Innovative Finance Inclusion

Blockchain Technology Mechanisms as a Driver for Financial Inclusion & Social Resilience

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Abstract

Decentralized Ledger Technologies (DLT) present new ways for many kinds of transactions, most of all in the financial field, by offering new ways to conduct peer to peer communication without the intermediation of a 3rd party . Financial inclusion can be intensified and increased through the utilization of such technologies, mainly decentralized finance tools, and should be regarded by the international community as an accepted tool to support populations under political oppression.

This paper deals with the opportunities and current shortcomings blockchain technologies have wth regards to enhancing financial inclusion, as well as contribute to a healthier, more resilient society as a result.

Keywords

Blockchain, Crypto, Political Oppression, Innovation, Impact, Financial Inclusion, Financial Exclusion

1 Introduction

The financial ecosystem has gone through massive changes in recent years. Beginning in 2009, a new alternative to traditional banking systems emerged, called Bitcoin. This alternative allows individuals and organizations to manage financial transactions without the involvement of a bank, an insurance company, or any other type of third party for that matter. Instead, it relies on a distributed ledger that draws its power from thousands of computers around the world (Sarmah, 2018).

Blockchain, which has evolved greatly since Bitcoin was born in 2009, is essentially a code-based infrastructure that stores transactional data, providing both full transparency and a high level of anonymity. Today, blockchain applications are present in many different use cases of financial investments. It allows for global communication between financial peers, supports financial inclusion and more. However, it can be also used for malicious purposes such as terrorist financing and money laundering by criminal groups, who take advantage of its non-regulated nature and almost complete anonymity (Zile & Strazdina, 2018).

Decentralized Finance (DeFi) tools promote financial inclusion, and in some cases leading organizations have already adopted some of those tools to support other excluded groups, mainly refugees (See, for example, the World Food Programme's experiment in 2017). However, populations under political oppression present a special case on multiple grounds, that often have excluded them from international focus. First, their status is more permanent, sometimes spanning generations. Second, the structure of the international system heavily compromises the ability of other nation states or international organizations to interfere with their political rulers in an attempt to improve the situation. This stands in contrast to the case of refugees, for example, where clear international law sets the path towards international and transnational aid. Third, their entire financial system, services and existence are usually fully controlled by an oppressor, who can easily seize donations and funds provided by non-governmental organizations and states (Smith, 2005).

To comprehend the share of politically oppressed populations out of the total number of financially excluded people, appendixes 1 and 2 provide an insight into the democracy index, as well as the financial inclusion index by the UN and World Bank respectively. There is a significant connection between countries broadly defined as failed democracies, or a sort of autocratic regime, to those with high rates of financial exclusion. China, of course, is no exception. An even stronger correlation is noted between financially inclusive economies and strong, developed democracies.

In this case study it will be asserted that the unique qualities and aspects of blockchain-based applications, more specifically smart contracts and even more specifically DeFi mechanisms, can and should be utilized to support, if not alter the situation of millions of people around the world currently facing political oppression, as well as other types of financial exclusion. The imperative for international and intergovernmental organizations of different sizes, with the objective of supporting such populations, at the very least inspect and consider the usage of such tools in order to improve the reach and impact of their operations, cannot be stressed enough.

2 Terminology

To provide better clarity of the terms and references used in this report, the following section elaborates on how they are perceived, based on different sources of information and data.

2.1 Financial Exclusion

It is crucial to understand what we refer to in this essay when discussing financially excluded populations. Financial exclusion consists of many different parameters, such as account ownership, account activity, access to credit and more. Account ownership is perhaps the most empirical and measured parameter, and will therefore, serve as the cornerstone of financial inclusion in this paper. Along with that, aspects of account activity and access to credit services by individuals and firms will be taken into account. It is important to mention that while the advancement in measurement and definition is of crucial importance and should be regarded as key research topics, this is not the objective of this paper. Instead, the focus is to assess how utilizing blockchain platforms will advance the financial inclusion of oppressed populations. For the sake of benchmarking, this essay will rely on data from the World Bank's Findex, 2021 (available in appendix 2).

2.2 Political Oppression

If financial inclusion consists of multiple parameters, it is an understatement to say so about political conditions and freedom levels. The assumption applied in this discussion is that political oppression level is a projection of democratic stability or the existence, or lack thereof, of functional democratic mechanisms. The logic of such assumption is based on the notion that democratic regimes are a foundation for individual liberties, hence the opposite of political oppression (Khalil, 2020), as well as key indicators for financial inclusion, even more than intuitive characters such as economic growth. For example, Morocco's GDP growth was 7.4% in 2021, but it is leading the chart of unbanked population share, 71%, and also

ranks very poorly on UNESCO's Democracy Index, which also serves as the primary data source and point of reference for this essay (see appendix 1). Similar evidence can be seen for Vietnam, the Philippines and others. An opposite case that can validate this claim as well as neutralize a more geographic explanation can be seen in the case of Botswana, which is ranked very high in the Democracy Index, especially in relation to neighboring Sub-Saharan countries, and is also one of the region's leaders in financial inclusion, both in terms of current statistics and in terms of strategic development in this direction[1] .

2.3 Decentralized Ledger Technologies (DLT)

Decentralized Ledger Technologies (DLT) basically serve as the main vehicle of digital currencies to politically oppressed populations. DLTs provide the infrastructure for the recording of financial transactions, based on a decentralized protocol that is maintained by a chain of computers that validate these transactions. Decentralized ledger technologies enable the existence of an alternative financial system, providing users with (almost) complete anonymity and full transparency, mending – in the eyes of many – the main flaws of the traditional financial systems (Consensys, 2020). The most famous embodiment of DLTs these days is bitcoin, and the market cap of DLT based virtual assets is mounting to over $1 Trillion[2].

3 Blockchain as a solution

There are multiple use cases for blockchain technology that can contribute to improving the wellbeing of populations under political oppression, as there are multiple types of applications that can enable the streaming of capital to these populations via blockchain networks (Chinaka, 2014). The following review presents the main tools available for organizations as well as individuals to support oppressed populations.

3.1 Direct capital streaming

It is a well-established notion that capital injected directly to an account significantly catalyzes financial activity and access to other financial services. Using blockchain platforms and exchanges, individuals can create financial transactions with each other without the need of mediation by a third party, thus providing individuals with the ability to create financial transactions without the need of a bank or a government to authorize it, nor a credit company to enable it and no other intermediaries (Tapscott & Tapscott, 2017). The peer-to-peer transactions rely on the data stored in the blockchain, and every transaction is validated by

[1] UNSDF: Botswana Financial Inclusion Refresh
[2] Real-time monitoring of DLT based virtual assets is available at CoinMarketCap website.

the entire community in the network prior to its approval, making it also (almost) immune to hacking, counterfeiting and alteration as a whole (Muneeza, Arshad & Arifin, 2018). This capability means everything for individuals who are excluded from traditional financial systems, or in places where the financial system is inherently corrupt, controlled by an oppressor or simply not functioning (more often than not, it would be all three conditions). Additionally, capital streaming by international aid organizations to this kind of population can help them improve wellbeing, economic survivability and eventually prosperity.

3.2 Smart contracts

Smart contracts are essentially code lines that specify certain conditions under which the transaction will be valid and approved. Once written, these contracts are enforced in any event, and cannot be altered or compromised, providing stakeholders with confidence that their conditions are met (Muneeza, Arshad & Arifin, 2018). These contracts can be the base for mutual relationships between investors, benefactors and philanthropists who wish to support a population, but refrain from doing so due to the fear of providing further financial support to a corrupt regime. Additionally, if adopted by international non-governmental organizations as well as inter-governmental organizations, it can bring a real change to the lives of millions, by boosting entrepreneurship and small businesses, and allowing for the creation of an innovative ecosystem.

Smart contracts have many possible uses beyond the financial ones. Basically, a smart contract can act as the indicator of fair trade by providing full transparency into supply chains, allowing for more selective and informed consumption by enabling consumers to track and monitor the product's journey throughout the supply chain (Gaur & Gaiha, 2020). Another example can be seen in utilizing smart contracts in electrical grids to allow more efficient supply of electricity. In short, while their introduction to a certain market can and perhaps should be financial, the applicability of smart contracts varies massively and can encompass almost any industry and market (Randall, Goel & Abujamra, 2017).

3.3 Decentralized Autonomous Organizations (DAO)

Decentralized Autonomous Organizations (DAO) is a relatively new actor in the field, providing an alternative for venture capital funds in the traditional financial system. A DAO can consist of multiple investors who wish to utilize their crypto assets for a mutual cause. The DAOs, much like smart contracts, are code based and are backed by the blockchain network on which they are built. Once consensus is reached between the investors and the rules specified by the DAO are met, the investment is valid and can be transferred (Liu et. Al, 2021). DAOs are usually utilized to generate further increases in profitability and enhance

income for its members, however, it can also be seen as a very interesting avenue for impact investors to support local entrepreneurs and drive actual change.

A DAO can have another very interesting use case, which would allow for a better collaboration between international institutions that are interested in supporting this type of population, and the regime itself. This comes as a possible solution for better and easier enforcement of preconditions for international aid to failed states. In this scenario, a set of preconditions will be presented in the shape of a smart contract, by a group of potential benefactors, i.e., iNGOs, IGOs etc. Once these terms are met, for example the introduction of better transportation to public schools, and updated in the receiver side of the contract, funds will be released. This will give organizations a better, more measurable and enforceable, method to track funds and standardize development in such regimes.

4 Potential Impact & Disruption

The potential impact of capital streaming to individuals and SMEs (Small and Medium Enterprises) by DLTs can stem from several directions, have both horizontal and vertical impact on the way the regime perpetuates itself, the way capital is perceived, and the way business is conducted on a wide scale.

4.1 Democracy Building

Financial inclusion can and should be regarded as a key component of financial and wealth equality building, based on the simple notion that the higher the percentage of financially educated and capable citizens, the easier it would be for those citizens to acquire wealth and make smart financial and economic decisions (Khalil, 2020). Looking at financial inclusion, or even applying the broader term of financial citizenship that takes financial education into account as well, it is clear that the more available financial resources are, as well as the knowledge about them, the better the financial participation and wealth acquisition is, for individuals and businesses alike (Khalil, 2020, Osei-Tutu & Weill, 2022). The outcome of such increased financial participation would eventually be a greater tendency for democracy and participation in the global economy, both of which are requirements of the financially evolved middle classes.

Blockchain and cryptocurrencies serve as a key driver for financial inclusion and have been such from their inception. Mainly, since their distributed nature enables their acquisition and management without having to own a bank account, as well as the ability to manage virtual assets on mobile phones, they serve as a prominent tool for financial

transactions in many developing countries (World Economic Forum, 2022). This is particularly the case in African countries, where both democracy levels, and as a result financial inclusion, are severely lacking. In these countries, the demand for greater financial inclusion ranks among the highest percentages, resulting from the huge uptake in almost any other economic aspect, mainly the establishment of SMEs that are in grave need of capital infusion as well as access to credit (Africa.com). The contribution of a large independent business owners sector to the emergence of a middle class, and by extension improved democracy, is already heavily researched and studied (Lu, 2005). Utilizing blockchain mechanisms, it can be perceived how the international community can support and accelerate these processes.

The main tools driving the trends specified above will be those of direct capital streaming from peer-to-peer e-wallets, owned by both individual philanthropists and organizations. Additionally, impact investments led by a collaboration between local entrepreneurs on the one hand and the international community on the other, enhanced and enforced by smart contracts and DAOs, are equally significant. As was previously noted, DAOs can potentially provide a very fertile ground to foster an increase in entrepreneurship and can also present a win-win-win situation viz a viz the local oppressing regime, by laying the foundations for higher grants and sponsorship under the realization of predetermined terms that would be enforced by the smart contract.

4.2 Wellbeing

Greater financial inclusion and easier access to capital and wealth for a larger percentage of the overall population leading to higher levels of wellbeing. The capability approach claims that higher rates of economic freedom, as well as societal inclusion, lead to improved wellbeing in a country (Kanungo & Gupta, 2022). The reason is that higher degrees of financial inclusion will eventually result in a better likelihood of improving short term issues such as food consumption and medical treatment, as well as longer term aspects, such as cash income and school attendance (Nyarko, Ahmad & Green 2021). This could potentially offer a significant improvement in wellbeing, as defined by the United Nations Sustainable Development Goals.

The implications and impact of the COVID-19 pandemic on the world in general and on developing economies in particular was (and is) severe. Such implications are mainly expressed in the shutdown of small and medium businesses, but also, and more particularly to developing economies, a standstill in foreign investment (FSDT, 2020).

4.3 Economic Development

It is agreed that implementation of financial innovation contributes to economic development. Yet, it is important to stress how the introduction of blockchain mechanisms may assist, directly and indirectly, to do just that in oppressed populations as well. Even more so where there is active participation of inter-governmental and non-governmental organizations in the capital streaming through these technologies.

4.3.1 Increased Entrepreneurship & Job Creation

The connection between economic growth and small-medium enterprises (SMEs) is clear and illustrated all over the world, but it is particularly true in developing economies, where they account to about 70% of required jobs (World Bank, 2022). Additionally, as stated above, this sector's contribution to democracy building is of crucial importance as it has direct connections to the evolution of middle class (Lu, 2005), as well as to increases in wellbeing.

The gap between the need and the actual formation of local small and medium businesses stems mainly from difficulties accessing finances and financial institutions (World Economic Forum, 2021). This gap can (and should) be filled by blockchain-based mechanisms like the ones noted above, that would facilitate investments, exposure to new markets, and payments received by business owners. This would significantly impact their financial survival, and eventual prosperity, for the better. Further, as a direct result of such trend, more job vacancies, as well as job types, will be created. Such shift in the economic trajectory of a country struggling to maintain inclusive growth will be all the more significant (World Bank, 2022).

4.3.2 Supply Chain\Fair Trade

Not all blockchain-based tools are strictly financial. The transparency provided by blockchain networks can also provide a detailed inspection of a product's journey along the supply chain, from its origin all the way to the shelves in your neighborhood supermarket. Such transparency can be regarded as a validator of fair trade, fair labor conditions and so on. This information, in turn, can be utilized by potential institutional investors towards better decision-making through smart contracts and DAOs, in terms of resource allocation and support for business owners (Ganne, 2018).

Overall, it can be seen that implementing a more inclusive financial tool can stimulate the creation of more sustainable and resilient democracies all around. Whether it can also foster the actual creation of a democratic regime is a fascinating question that can and should be examined in further research.

5 Challenges of Scaling Up

The Following section reviews some of the prominent challenges that pose difficulties on implementation of blockchain-based strategy in financial aid, investment and support.

5.1 Maturity

Blockchain technology is new. This implies that it has immaturities that can compromise its utilization, at least for the long term. Some of the immaturities are tech-based, i.e., different bugs that can be exploited and weaken the resilience of a crypto-based operation to support oppressed populations, as well as scalability issues (Kouhizadeh, Saberi & Sarkis, 2019). The other issues pertain more to the existence or maturity of different blockchain mechanisms, mainly the liquidation and traceability of crypto assets, once purchased or invested.

Those immaturities may imply significant barriers for the execution of large-scale operations based solely on crypto assets, for example those that will rely on international organizations or private large-scale philanthropists. With that said, it is not the same level of difficulty for peer-to-peer communications and transactions. Moreover, the pace of advancement and initiatives currently taking place in this arena is no less than astonishing, and it may be reasonably inferred that varied solutions will be presented to different challenges sooner rather than later. Moreover, if we assume the involvement of well-funded international organizations in the tendency to utilize such infrastructures, it is most likely that the emergence of such solutions will be even faster (Kouhizadeh, Saberi & Sarkis, 2019).

5.2 Adoption

Today, 13 years since the inception of cryptocurrency and blockchain-based networks, as well as 5 years since the first main explosion of bitcoin net value, it is estimated that about 300 million people around the world can be defined as crypto users, meaning they hold a certain amount of crypto assets. The vast majority of these users are investors with free capital to invest in a relatively volatile and risky market, and the rest can be seen as innovative entrepreneurs in emerging markets. This statistic indicates that the adoption of cryptocurrencies requires a certain level of technological savvy, as well as access to technological devices that would allow for trade, and access to the mechanisms specified in the former chapter. Both are rare in countries and territories under political oppression, at least for the vast majority of the population (Akram et. al, 2020).

It is quite easy to imagine then, how people in the Gaza Strip, or alternatively in almost any Sub-Saharan country, would react if, for example, someone from Amnesty International

would present them with the opportunity to download a digital wallet. Even more, the same people will be able to receive funds into it, that would later require a series of actions in order to be regarded as valid. With an 8% rate of desktop holding in Africa, it is almost illusory to expect the adoption of advanced technologies (Statista, 2022). Fortunately, high and growing literacy rates as well as rapidly growing percentages of mobile phone ownership tell a different story, and while the former perhaps cannot be deduced for other oppressed populations, the latter can provide a more inclusive framework (StatCounter, 2022)[3].

Being that the vast majority of blockchain applications and exchanges can be accessed very easily via a smartphone, including the management of electronic wallets, the lack of desktop computers does not seem to pose a significant challenge to the introduction of such mechanisms by international organizations. On the contrary, it seems Africans are more accustomed to managing their financial assets and behavior through mobile phones than people in developed economies (Poverty Action Labs, 2020), and will therefore find no difficulty in adapting to cryptocurrency swapping and receiving tools.

5.3 Anonymity

As mentioned above, the transactions created and validated on the blockchain are anonymous, or at least to a large extent, and only reflect the tokenized identity of the user. This is in addition to holding many advantages such as the ability to be fully transparent in terms of volumes, amounts etc. In the particular case of utilizing blockchain to support oppressed populations, however, there are also disadvantages that should be noted. For example, it can create substantial complexity and allow for the abuse of an initiative by philanthropists, investors, or international organizations, as it can allow the oppressor to take an active part in the intention to weaken its hold on people's financial identity and capacity (Al-Saqaf, 2017).

The quasi-anonymous nature of blockchain networks serves another challenge to the mainstreaming of those tools, and that is its vast popularity amongst terrorist organizations and money launderers. Those entities take advantage of the anonymity, as well as the lack of regulation on blockchain networks to pass funds below the radar of law enforcement agencies (FATF, 2019). It is estimated that between 2-5% of the total amount of capital going through blockchain decentralized exchanges and swapping mechanisms originates in dubious entities. This is indeed a major problem that requires solutions from enforcement entities as well as regulators.

[3] Appendix 3 illustrates the information presented in both StatCounter and Statista

Fortunately, substantial advancements in the field of mitigating blockchain-based risks have been implemented and are continuing to evolve, in the form of regulatory experiments as well as the development of blockchain forensics. The latter's definition is to compromise the anonymity enabled by blockchain protocols, mainly through artificial intelligence (AI), in a way that would enable identifying and tracking the source of suspicious activities on a blockchain ledger. Once such tools are available for use, it would provide law enforcement agencies the means to conduct surveillance on financial transactions without the need to collaborate with banks and other institutions, as the ledger is - as mentioned - public and transparent (Caprolu et. al, 2021).

6 Conclusions & Policy Recommendations

This case study intends to provide a clearer view of how cryptocurrencies and their utilization by various entities can benefit the situation of financially excluded populations. To do so, different scenarios and mechanisms were inspected and reviewed, as well as current setbacks to the wider adoption of decentralized ledger technologies by individual people, as well as international and transnational institutions.

Financial exclusion is a global problem that poses many types of risks. Although the vast majority of unbanked populations indeed comes from specific areas, namely Sub-Saharan Africa, Southern Asia and Southeast Asia, it most definitely has significant implications for the Western world as well. Such implications include the financial resilience and sustainability of residents, and the continual degradation of democratic regimes, to name a few (Bayot, 2018). Such potential implications should be a top priority of national and international entities, while addressing the global concerns of human rights, sustainability, inclusion and so on.

The statement above is well-established, and by itself does not add much to contemporary knowledge on the subject. However, the fact that DLTs can provide a direct, non-mediated method of financial communication between benefactor organizations and individuals to end recipients, is significant in terms of global impact. This is especially true where there is no need to move through corrupt and heavily monitored financial systems. Furthermore, the variety of DLT based mechanisms that can be utilized for that effect can allow for a wide selection of impact investment capabilities, from straightforward philanthropy and all the way to venture capital in its different forms[4].

[4] Sonen Capital Approach to Impact Investing

Of course, there is a long way to go before blockchain, as a tool for financial inclusion, will be perfect, and many challenges lie ahead. Special focus should therefore be given to regulatory frameworks, more specifically uniform regulatory frameworks, that would accommodate the legislation of different countries and regions, so these mechanisms and tools can become effective on a global scale. Furthermore, such wide regulation should inherently reduce the scope of abuse that malicious entities are capable of with respect to cryptocurrency.

Additionally, it is imperative that inter-governmental and non-governmental organizations start considering their part in the promotion of this disruptive innovation. These entities' global or regional nature will facilitate the adoption of blockchain-based mechanisms and solutions faster and more widely and would probably provide more applicable solutions to many of the problems and challenges mentioned in this essay.

6.1 The Role of the International Community

This essay has claimed more than once that the international community, more specifically non-governmental or inter-governmental organizations, can and should play an active role in the adoption of DLTs as tools for financial inclusion and direct capital streaming. It can be argued that there is more than one role these entities can fulfill. Below is a partial list.

6.1.1 Inter-governmental Organizations as Benefactors

International non-governmental organizations can use blockchain networks to make sure their funding, usually dedicated to support populations rather than tyrants, actually reaches its destination instead of finishing in government executives' pockets. An example of such a situation that can be consistent with previous examples given in this paper is that of the Gaza Strip. It is known that for many years the Gaza Strip has been receiving massive international grants from different UN-backed funds, as well as other organizations, and rightfully so. The problem here is that it is evident that large portions of this funding ends up in fueling and supporting the Gaza Strip sovereign - Hamas (National Terrorist Financing Risk Assessment, 2015). This situation can also be applied to other situations of political oppression in different regions.

It is relatively simple to see how blockchain and peer-to-peer financial transactions can support the mitigation of such challenges for inter-governmental organizations. The direct connection and availability of digital wallets can help make sure the funds actually reach the people that need them, rather than their oppressors. Taking the smart contract approach discussed earlier in this paper, a contract that specifies basic terms for the receiving of grants,

funds, and aid, can be easily written on the Ethereum Network[5] (ERC-20). Once those conditions are met (externally), a connection can be established between the organization's wallet and the recipient's wallet, and funds can stream directly. This can be broken down into different steps, monthly support, and more, depending on the complexity of the smart contract.

6.1.2 Inter-governmental Organizations as Investors

Inter-governmental organizations can play even more constructive role in supporting populations under political oppression, by acting as investors. It is evident that technological innovation is independent of geography and politics, and today many areas that can be considered as oppressed, technologically challenged, or emerging markets, show a high tendency of innovative thinking and higher levels of entrepreneurial sense than many European countries (Petrick & Juntiwasarakij 2011). Sticking to the Palestinian case study, the West Bank has many software developers, tech-savvy individuals and more, and the current issue holding them back more than anything is lack of funds.

The right use case for this type of inter-governmental organizations involvement can be that of DAO. As explained in previously, a DAO stands for Digital Autonomous Organization, and reflects a smart contract between a network of organizations that are interested in investing crypto assets in a mutually aspired cause. The smart contract specifies the terms under which an investment can start flowing, as well as the pace and KPIs (Key Performance Indexes) for the maintenance of the investment, interest, etc. It can also act as a means of reaching out to entrepreneurs that need funding to apply. This is already the case for philanthropy impact investment and can be a fascinating case for driving innovation through blockchain in many underprivileged areas of the world, rather than only politically oppressed populations. The main advantage of blockchain in this scenario is twofold: surpassing the oppressor and surpassing financial obstacles that the traditional financial system puts in our way, mainly bank bureaucracies and other mechanisms.

Furthermore, a DAO can also bring smaller investors rather than venture capital funds into the game, involving individuals in such types of investment opportunities that have a clear social value on top of their financial growth potential.

6.1.3 Inter-governmental Organizations as Facilitators of Usability and Traceability

One of the main challenges refers to traceability and usability of crypto assets in converting them into "fiat money" (traditional currencies that are more easily utilized in the

[5] Ethereum

real world and are more widely accepted). This alone has been subject to considerable technological innovation, but still there is a long way from a person's wallet where they hold crypto assets, and into their real wallet full of money that you can go ahead and buy groceries with. And without the ability to convert cryptocurrencies into fiat money, its contribution to the wellbeing of oppressed populations will remain mainly conceptual (Christiansen & Jarrett, 2019). Here too, international organizations can play a significant role. As financially backed organizations and entities that usually have substantial reserves allowing them to participate in international development projects, such entities can act as both providers of currency as well as providers of liquidation. This can take place in two main forms:

1. Services - different organizations can provide varied services in exchange for crypto as payment, providing people with access to services and products they were previously unable to afford themselves using traditional financial systems. Think about an organization that opens an international school or a startup accelerator, charging X amount of money for a seat. If it accepts crypto as payment, it will be able to act as a source for crypto donations, crypto investments and crypto grants provided by other organizations, in addition to exposing the population it serves to new knowledge and opportunities.

2. Exchange - a simpler idea would be that the same organization that donates, invests, or grants the cryptocurrencies in order to surpass a political oppressor or corrupt financial system, will also be the one that provides the ability to exchange these currencies with fiat money. After accomplishing the mission of transacting directly with their audiences, international non-governmental and international governmental organizations can (and should) provide a way to exchange cryptocurrencies for fiat money that will be used to provide the most basic needs of their target population.

To conclude, it seems that inter-governmental organizations and other international non-state actors should have an active role in utilizing blockchain technologies in order to reach an actual impact on the situation of oppressed populations. Without them, the volume of funds that will flow into recipients' accounts will be too low to invoke actual change, and the challenges imposed by blockchain's immaturity will be too significant, mainly around traceability and liquidation. Moreover, in the young and somewhat hyperactive blockchain ecosystem, the participation of international NGOs and other large international actors can act also as a catalyst for innovation that will help overcome some of the largest barriers, and in a way that would suit the favorable use cases dictated by these organizations.

The table below summarizes the different ways international NGOs and international governmental organizations as well as the international community as a whole can use blockchain and crypto in order to support oppressed populations:

Purpose	**Mechanism**	**Impact**
Philanthropy	Peer-to-Peer, Smart Contracts	Direct Capital Streaming
Investment	DAO	Innovation and Entrepreneurship Boost
Conversion	Service Provision, Exchange	Capital Utilization

Each and every one of the use cases mentioned can, and should, be subject to extensive further research, both practical and theoretical. Doing so will undoubtedly unveil new ways in which organizations can contribute to the lives of millions, as well as overcome some of the core challenges of their position.

Appendix

1. Democracy Index 2021. Economist Intelligence[6]

	Overall score	Rank	I Electoral process and pluralism	II Functioning of government	III Political participation	IV Political culture	V Civil liberties
			Full democracy				
Norway	9.75	1	10.00	9.64	10.00	10.00	9.12
New Zealand	9.37	2	10.00	8.93	9.44	8.75	9.71
Finland	9.27	3	10.00	9.29	8.89	8.75	9.41
Sweden	9.26	4	9.58	9.29	8.33	10.00	9.12
Iceland	9.18	5	10.00	8.21	8.89	9.38	9.41
Denmark	9.09	6	10.00	8.93	8.33	9.38	8.82
Ireland	9.00	7	10.00	7.86	8.33	9.38	9.41
Taiwan	8.99	8	10.00	9.64	7.78	8.13	9.41
Australia	8.90	9=	10.00	8.57	7.78	8.75	9.41
Switzerland	8.90	9=	9.58	8.93	7.78	9.38	8.82
Netherlands	8.88	11	9.58	8.93	8.33	8.75	8.82
Canada	8.87	12	10.00	8.21	8.89	8.13	9.12
Uruguay	8.85	13	10.00	8.57	7.22	8.75	9.71
Luxembourg	8.68	14	10.00	8.57	6.67	8.75	9.41
Germany	8.67	15	9.58	8.21	8.33	8.13	9.12
South Korea	8.16	16	9.58	8.57	7.22	7.50	7.94
Japan	8.15	17	9.17	8.57	6.67	8.13	8.24
United Kingdom	8.10	18	9.58	7.50	8.33	6.25	8.82
Mauritius	8.08	19	9.17	7.86	6.11	8.75	8.53
Austria	8.07	20=	9.58	6.79	8.89	6.88	8.24
Costa Rica	8.07	20=	9.58	6.43	7.78	6.88	9.71
			Flawed democracy				
France	7.99	22	9.58	7.50	7.78	6.88	8.24
Israel	7.97	23	9.58	7.50	10.00	6.88	5.88
Spain	7.94	24	9.58	7.14	7.22	7.50	8.24
Chile	7.92	25	9.58	7.86	5.56	7.50	9.12
United States of America	7.85	26	9.17	6.43	8.89	6.25	8.53
Estonia	7.84	27	9.58	7.86	6.67	6.88	8.24
Portugal	7.82	28	9.58	7.14	6.67	6.88	8.82

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[6] Economist Intelligence. Democracy Index 2021. The China Challenge

	Overall score	Rank	I Electoral process and pluralism	II Functioning of government	III Political participation	IV Political culture	V Civil liberties
Czech Republic	7.74	29	9.58	6.43	6.67	7.50	8.53
Botswana	7.73	30	9.17	6.79	6.67	7.50	8.53
Italy	7.68	31	9.58	6.43	7.22	7.50	7.65
Cabo Verde	7.65	32	9.17	7.00	6.67	6.88	8.53
Malta	7.57	33	9.17	6.79	5.56	8.13	8.24
Greece	7.56	34	9.58	6.07	6.11	7.50	8.53
Slovenia	7.54	35	9.58	6.43	7.22	6.25	8.24
Belgium	7.51	36	9.58	7.86	5.00	6.88	8.24
Cyprus	7.43	37	9.17	5.36	7.22	6.88	8.53
Latvia	7.31	38	9.58	6.07	6.11	6.25	8.53
Malaysia	7.24	39	9.58	7.86	7.22	6.25	5.29
Lithuania	7.18	40	9.58	6.07	6.11	5.63	8.53
Trinidad and Tobago	7.16	41	9.58	7.14	6.11	5.63	7.35
Jamaica	7.13	42	8.75	7.14	5.00	6.25	8.53
Timor-Leste	7.06	43	9.58	5.93	5.56	6.88	7.35
South Africa	7.05	44	7.42	7.14	8.33	5.00	7.35
Slovakia	7.03	45	9.58	6.43	5.56	5.63	7.94
India	6.91	46	8.67	7.50	7.22	5.00	6.18
Brazil	6.86	47	9.58	5.36	6.11	5.63	7.65
Panama	6.85	48	9.58	6.07	7.22	3.75	7.65
Suriname	6.82	49	9.58	6.07	6.11	5.00	7.35
Argentina	6.81	50	9.17	5.00	7.22	5.00	7.65
Poland	6.80	51	9.17	6.07	6.67	5.63	6.47
Indonesia	6.71	52	7.92	7.86	7.22	4.38	6.18
Bulgaria	6.64	53	9.17	5.36	7.22	4.38	7.06
Philippines	6.62	54	9.17	5.00	7.78	4.38	6.76
Namibia	6.52	55	7.00	5.36	6.67	5.63	7.94
Croatia	6.50	56=	9.17	6.07	6.11	4.38	6.76
Ghana	6.50	56=	8.33	5.36	6.67	6.25	5.88
Hungary	6.50	56=	8.33	6.43	5.00	6.25	6.47
Colombia	6.48	59	9.17	5.71	6.11	3.75	7.65
Dominican Republic	6.45	60	9.17	5.00	6.67	4.38	7.06
Romania	6.43	61	9.17	6.07	6.11	3.75	7.06
Mongolia	6.42	62	8.75	5.71	6.11	5.63	5.88
Serbia	6.36	63	8.25	6.07	6.67	3.75	7.06
Lesotho	6.30	64	9.17	4.14	6.11	5.63	6.47
Guyana	6.25	65	6.92	6.07	5.56	5.63	7.06

	Overall score	Rank	I Electoral process and pluralism	II Functioning of government	III Political participation	IV Political culture	V Civil liberties
Singapore	6.23	66	4.83	8.21	4.44	7.50	6.18
Sri Lanka	6.14	67	7.00	5.71	5.56	6.25	6.18
Albania	6.11	68	7.00	6.43	4.44	5.63	7.06
Moldova	6.10	69=	7.00	5.71	6.67	4.38	6.76
Papua New Guinea	6.10	69=	6.92	6.07	3.89	6.25	7.35
Peru	6.09	71	8.75	5.36	5.56	3.75	7.06
Thailand	6.04	72	7.00	5.00	6.67	6.25	5.29
North Macedonia	6.03	73	7.42	6.43	6.11	3.13	7.06
Montenegro	6.02	74	7.42	6.43	6.67	3.13	6.47
			Hybrid regime				
Bangladesh	5.99	75=	7.42	6.07	5.56	5.63	5.29
Tunisia	5.99	75=	7.50	4.64	7.22	5.00	5.59
Paraguay	5.86	77	8.75	5.36	5.00	3.13	7.06
Malawi	5.74	78	7.00	4.29	5.00	6.25	6.18
El Salvador	5.72	79=	9.17	3.93	5.56	3.75	6.18
Zambia	5.72	79=	7.50	3.64	5.00	6.88	5.59
Bhutan	5.71	81=	8.75	6.79	3.33	5.00	4.71
Ecuador	5.71	81=	8.75	5.00	6.11	2.50	6.18
Madagascar	5.70	83	7.92	3.57	6.67	5.63	4.71
Fiji	5.61	84	6.58	5.00	5.56	5.63	5.29
Hong Kong	5.60	85	2.75	3.64	5.56	7.50	8.53
Mexico	5.57	86=	6.92	5.00	7.22	3.13	5.59
Ukraine	5.57	86=	8.25	2.36	6.67	5.00	5.59
Senegal	5.53	88	5.67	5.71	4.44	6.25	5.59
Armenia	5.49	89	7.50	5.71	6.11	3.13	5.00
Liberia	5.43	90	7.42	2.71	6.11	5.63	5.29
Georgia	5.12	91	7.42	3.57	5.56	3.75	5.29
Honduras	5.10	92=	8.75	3.93	4.44	2.50	5.88
Tanzania	5.10	92=	4.83	5.00	5.00	6.25	4.41
Kenya	5.05	94	3.50	5.36	6.67	5.63	4.12
Bosnia and Hercegovina	5.04	95=	7.00	3.29	5.56	3.75	5.59
Morocco	5.04	95=	5.25	4.64	5.56	5.63	4.12
Sierra Leone	4.97	97	6.58	2.86	3.89	6.25	5.29
Bolivia	4.65	98	4.75	4.29	6.11	2.50	5.59
Guatemala	4.62	99	6.92	3.93	3.89	2.50	5.88
Uganda	4.48	100	3.42	3.21	3.89	6.88	5.00
Gambia	4.41	101=	3.58	4.29	4.44	5.63	4.12

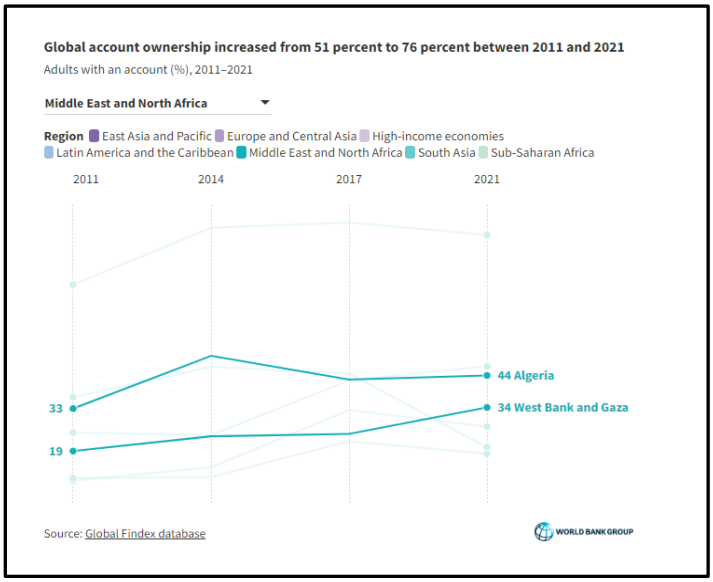
	Overall score	Rank	I Electoral process and pluralism	II Functioning of government	III Political participation	IV Political culture	V Civil liberties
Nepal	4.41	101=	4.83	5.00	4.44	2.50	5.29
Turkey	4.35	103	3.50	5.00	5.56	5.63	2.06
Pakistan	4.31	104	5.67	5.36	3.33	2.50	4.71
Côte d'Ivoire	4.22	105	4.33	2.86	4.44	5.63	3.82
Benin	4.19	106	1.67	5.36	3.89	5.63	4.41
Nigeria	4.11	107	5.17	3.93	3.89	3.75	3.82
Mauritania	4.03	108	3.50	3.57	5.56	3.13	4.41
			Authoritarian				
Palestine	3.94	109	3.33	0.14	8.33	4.38	3.53
Kuwait	3.91	110	3.58	3.93	4.44	4.38	3.24
Burkina Faso	3.84	111=	3.00	2.36	5.00	5.00	3.82
Lebanon	3.84	111=	3.50	1.14	6.67	3.75	4.12
Algeria	3.77	113	3.08	2.50	4.44	5.00	3.82
Qatar	3.65	114	1.50	4.29	3.33	5.63	3.53
Kyrgyz Republic	3.62	115	4.33	1.50	4.44	3.13	4.71
Iraq	3.51	116=	5.25	0.00	6.11	5.00	1.18
Mozambique	3.51	116=	2.58	1.43	5.00	5.00	3.53
Jordan	3.49	118	2.67	3.93	3.89	3.75	3.24
Haiti	3.48	119=	3.08	0.00	2.78	6.25	5.29
Mali	3.48	119=	2.42	0.00	5.56	5.63	3.82
Gabon	3.40	121	2.17	1.86	4.44	5.00	3.53
Angola	3.37	122	1.33	2.86	5.00	5.00	2.65
Ethiopia	3.30	123	0.42	3.21	6.11	5.00	1.76
Russia	3.24	124	1.75	2.14	4.44	3.75	4.12
Niger	3.22	125	2.00	1.14	3.89	4.38	4.71
Comoros	3.20	126	2.08	2.21	4.44	3.75	3.53
Rwanda	3.10	127	1.42	4.29	2.78	4.38	2.65
Eswatini	3.08	128=	0.92	2.86	2.78	5.63	3.24
Kazakhstan	3.08	128=	0.50	3.21	5.00	3.75	2.94
Oman	3.00	130	0.08	3.93	2.78	4.38	3.82
Vietnam	2.94	131	0.00	2.86	3.89	5.63	2.35
Egypt	2.93	132	1.33	3.21	3.33	5.00	1.76
Zimbabwe	2.92	133	0.00	2.50	3.89	5.00	3.24
Cambodia	2.90	134=	0.00	3.21	3.89	5.63	1.76
United Arab Emirates	2.90	134=	0.00	4.29	2.22	5.63	2.35
Togo	2.80	136	0.92	1.79	3.33	5.00	2.94
Congo (Brazzaville)	2.79	137	0.00	2.50	4.44	3.75	3.24

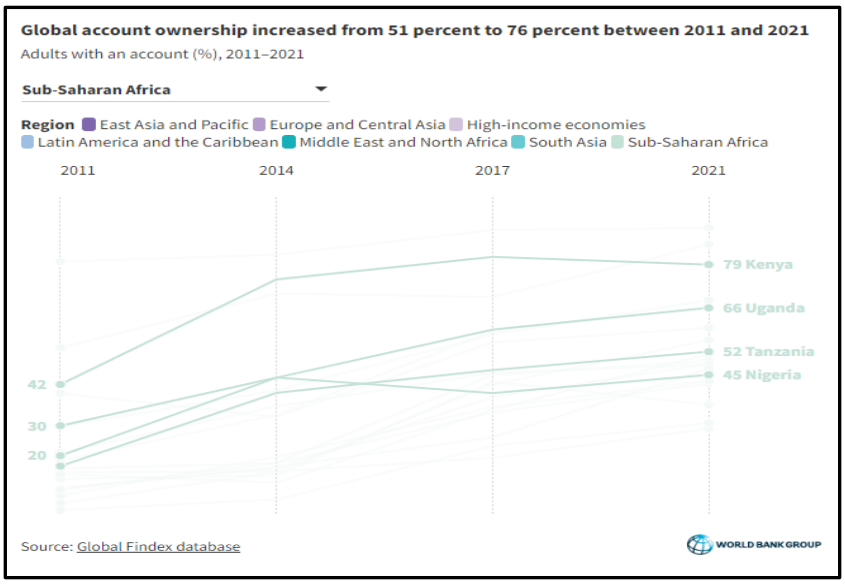
	Overall score	Rank	I Electoral process and pluralism	II Functioning of government	III Political participation	IV Political culture	V Civil liberties
Guinea-Bissau	2.75	138	4.92	0.00	3.33	3.13	2.35
Djibouti	2.74	139	0.00	1.29	4.44	5.63	2.35
Nicaragua	2.69	140	0.00	2.50	3.33	4.38	3.24
Azerbaijan	2.68	141	0.50	2.50	2.78	5.00	2.65
Cuba	2.59	142	0.00	3.21	3.33	3.75	2.65
Cameroon	2.56	143	0.33	2.14	3.89	4.38	2.06
Bahrain	2.52	144	0.42	2.71	3.33	4.38	1.76
Sudan	2.47	145	0.00	1.43	4.44	5.00	1.47
Belarus	2.41	146	0.00	2.00	3.89	4.38	1.76
Guinea	2.28	147	1.25	0.43	3.33	3.75	2.65
China	2.21	148	0.00	4.29	2.78	3.13	0.88
Burundi	2.13	149	0.00	0.00	3.89	5.00	1.76
Uzbekistan	2.12	150	0.08	1.86	2.78	5.00	0.88
Venezuela	2.11	151	0.00	1.79	3.89	2.50	2.35
Saudi Arabia	2.08	152	0.00	3.57	2.22	3.13	1.47
Eritrea	2.03	153	0.00	2.14	0.56	6.88	0.59
Libya	1.95	154=	0.00	0.00	3.33	3.75	2.65
Iran	1.95	154=	0.00	2.50	3.89	1.88	1.47
Yemen	1.95	154=	0.00	0.00	3.89	5.00	0.88
Tajikistan	1.94	157	0.00	2.21	2.22	4.38	0.88
Equatorial Guinea	1.92	158	0.00	0.43	3.33	4.38	1.47
Laos	1.77	159	0.00	2.86	1.67	3.75	0.59
Chad	1.67	160	0.00	0.00	2.22	3.75	2.35
Turkmenistan	1.66	161	0.00	0.79	2.22	5.00	0.29
Syria	1.43	162=	0.00	0.00	2.78	4.38	0.00
Central African Republic	1.43	162=	1.25	0.00	1.67	1.88	2.35
Democratic Republic of Congo	1.40	164	0.75	0.00	2.22	3.13	0.88
North Korea	1.08	165	0.00	2.50	1.67	1.25	0.00
Myanmar	1.02	166	0.00	0.00	1.67	3.13	0.29
Afghanistan	0.32	167	0.00	0.07	0.00	1.25	0.29

Source: EIU.

2. The Global Findex Database 2021[7]

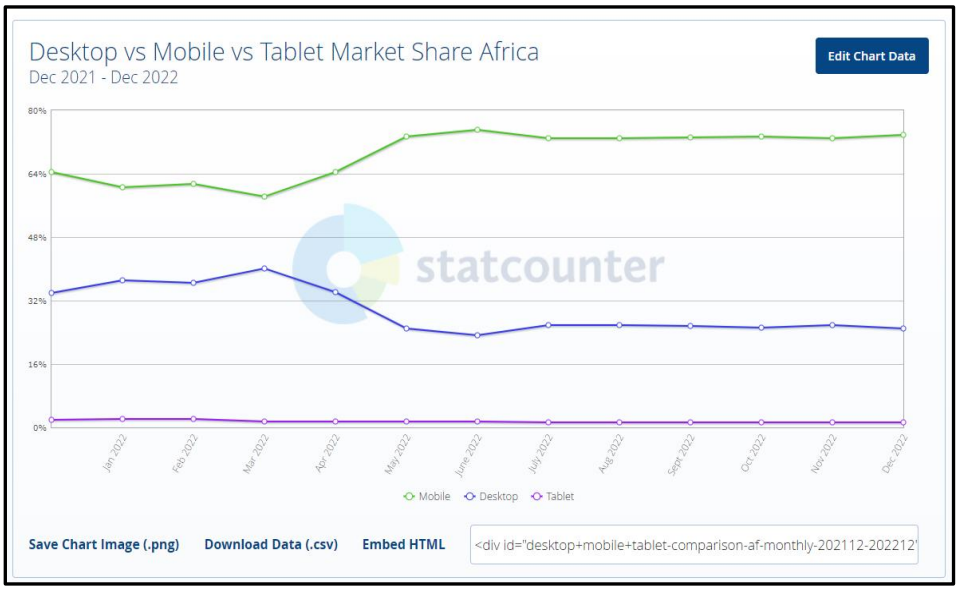
The charts below are adopted from the Global Findex Database to illustrate levels of financial exclusion in the regions of Sub-Saharan Africa and Middle East-North Africa. The full database is available on The World Bank website.

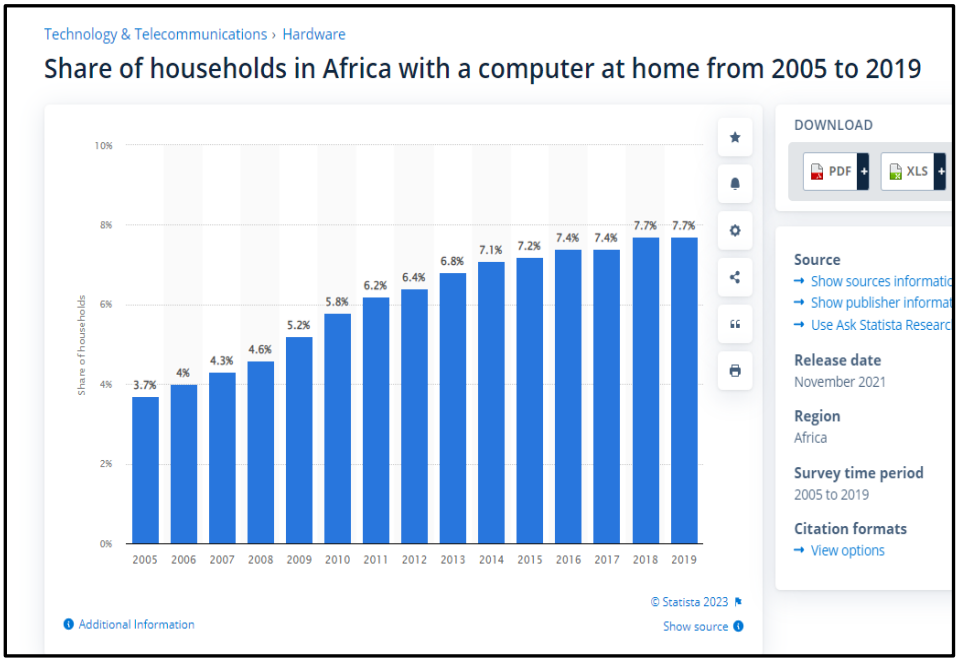




[7] The World Bank. The Global Findex Database 2021.

3. Mobile & Desktop Ownership in Sub-Saharan Africa





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