GLOBAL VIRTUAL SUMMIT ON DIGITAL IDENTITIES FOR REFUGEES

THEMATIC 3: EMERGING TECHNOLOGIES & NEW DEVELOPMENTS

April 22nd, 2019

OVERVIEW

1. Why Blockchain for Identity Management

Blockchain is a revolutionary technology that, by design, enables the preservation and security of data through a series of cryptographic algorithms and protocols. Some key features of data on the blockchain include immutability, decentralization, and disintermediation.

***Data immutability**: data can not be tampered with because once it is added to a block it cannot be changed.*

***Data decentralization**: data on the blockchain doesn't have one single point of failure, all nodes in the network can have access and can store a copy of all transactions that occurred on the blockchain. This enables a transparency of data (commonly used data) at levels never experienced before. Most importantly however, this decentralization of data prevents malicious attempts to tamper with the blockchain. These attempts would need to have incredible amount of computational power as well as attack the majority of a blockchain network to be successful. This need for a large computational power to achieve a successful hack, makes tampering very difficult to achieve time and cost wise.*

***Data disintermediation**: allows the transfer of digitalized value from person-to-person or peer-to-peer without the need of a central authority, or trusted intermediaries to enable transactions. This significantly reduces the number of entities intervening in a transaction, cutting down time to settlement and price, and increasing trust levels between trustless parties.*

*Beyond the basic concepts of a blockchain discussed above, the blockchain gives an individual complete control over her data, through a two-way data encryption mechanism (**private key and public key**). A **Private Key** allows individual A to unlock her data and send value to individual B. Should individual B want to send his own data or value to individual A, he would have to use individual A's **Public Address** or **Key** to do so, without compromising the security, integrity and privacy of individual A's Private Key. In a nutshell, on the blockchain, data can be shared on a **defacto "need to know"** basis.*

2. Opportunities for Refugees

The characteristics of the blockchain brings many opportunities to refugees:

1) *Identity management through private and public keys: In the case of payment processing, refugees are required to identify themselves uniquely in order to gain access to certain organizational support. When that identity is managed on a blockchain, a refugee can be identified uniquely through her public address. This public address would be the address that donors can use to send payments to a refugee, with confidence that it belongs and will only ever belong to the designated refugee.*

   *On the other hand, the refugee being the only individual able to access the received donation via her private address, donors will **trust** that only that refugee will be able to spend that donation. The private address or key as mentioned earlier is an information known only by a refugee, that she can, however,*

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choose to share or not with others. This last sentence also means that there are risks associated with this ***data accessibility*** *structure which will be discussed later.*

2) *Other than identity management, because the blockchain enables the transaction of value between parties, it has enabled the advent of cryptocurrencies and tokens.*

   Cryptocurrencies*' goal is to replace traditional monetary systems,* ***replace fiat****, while* ***tokens*** *tend to* ***digitalize*** *and promote the transfer of various* ***assets*** *such as real estate, land, cars, know-how and more.*

   The value of cryptocurrencies and how they can improve the lives of refugees is made apparent through our previous points. Donors sending payments in the form of cryptocurrencies to their intended receiver, and the receiver being able to uniquely spend, or use that donations to buy food and supply, or to access rations. This process eliminates the reliance on paper trails or other physical forms of identification.

   Tokens can take the benefits a step further through incentivization mechanisms.

   Remembering that a community is a community thanks to ***people bonded*** *by similar struggles, beliefs and goals, refugees essentially form small communities in every country they reside in. All the people of each community share the same struggles and circumstances in the sense that they are often arriving in foreign lands; with maybe a different language, a different culture; a land where previously acquired skills and education might not be as recognized or valued.*

   While gaining ***new skills through education*** *is a simple answer,* ***in practice it is not****. Some individuals in the community might be subject to depression and loss of motivation due to emotional disorientation, loss of families and the moral support that family members provide, less than favorable living conditions and more. They might feel that finding a low-income job might be a more pressing concern than taking the long-term and arduous steps that will bring them back to their previous living conditions or better. This is when* ***incentivization*** *through* ***tokens*** *that reward positive actions can come into play and help* ***alleviate*** *some of the* ***illness*** *mentioned above.*

   The tokenization of assets often relies on the principles of ***gamification*** *and can be applied in all aspects of life. Using another application of the blockchain called* ***smart contract****, refugees could be automatically rewarded for performing any number of activities as broad as taking a course, learning a new language or as detailed as achieving a certain grade in a course. They could be* ***rewarded for showing up*** *for educational activities, or even rewarded by providing the refugee community with a cleaner living environment. There are just many ways that automated rewards can be used to help refugees achieve step-by-step meaningful results that in the long-term will help them integrate their host country economic and social lives better.*

   P.S. If integration is not a goal, using cryptocurrencies' mini refugee-based economies within national economies can be used to reduce reliance on outside economic support.

3) *Refugees with the right skillset can* ***help employers****, with token-based projects, to solve some of the issues these employers are encountering as they build and develop blockchain solutions. Often, these employers, located worldwide offer token payments in exchange for these informal types of work. These are called* ***bounty programs*** *and can be an immediate source of revenue for a refugee that knows her way around computer or marketing and social media. This is just one example over many other ways that blockchain can enable refugees to readily* ***start earning a revenue*** *prior to officially settling into their host country.*

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3. Risks for Refugees

The solutions enabled by blockchain and discussed above are not without their fair share of risks. Here are some of the risks:

1) ***Private Key Preservation**: In ensuring that only the intended receiver of a donation, can spend or use that donation, one must assume that the private key remains hidden from others, or that the holder of the private key, doesn't hopefully share it with others. There are impediments to private key privacy which include:*

   *-private keys are **very difficult to remember** as they are long lines of numbers and letters, that most individuals will jot down on a piece of paper. Should that paper get stolen or lost, the individual will lose access to any donation received and there are usually (in the case of public blockchains) no customer service to call. As in all communities, the most vulnerable individuals ex: women and kids may be pressured to disclose such a key to an influential member of the community.*

   *Therefore, if the primary goal was to **move away from paper-based records** and to completely digitalize all steps involved in the process, then the blockchain on its own might be perceived as an **incomplete solution**. This issue can be solved by adding additional security steps that **reinforce** the unique access to the data through fingerprint, face, retinal scans and other digital methods of identification to strengthen an individual unique access to its private key; without the need of a paper record or memorization.*

2) ***Language Barriers**: Private and public keys are based on **roman characters**. For individuals with no such background, it could be a challenge associated with the use of blockchain based solutions. This issue can be resolved by designing a blockchain that easily converts and accepts keys in the language of choice.*

3) ***Alphabetization**: There might be cases where analphabetism (whether in the language of origin or in the host country language) might hinder the understanding and use of the blockchain solution which for many can represent an entirely new concept. This is where education will need to play an important role.*

4. Conclusion

*A **well-designed blockchain solution** that integrates the following characteristics, will not only help **digitalize the identification** of refugees, but also **enable the preservation of data** and **open new revenue opportunities**:*

-Multi-Language Enablement

-Incentivization Mechanism through Tokenization

-Community Empowerment through the creation of mini-economies

-Up-hill Education for blockchain adoption and Skillset retooling

-Additional methods of digital ID management (facial, fingerprint, retinal, etc…recognition) to reinforce the security of and accessibility to the blockchain data

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