

# Charter Cities and Crypto



## Mwiya Musokotwane

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Five and a half years ago my co-founder and I started planning a new city development in Zambia. After a year and a half of planning, we started marketing the new town development and got busy doing the actual work of development. Four years in, we've done quite a lot, but there's still a lot for us to execute before the town starts to actually look and feel like a town. Part of what makes what we do interesting is that it's an exercise in the sort of planning typically done by municipalities and central governments; we have to think about schools, utilities, home affordability, access to healthcare, sanitation, and jobs. Starting from the ground-up, with resources we've built through aggressive pre-sales, and conservative financial planning; we typically have to approach everything from the basis of first principles. Further, given that the city is already self-funded, and with no external investors; we treat our development company like a lean start-up. **The first priority is to get the minimum viable product ready, iterate and improve from there.** It's easy to be idealistic when the purse is unlimited, the opposite is true when you have to think of the best and highest use of every dollar spent.

That being said, part of what makes private city development exciting is the possibilities of what could be. What would a network of these private cities look like? As I wrote in a recent article, Africa's population will rise from approximately 1.3 billion people today, to approximately 5 billion people by 2100; over half of this population will live in cities (over 2.5 billion people). Existing cities will have to expand significantly, and new cities will have to be built to accommodate this massive rise in population. Given the scale of existing infrastructure deficits across Africa (and Asia), we believe these new cities, and the expansions of existing ones, will be financed and managed by private organizations such as ours. Private governance will likely be the norm across much of the developing world. It will create jobs, provide trusted institutions, affordable housing, and economic platforms for business creation and growth. Beyond this though, and to my point about what the future could look like... I've recently been thinking about how private cities could use blockchain (and crypto) to enhance the quality of life of their residents. Could blockchain and crypto be the software to charter cities' hardware? Are charter cities the means through which cryptocurrencies could achieve broader everyday use or mainstream adoption?

For background, charter cities are city-sized special economic zones with enhanced levels of autonomy. This includes the ability for the city to set its own civil laws, judicial processes and tax policy. Typical examples of these cities include Shenzhen, the free trade zones in Dubai, and Hong Kong. Discussions on charter cities typically focus on governance, which of course is the foundational issue relating to their success. However, there is less discussion around monetary concepts and their impact (or lack thereof) in relation to charter cities. In general, I believe that the lack of discourse is largely owed to the fact that building a charter city is no easy feat and solving for the governance frameworks is foundational - and difficult. That being said, let's assume for a moment that a city is given charter status. It must build also an economy from scratch. This requires some thought. How

does one go about building an economy ex-nihilo? Part of such a discussion probably needs to also include consideration regarding the extent of autonomy sought. Should it include liberty to set its own monetary policy framework; including the issuance of a monetary unit or use of a foreign monetary unit instead of the host country's currency? This essay explores the idea of Charter cities issuing their own crypto currencies as a means of enhancing the utility of their resident's and developing their economies.

## **A day in the life of a charter city resident with Vonsay**

This is a short description of the day in the life of a resident of a charter city in the not so distant future, probably in Africa or Asia. The resident, let's call her Steph, is an expatriate living in the city for work. The city she lives in has a population of 2 million people, it's part of a broader special administrative area (SAR) that was built by a private city developer, the developer still manages the city. This SAR includes a large countryside with large farms that provide the SAR with its food as well as exporting their produce. These farms are owned and run by a mix of local and foreign farmers; both of which immigrated to the SAR for reasons we'll explore later. The SAR has an energy zone where solar farms and wind farms produce the electricity the SAR needs, as well as exporting the surplus. The SAR has a large number of expats working in it but is about evenly split between citizens of the host country, and expatriate workers, similar to experiences such as Dubai. Its city is vibrant and has a very modern feel to it, all the infrastructure and cultural experiences one would expect in a city in any advanced economy; except it's hosted by a "third world" country. Whereas it has a Gross Domestic Product (GDP) per capita of about \$20,000USD -the host country's GDP per capita is below \$6000USD per capita. This makes this city the best place to live in that country. It has the best universities, best schools, and best medical facilities in the country.

The SAR's economy is relatively diversified. Given its relatively large area, its economy includes tourism, mining, manufacturing, education, healthcare, internet technology, financial services, and real estate, among others. The SAR is considered a commercial hub for foreign enterprises, many of the world and the region's largest businesses have offices there; providing employment to locals as well as bringing highly skilled expatriates to work there also. Many locals from the host country have also decided to set up their businesses in the SAR as it gives them access to capital, a low tax environment, and a high trust environment where rent-seeking activity is non-existent; they can do their business freely with minimal bureaucracy to slow them down or cause their costs to bloat. Consequently, several local and regional business champions are emerging from within the SAR; this includes the country's first cohort of local billion-dollar businesses. The SAR has a focus on attracting highly technical organizations and establishing itself as a hub for research and development. In view of the same, and given its tropical location, its operator has been pursuing emergent space exploration companies with the view of having them set up launch bases in the SAR. It sees this as a logical step towards encouraging assemblage of rockets in its industrial parks. Farmers chose to move to the SAR because its developer financed the rollout of all the core infrastructure they need, they have ample access to irrigation resources like water, have centre pivots on their farms, and access to silos as and when they need them. They lease the land and equipment from the SAR operator, and at a relatively affordable cost basis.

Steph's days typically start at 6 am. She wakes up, briefly meditates, has her shower, brushes her teeth, dresses up, does her hair and makeup and then is out the door by 8 am. As she leaves her home, she gets her phone and taps its screen to get into her "Vonsay" app. This is the app the whole city



runs on (more on it later). The app has a safety feature to manage access to her home - she points her phone's screen to a camera on her front door; it reads a QR code and immediately locks itself up. If anyone attempts to open the door, she'll be notified. If anyone she has granted access to the door, say an Airbnb guest, opens the door; she'll be notified. She catches a bus to her workplace.

Vonsay is put to work again, her phone's screen is read by the driver's point of sale device, she quickly types her pin to authorize the ticket payment and then takes her seat.

She gets off the bus after about 20 minutes, walks into a coffee shop to grab a quick bite; again, she pays for her bill the same way. Vonsay has a social feature that allows her to follow other people in the city, as well as businesses too. She can opt-into letting businesses she follows track her expenses with them. This usually comes with some benefits, in this particular instance she pays about 5 percent less on her mocha's than the listed price, she also pays 3.5 percent less on her bagels, largely because she doesn't have them as often as the mochas. The coffee shop she's at recently changed several of its service staff, so they don't really know Steph much. However, because she's opted into the data sharing; her purchase habits are available to them via Vonsay and there's been no change in service quality from her perspective. Vonsay also lets the public rate the quality of service businesses render the

public, so that certainly also incentivizes good service. The coffee shop has an A rating for its sanitation standards, and as Steph looks at their profile, whilst thinking about whether or not their standards have changed or not; she's able to see all the pertinent information on the business. Its sanitation rating, the number of meals they have served since they opened, number of coffees served, links to the professional profiles of employees serving in the store, the name of its shareholders; in this case, another business that Steph doesn't feel compelled to learn about. She feels good about the service and leaves after finishing her coffee.

It's now 8.40 am and as Steph walks to her office, which is about 5 mins away, she looks through her expenses for the month. She's able to see that she's spent her money on, down to the granular details; amounts spent on mochas, where she spent the money, as well as aggregate levels, her spending relative to the average for her income group, her savings relative to the average, etc. As she's looking at the analysis Vonsay put together for her automatically, she gets a notification that an apartment of similar quality, size and rental cost to her existing one has come to market; this apartment would cut her commute time by 10 minutes and the city is letting her know in case she wants to set up a meeting with the owner. She accepts an invitation for a viewing and it gets added to her calendar for the week. The owner pings her to let her know she's happy to answer any questions prior to the viewing. Steph briefly looks at the landlord's rating as a homeowner, she scores highly. Steph lets her know she'll be sure to send over questions if anything comes to mind.

As Steph walks into work, she checks-in using Vonsay, which lets her know she has 10 days of accrued leave she is yet to use. She gets to her desk, logs into her terminal; uses her work credentials to log into the professional version of

Vonsay. She gets into the app suite and launches the word processor, she sees a few comments left there by a colleague -she had ignored them the prior day because she had a lot of unfinished work to conclude. She scans the comments, responds to them; her colleague who is late but walking in immediately gets notified of the response. She continues with the rest of the report, quickly opens her project management app to see where she's at on a large project her team is working on.

During the course of her time working and living in this SAR, Steph never uses a debit or credit card, never has to use an I.D. card anywhere - all she needs is her Vonsay app. The city for all intents and purposes knows her as much as she allows it to, the more she shares the more convenient her life gets, but the less private. The less she shares, the more autonomy she keeps; it's her choice.

The company where Steph works is a local business started five years prior. Its scaled relatively rapidly. Given her host country has lower labour costs than Europe and North America, her company connects professionals in that country to freelance opportunities in North America and Europe; all of which are done remotely. Like all companies in the SAR, Steph's employer's shares are tokenized. All companies in the SAR are required to register their organizations on the central business registry, which can be done online via Vonsay. All equity and debt in the SAR is held via security tokens. Her company was initially backed by angel investors and venture capital funds that acquired a substantial percentage of the company's equity tokens in its early stage rounds. As her company is about to achieve cash flow positive status, it is now planning to offer its security tokens to the public. The SAR regulates all private and public offerings of security tokens, this is done to reduce the potential for fraudulent actors to abuse its financial market.



It's now lunch time and Steph is eating some packed lunch at her desk and looking at the details of the apartment the city notified her about. She's looking at its previous tenants, their comments on the place, details regarding when the apartment was built, and how many times its ownership has changed. Just then she gets a message from one of her existing neighbours, she's telling Steph about a weekend lunch her

neighbours are putting together for a new member of the community; she's asked Steph to contribute if she'd like to come. Steph lets her know she'll get back to her that evening. Steph also gets a notification to let her know her cleaner just checked-into her home to clean up.

It's now 8 pm and Steph is heading back home from the gym. She gets into her home. She's scrolling through her phone and realizes she missed a notification informing her she got her monthly pay and bonus that afternoon. She checks Vonsay to see how many credits she has in her wallet. She checks and realizes that she has enough to put down a deposit for an apartment. She decides she'll buy an apartment instead of rent one. She does a search to see what's available. She finds a nice one bedroom apartment on the nearby beach. She decides she likes it and pings the owner to set up a viewing. Steph has a great credit score. If she should like the place; financing it will be relatively stress-free for her. She'll place her deposit into a city

escrow account, the city will then add her credit details to the composite of a mortgage bond it will issue for people who share her credit score. Investors will be able to see through to the individual borrower's credit ratings and have basic access to their financial profiles for due diligence purposes (for example place of work, income per year, surplus earnings per year, years lived in the city, total savings). Steph would receive the funds within a day or two of signing the purchase agreement; which would be executed digitally through her personal authentication codes. All in the transaction would be done within two days at the most. In the event she was paying straight cash, the transaction would take only a few minutes to execute; the changes to the deed registry would be executed in seconds or less.

## Monetary policy

Monetary policy can be a powerful means of catalyzing financial development in an economy. Low-interest rates generally lead to higher levels of credit demand, which typically support growth in consumption and investment. In contrast, high-interest rates reduce demand for credit, cool consumption and investment; which can lead to lower levels of inflation. The ability for an economy to set its own monetary policy is important because it's a principal means of controlling inflation and stimulating or cooling investment. It can also be a means by which an economy may defend itself from external macro-economic shocks. Cities generally do not manage their own monetary policy, instead, they are usually subject to a central government's monetary policy decisions. In context with broad economic stability and good governance frameworks; this lack of monetary policy sovereignty generally has a positive or neutral impact on cities. However, in contexts where economic systems are fairly under-developed, and governance frameworks (or institutions) are weak; the ability for cities to manage their own monetary policy may lead to positive economic

outcomes if the city is able to maintain a positive balance of payments with (a) its host country (b) the rest of the world. In such a situation, the city's positive trade balance with its external environment would lead to an accumulation of exchange reserves. As would be the case with most mainstream central banks, the accumulated reserve (as measured in terms of import cover) would be an important means through which the city's monetary authority would periodically intervene in its money markets to prevent excessive volatility in its currency; or prevent runaway inflation by defending the value of its monetary unit versus a basket of currencies of its principal trade partners.

An ordinary monetary unit (pegged or fiat) would be able to achieve the general aims outlined above. In our opinion, the principal weakness of mainstream currencies is their inability to adequately capture the meta-data related to their use in transactions. Money is an application that almost every individual in a society interacts with and needs to engage with the rest of the world. Without the use of private platforms, the currency itself is "dumb" and not particularly user-friendly, at least within the context of enabling digital natives to better engage with the world, or to optimize their own financial affairs to suit their aims. Money will not tell you how much of it you spent, or where you spent it. This lack of data capture can be quite limiting. For example, unless an individual joins a grocery store's loyalty program the store will not be able to track the individual's shopping habits and provide discounts or other perks specifically built around that individual's shopping habits. Likewise, a person who visits a bar or restaurant often may build a pattern of consumption that waiters at such an establishment may intuitively learn over time; enabling them to optimize their service around that individual's tastes. However, should there be a change in staff or management, that institutional history would be lost. We believe this shouldn't necessarily be the case.

***We believe that money should come with user settings that enable an individual to opt-into data sharing with individuals, businesses, and other actors that allow the rest of the world to optimize the way they relate with said persons.***

## The application of blockchain

Money like any social application has network features already in-built. However, those features tend to be relatively off-line. In theory, banks have the ability to make money “smart.” They can track where or how an individual spends their money. However, what they lack is the broader meta-data to enable more granular analysis of spend. For example, if a person buys their weekly grocery shopping at a Wal-Mart and spends US\$300USD, all the bank will know is that the individual spent US\$300USD at a Wal-Mart store; they won't know what the individual bought. However digital currencies can enable such data capture, in theory, if a city requires that all goods, services and assets in its jurisdiction be registered on its block-chain, it would be possible for an individual to automatically track all their spending to the very granular levels on an ongoing real-time basis; enabling all expenses and incomes to be constantly reconciled. Since the individual would own their privacy rights, only they would know how they have spent their money; or what their sources of income have been; but they would also have the right to share such data with 3rd parties as they may see fit. We believe this would great benefits for people living in such a context, providing great convenience. Likewise, it would also benefit organisations as they would be able to constantly have their accounts reconciled in real-time without the need for expensive Enterprise Resource Planning systems.



We believe that the use of digital currency and block-chain could also liberalize capital markets in significant ways. To the extent that an economy fully uses block chain, all transactions would be registered on the block-chain, this would mean that its cash flow statement, balance sheet and income statement could be tracked in real-time. In theory such a situation could allow for all market actors to have near perfect

information on the state of a public organisation. This would enable markets to be more efficient. It would also enable greater market transparency. Such a trust-less framework could incentivize capital raises through security token issuance; potentially broadening access to capital.

Until now, the most popular digital currencies have been slowly adopted by individuals and businesses in an organic manner that leverages network effects. Charter cities have the benefit of being (at least in theory) able to enforce the sole use of digital/cryptocurrency by fiat. In our view, in the event that a city is able to achieve a positive trade balance with its external environment; such a trade balance would make the transition to use of digital currency uneventful from a monetary stability point of view. Sans such a balance of payments situation, such a currency would need to be seen as a very attractive investment asset to hold, leading to significant capital flows into the city; creating a positive capital account balance that would be the basis of the currency's value. However, given such an outcome would mean that the currency's value would be supported solely by sentiment; volatility would be inevitable; unless of course, the monetary authority

executed a massive Initial Coin Offering that provided it with substantial exchange reserves that could be used to support its currency through open market operations. Whilst this latter scenario is quite an attractive one, it also requires substantial levels of market confidence in such an initiative, whilst the former scenario would be a much more organic approach to launching a digital currency.

In our opinion, treating money as a digital platform in the manner we have described would lead to third parties building applications that leverage the capabilities of the platform to solve for problems that ultimately benefit the users of said platform in ways the platform developer may not even foresee. In general, such a platform would likely be the realization of the ambitions of platforms such as Ethereum. The critical issue will be solving for security and user privacy rights, whilst pursuing the broader aims. We see this platform as a type of social platform that allows actors to follow each other - for example they can track their financial relationships, trade, structure financial arrangements, and have access to each other credit scores should they be requested. By reducing information asymmetry, businesses and individuals could build credit scores that are representative of their ability to service their obligations. Ultimately by making the entire financial system trustless, the society as a whole would optimize for greater trust building by incentivizing good behaviour. Such a system would represent an “Uberfication” of the financial system, whilst also treating the entire system like a “We Work” type community.

## The changing city currency

In view of the fact that all crypto liquidity is presently invested in existing digital currencies such as Bitcoin, Ripple Price Index (XRP) and others, we believe that city currencies like the ones we have described above would need to be fully

interoperable with existing digital currencies; allowing for liquidity in one currency to flow into these city currencies. Likewise, to enable the rest of the world (other central banks) to hold this type of digital currency; the cities would likely have to issue bond notes that are pegged to the value of its digital currency. These bond notes could be used by third party central banks and banks as proxies for its digital currency, whilst individuals and businesses within the cities would not be allowed to use or own these bond notes (similar to the International Money Fund's rules regarding Special Drawing Rights).

I would like to see the world described in this article materialize. Over the last 4 years, my firm has been working on its first city development, we intend to build more cities in the coming years. I believe that the cities of the future will look like the one I described in this article. To that end my firm has been working on a platform that would be used in the manner I described in this article -it's called Vonsay. It will be the digital soul of our cities, connecting all our residents to the places they live, learn, work and play. It's still early days, but this small side bet could be the anchorage for a network of cities spanning Africa and Asia in the not so distant future. So for the moment we dream about what could be, whilst focusing on more immediate priorities like building roads and utility grids in the city. That said, it's good to dream. In my next article, I'll touch on how we intend to use charter cities to transform education. Stay tuned.



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Mwiya co-founded Thebe and has been responsible for taking the Nkwashi project from ideation level through to present development. Mr Musokotwane is responsible for planning encompassing marketing, financial management, investment operations, civil works and the creation of its innovative payment plan models. Prior to the formation of Nkwashi, Mwiya worked as an investment analyst at African Life Financial Services Zambia Ltd, a unit of South African Investment giant Sanlam (through its holdings in BIFM of Botswana). At African Life Mwiya was responsible for helping manage over US\$400 million in assets under management, specifically the management of capital allocation across fixed income, equity, property and private equity asset classes. Whilst there, he developed new credit risk management systems and equity portfolio management tools. Mwiya has a BA in Finance from Richmond the American International University in London, as well as an MSc in International Business Management from The University of Surrey; both in the United Kingdom. Mwiya brings a firm understanding of African asset management as well as a discerning understanding of strategy, marketing and consumer behaviour.