uniquely African and fortify sustainable growth for Africa to become a "Great Power whose greatness is indestructible."

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ⁱ The long-run poverty and gender impacts of mobile money study by William Jack and Prof. Tarveet Suri, an associate professor at the MIT Sloan School of Management