United Africa Shilling Ecosystem (Formery CashTelx)

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Abstract—Cryptocurrencies in the current state are suffering from several drawbacks and issues related to absence of stability, scalability and most importantly security. Several algorithms and techniques were recently introduced aimed at addressing those issues. Unfortunately, those attempts met with one solid drawback from cryptocurrencies giant Bitcoin price volatility. This instability of the main markets pair resulted into the almost daily market volatility. This is expected specifically, when measurements are against an unstable metric. As a result, you will always end up with volatile unstable value which is here considered as price of the currency. The main reason for this instability and extreme volatility is absence of structured backing system which is supposed to be in a form of assets. Assets backing for any currency is an important element in order to allow stable value, and preservation of capital. This paper addresses those issues and introduces a new Proof of Wealth (PoWL) to solve the above problems. We present United Africa Shilling Ecosystem to demonstrate the use of Proof of Wealth (PoWL) algorithm. The solution requires several components to work together in order to achieve the desired scalability, stability and a secure environment. The described solution aims to enhance participants' asset value, preserve initial contributions, and ultimately provide a reliable payment solution.

Index Terms—United Africa Shilling , Block-Chain, UAS, Proof of Wealth (PoWL), Ledger, Decenterlized, Dynamic Diversified Assets, Exchange

1 Introduction

The emergence of Bitcoin marked a beginning of yet another revolution and its first creator was a man named Satoshi Nakamoto [1]. Nakamoto's goal was to create a digital currency. His discovery later was followed by a storm of good and bad examples of utilizing the same idea. The adoption of Bitcoin and its rise was influenced by the idea of decentralization, the idea of Bitcoin as it was introduced was as "A purely peer-to-peer version of electronic cash that would allow online payments to be sent directly from one party to another without going through a financial institution. [1] Bitcoin itself was a solution to prevent double-spending.

Bitcoin as it exists today suffers from serious volatility problems. This bitcoin volatility is driven by market manipulation or fear or greed. This is due to the unstructured backing system in place. As for Bitcoin itself, it was great idea, but at the end of the day no one wants to own something has no value.

This very successful Block-Chain [2] idea needs to have a strong structure to have consumers trust. Block- chain as concept should be used as an assets representation mechanism due to its features and secure nature.

It allows the most important requirements for future financial system from all perspectives to come to reality taking care of Confidentiality, Integrity and Availability.

If every SAT of Bitcoin was represented by a dynamic value of Gold or Diamond or Real Estate linked to the market, what would be that price of Bitcoin today?

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2 Assets Representations and Block-Chain

Several existing studies [3] [4] [5] [6] on assets managements presented efficient solutions on managing assets and assets growths methods. However, those studies did not address the effects on block-chain based trading and free markets exchanges as it exists today. This is due to the fact that block-chain as it is still in its infancy and many are still skeptical about the technology while others lack thrknowledge of what Block-Chain is, and what the technology is capable of accomplishing.

The emergence of cryptocurrencies and its associated trading platforms (exchanges, exchangers, digital wallets exchangers. etc.) created a new and unprecedented form of free trading in an international arena. This form of unrestricted accessibility introduces a new challenge to an already complex trading of stocks and assets growth formulas and methods. One of the important challenges is extreme new unpredictability of growth which is driven by several factors. This paper will discuss this in more detail in the solution section.

This paper intrdoces a solution to the challenges currently faced by the block-chain community. In section three, the paper introduces the United Africa Shilling solution. The underlying Dynamic Diversified Assets used are explained. The formula used to link the physical assets and the ecosystem is presented. Profit sharing and dividends used by ecosystem is highlited. The fourth section explains the interaction between the components of the United Africa Shilling Ecosystem. Our new Proof of Wealth (PoWL) algorithm explained in addition to Telex Exchange Comparison are presented. The United Africa

Shilling financial services together with the proposed Digital Market Cap are discussed in section six.

3 United Africa Shilling Ecosystem Solution

The United Africa Shilling (UAS) platform, as a pioneering asset-backed blockchain, introduces an innovative approach to addressing key challenges commonly seen in cryptocurrency, such as scalability, volatility, and network instability. While traditional solutions have attempted to tackle these issues through cross-chain implementations, new cryptocurrency layers, or algorithm adjustments, they often leave the underlying structural causes of latency, volatility, and scalability constraints unaddressed.

To address these challenges comprehensively, the UAS solution takes a dual-perspective approach:

1. **Technological Framework:** UAS employs advanced blockchain technologies to transform these challenges into strengths for the ecosystem. Through a multi-layered blockchain design, UAS mitigates issues related to latency, scalability, volatility, and stability. This is achieved via key components within the ecosystem, such as the Telex Decentralized Exchange and the Telex blockchain, supported by optimized algorithms that ensure reliable performance. The design also incorporates privacy and security features to enhance usability and foster a secure environment for participants.

2. **Asset-Backed Model for Stability:** The UAS platform introduces a structured asset-backed model that enables the UAS token to function effectively as a tradable payment system with a stable foundation. This model is designed to support steady growth rooted in logical, asset-driven demand rather than speculative or manipulative market forces. UAS accomplishes this through its Dynamic Diversified Assets approach, which maintains consistent demand for the UAS token, along with a range of integrated services that expand UAS's utility across various financial applications.

The second perspective is by introducing assets backed mechanism and methodology that will guarantee the UAS coin to function as tradable payment system while preserving the capital. Subsequently it will grow with logical reasons, and it will not be driven by greed or market manipulations or pump and dump scenarios currently faced in cyrpto communities. This is accomplished in United Africa Shilling Ecosystem by enforcing Dynamic Diversified Assets to give the UAS a guaranteed demand, as wel as several additional services that will gurantee that UAS can be used for various financial services.

3.1 United Africa Shilling Dynamic Diversified Assets

United Africa Shilling Dynamic Diversified Fund Solution is to back the UAS token, and will be directly pegged to real assets (Gold, Diamond, Silver and Real Estate). The direct representation of real Assets is required to maximize and guarantee continous achievements of targeted growth. It will also guarantee the capital preservation in addition to providing a well-structured solution which solves problems associated with extreme periods of volatility of the cryptocurrency market. Our dynamic solution of structured assets to back each UAS will effectively work to continually adapt to the changing market prices and will reduce volatility. This is accomplished by the following formula

3.1.1 Multi-asset structure with varying periods and strategic reallocation

"If we consider that there are n+1n + 1n+1 asset allocation options, as described in (Dynamic optimal capital growth of diversified allocations) [5]

$$G\,(f_{t0}f_{t1,\ldots,}f_{tn,}) = \sum[p_t(\cdot)\ 1n(1+f_{t0}\,r_{t0}+f_{t1}\,r_{t1}+\cdots+f_{tn}\,r_{tn})]$$

$$= E\,\{\,1n\,[\,f_{t0}f_{t1,\ldots,}f_{tn}/W_0]^{1/t}\}$$

$$\left(\frac{1}{t}\right)\ E\,\{\,1n\,[\,f_{t0}f_{t1,\ldots,}f_{tn}/W_0] - (1/t\,)\ \log W_0.$$

The wealth of portfolio at time t

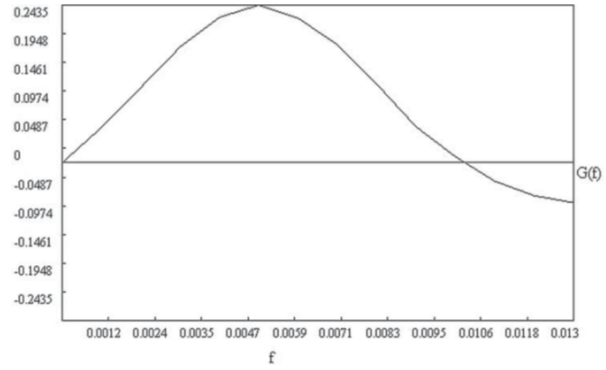
$$W\,(f_{t0}f_{t1,\ldots,}f_{tn,}) = W_0{}^{\top}(x+a)^n = \sum_{t=1}^{T}(1+f_i r_i)$$

Additionally, our asset allocation structure involves acquiring additional high-performing assets at each stage of market valuation, thereby enhancing the overall asset base..

The application of the above function is designed to optimize the overall value of participants' holdings when the chosen fraction is maintained below a critical threshold. To enhance value further, selecting an optimal fraction at each allocation decision is recommended. Empirical data supports this approach, showing that allocation within feasible parameters can promote steady value growth without undue risk in either the short or long term.

In this scenario, the anticipated outcome is that the value of participants' holdings will increase over time, demonstrating stability and positive growth. This stability is supported by a diversified asset base, which is inherently structured to preserve value across various market conditions, reinforcing the strength of these assumptions.

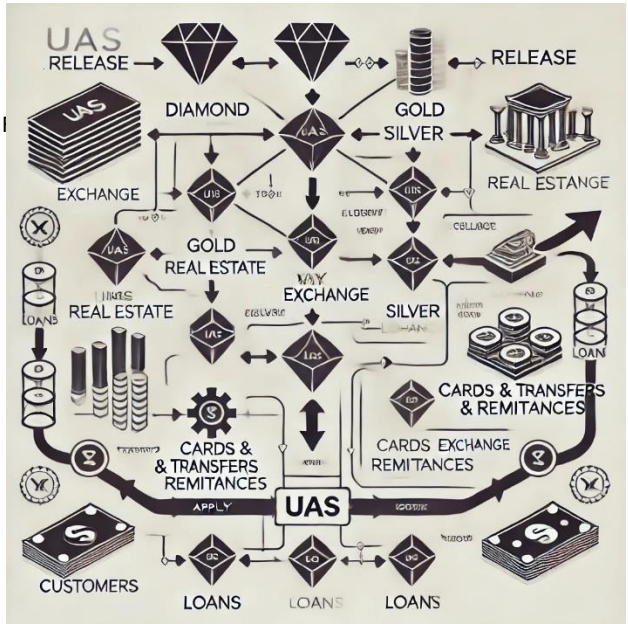
Fig.1.shows the relationship between growth and the fraction.



3.1.2 Returns Distribution and Participant Rewards

Returns are shared with participants at a pre-determined rate, with 80% allocated to UAS token holders following each asset valuation within the United Africa Shilling ecosystem. This distribution will occur in the form of rewards.

4 United Africa Shilling ECOSYSTEMS



4.1 Assets Backed

The United Africa Shilling Ecosystem, as shown in Figure 2, is fully backed by a diversified portfolio of assets. These assets provide a stable basis for the UAS token's value. The value of UAS is represented through an Optimal Growth Function (OGF) that reflects the ecosystem's overall assets. The OGF calculates value adjustments based on contributions from various components within the ecosystem, promoting a steady and resilient foundation for UAS over time.

4.1.1 Gold, Diamond, Silver and Real Estate

The initial acquisition of assets for United Africa Shilling, funded by proceeds from the ICO, will establish a strong foundation for UAS. Collected fees from services such as loans, exchange transactions, and debit card activities will be strategically reallocated back into the ecosystem. These services will utilize UAS, fostering sustained demand for the token. To ensure transparency and asset accuracy, a quarterly audit will be conducted to assess the total value of assets within the ecosystem. Within the United Africa Shilling Ecosystem, the quarterly asset evaluation will set a new baseline for UAS's capital backing, strengthening its foundation and supporting stability in token value. Additionally, asset acquisition will prioritize partnerships with direct miners of precious resources, allowing for secure, reliable sourcing. United Africa Shilling may also collaborate with active mining entities, potentially acquiring tokenized interests in mining operations to enhance the ecosystem's asset diversity and value stability.

4.2 Decentralized Exchange

The current concept of decentralized exchange (DEX), provides an infrastructure that allows different traders to exchange two different coins or tokens directly on-chain. Achieving this in the current implementations of decentralized exchanges associated with several drawbacks resulted from the technologies and the inherited latency from the block-chain execution. This is currently known as the scaling problem. Other implementations tuned to hyprid mix of centralized and decentralized implementation to resolve these issues. The traders slowly learning that depositing funds directly to centralized exchange wallet is a great risk, for this reason, and others, the future of trading on the block-chain is definately with the decentralized solutions.

At the time of this writing there are a few well known decentralized platforms which are different in their implementations. The following table summarizes and highlights some of these differences.

Attribute	IDEX	EtherDelta and 0x	Oasis
Concept	Off-chain trade matching with on-chain settlement enforced by smart contracts and arbiter	Off-chain orderbook hosting with on-chain settlement and matching determined by miners	Orderbook on the blockchain with matching determined by miners
Trustless	Yes	Yes	Yes
Trade speed	Real-time	Slow - Filling orders is limited by block time	Slowest - Placing and filling orders are both limited by block time
Orderbook update speed	Fast	Slow	Slow
Time to cancel an order	Real time	Slow - Limited by block time	Slow - Limited by block time
Automatic trade matching	Yes	No	No
Fill many orders at once	Yes	No	No
Gas cost to place limit orders	No	No	Yes
Gas cost to cancel orders	No	Yes	Yes
Gas amount per trade	High	Medium	Medium
Race conditions	No	Yes	Yes
Scaling	Moderate	No	No

Fig4. DEX Comparison.

There are numerous points related to factors affecting different scenarios of implementing decentralized exchanges, some of the important factors discussed by [7].

4.2.1 Telex Decentralized Exchange (Crypto—Fiat)

UAS implementation of DEX infrastructure is based on our newly designed Telex Dynamic protocol which is similar to what has been described in [8] utilizing layered infrasctrure, however, we are more interested in the concept and the distribution of products infrastructure. Our strategy is based on providing faster response time to trader's orders and secure trading environments. The following represent part of what we have achieved through our initial design and implementation in Telex Decentralized Exchange. Our main deffernces with what was decribed in [8] is we integrated our Proof of Wealth (PoWL) algorithm which is discussed in the coming sections of this paper.

Fig. 4. United Africa Shilling Exchange Comparison

Attributes	Telex Decentralized Exchange
Concept	On Chain Trading
Trustless	Yes
Trade speed	Real Time
Order update speed	Fast
Time to cancel an order	Real Time
Fill many orders at once	Yes
Gas cost to place limit orders	No
Gas amount per trade	No
Race conditions	Medium
Scaling	Yes
Privacy	Yes

From the comparison of Telex Exchange and other exchanges, United Africa Shilling Exchange is clearly equipped with better features than the others in addition to privacy features inherited by utilizing our Telex Dynamic protocol integrated with (**PoSS**) protocol structure.

4.3 United Africa Shilling Blockchain

Before defining the key concepts of the Proof of Value algorithm, let us discuss the more popular Proof of Work and Proof of Stake, to have a better view on the main differences between all of them.

4.3.1 Proof-of-Work Algorithm. (PoW)

PoW algorithm [1] as it was introduced in the first paper in relation to cryptocurrency was to solve problems of determining representation in majority decision asking. If the majority were based on one-IP-address-one-vote, it could be subverted by anyone able to allocate many IPs. The idea was to have one vote per CPU. The majority decision is represented by the longest chain, which has the greatest proof-of-work effort invested in it. If a majority of CPU power is controlled by honest nodes, the honest chain will grow the fastest. PoW algorithm brought to life the first practical implementation of a secure distributed ledger system, but suffers from poor performance, and a lack of decentralization, and excessive energy consumption.

4.3.2 Proof-of-Stake Algorithm (PoS)

PoS algorithm [9] followed hybrid design of the originally introduced PoW algorithm. Its initial aim was to replace the PoW as A peer-to-peer crypto-currency design derived from Satoshi Nakamoto's Bitcoin. Proof-of-stake replaces proof-of-work to provide most of the network security. PoS algorithm reduces energy consumption as intended to do but its not designed to work in highly distributed environment as required by DEX.

4.3.3 Other Algorithms

Other introduced algorithms such as Proof-of-Authority Algorithm [10], Proof-of-Reputation (PoR) [11], Proof of Value (PoV) [13] were all introduced recently with the aim of solving network latency issues, but from security perspective it suffers from issues related to network exposure and ultimately to malicious hacking.

4.3.4 Proof Of Wealth (PoWL)Algorithm

In recent history of money evolution there were two major steps which resulted in what we have and where we are today. Countries used to rely on Gold as a measurement for their wealth, then came the wars and new regulations were introduced to undermine the previous Gold based wealth measurement. The new wealth measurement was in a form of enforcements of credit with what we call today a fiat money. The value of fiat money is secured by the nation's credit, which is calculated through the nation's productivity, economic policies, etc. Exchange rate is set by comparing each nation's credit as described in details in [13].However, there were still challenges from unprecedented current markets and political instability, since the end of the last two great wars. The search finally has come to an end for an alternative form of wealth preservation in an ultimate form of security without the influence of geopolitical interfaces and control of one or two powerful nations. This end was with the first invention of decentralized currency Bitcoin [1], which was sparked by Nakamoto Satoshi Bitcoin paper, but that currency is having a serious issue from its value point of view. What value should the currency really have without relying on a market manipulation or greed.?. this brings us to an important question of what Proof of Wealth (PoWL)Algorithm is really supposed to mean

Gold and other assets are what we used to measure wealth with before the wars, and the wars introduced regulations. How we are going back to correct the direction which could really give the ultimate fair trade and real wealth distribution of what you have under your country ground. Our proposed Prof Of Assets Algoritm is the missing key word for modern cryptocurrencies but the value must not be given based on what you do as in a case of mining but in a form of what you have that has real value. The value as always preserved in the quality and

quantities of real world assets such as Oil, Gas, Gold Diamond Silver and Land. Etc. Cryptocurrencies must have a form of representations to those assets or others in order for these currencies to be used as a form of payments.

The main problem with all previously introduced algorithms is the absence of the real economy, corresponding to the value of cryptocurrencies, subsequently the value of the entire block-chain. That resulted in major failure of Cryptocurrencies in major exchanges as of the time of this writing. The failure to preserve a stable value is impossible as there is no any authority to enforce that, as it is in the situation of fiat currencies. Therefore, the only solution to this is to measure the entire block-chain wealth. The current concept of Proof of Wealth (PoWL) in practice should reflect the entire block-chain components and ecosystem from fee to value of coins or token to the transaction fee resultingin the entire exchanges and traders. In this scenario PoWL is diferent from PoV as according to PoV principle, coins are delivered as rewards when a proper value is created through the rightful use of shared resources. In PoWL however, the value of all the assets involved in the block-chain should give the final wealth and that should rank all exsiting and future block-chains. Based on a publication introduced 113 years ago [14]. Reviving this

Fig. 5 Income Tax & Individualand classification in England Year 1905

method for block-chain technology and applying themethods described here [15] will have unpresedented positive impact for several applications. this method and first time in block-chain will even allow some form of voulnteer tax system to be integrated if desired, the concentration of wealth conventionally should be computed as follow

INCOME TAX ASSESSMENTS UNDER SCHEDULE D.

	1877.	1886.	Per Cent. of Increase or Decrease.
Between £150 and £500	285,754	347.021	21.4 (Increase)
" 500 " 1,000	32,085	32,033	nil
" 1,000 " 5,000	19,726	19,250	2.5 (Decrease)
Over 5.000	3,122	3,048	2.3 (Decrease)

Class. (Dollars.)	Wealth of each Individual in each Class. (Dollars.)	Number of Individuals.
0 to 9	1, 3, 5, 7, 9	5
10 to 24	10, 12, 14, 16, 18	5
25 to 49	25, 28, 31, 34, 37	5
50 to 99	50, 60, 70, 80, 90	5
100 and over	100, 110, 120, 130, 140	5

Now imagine the wealth of each specific individual doubled. The relation between the wealth of individuals has not changed, and hence the degree of concentration must be the same.* The classification will now be as follows:—

Class. (Dollars.)	Wealth of each Individual. (Dollars.)	Number.
0 to 9	2, 6	2
10 to 24	10, 14, 18, 20, 24	5
25 to 49	28, 32, 36	3
50 to 99	50, 56, 62, 68, 74	5
100 and over	100, 120, 140, 160, 180 200, 220, 240, 260, 280	10

We find that the movement between classes has been as follows:—

Based on what has been discussed in Fig 5 and Fig 6, we will assume classification of individual traders to groups and more of these conventional wealth measurments explained [14] and [15]. In Block-Chain However, this should not be a complex process if there was no backing from real or physical assets such as Gold, Diamnd or Real Estate as it will only be measured with traders or clients accounts with organized datasets and Figures in form of balances and outstandings. Those balances and outstandings will will have three different scenarios to mearure in order to get the overall Block-chain wealth. It has some form of complexity when the measurments are linked to the above physical assets reprentations. In this case, measurement will require at minimum the following: total number of assets available for participation, the percentage representation of each asset within the blockchain, and the value of each asset within the blockchain. This is all at the specific point of time. The wealth projection is an issue with dynamic attributes and changing the number of traders (populations of the Block-chain). This goes together with the changing price of Gas or fees required to complete each transaction.

5 United Africa Shilling Financial Services

The financial services within the United Africa Shilling ecosystem operate efficiently due to the robust protocol structure in place. Key services offered through the United Africa Shilling ecosystem include:

- Transfers & Remittances
- Loan Facilities
- Debit Card Solutions

6 Digital Market Cap

The current market dominance by some cryptocurrencies reporting platforms suffers from several issues such as misleading reports and other technical problems such as unrealibility due to unsuitable underlying structure. Cryptocurrency market capitalization and coins such Bitcoin came to existance before designing, or having suitable infrastructure to accommodate them, or report their performance in a fair transparent methodology. Platforms such as coinmarketcap [16] are currently facing several challenges because, its intial structure and design did not put into consideration the future challenges which are currently faced at the time of its development. In addition to that, its current implementation involves human approval for listing and delisting of cryptocurrencies coins and tokens.

In this paper we introduce the first accurate reporting platform for digital market cap. This Platform is designed to give accurate digital market capitalization reports. It offers systematic listing approval based on preset conditions programmed in its contract. This implementation utlizes assets

backed coins and Tokens as performance metrics against other. This will give significantly better and accurate reporting for each cryptocurrency in addition to accurate over all cryptocurrencies market capilization.

The following table provides intial comparision between digital market cap presented in this paper and the existing coinmarketcap implementation at the time of this writing.

DigitalMarketCap.com	CoinMarketCap.com
✓ DigitalMarketCap.net will include all the coins and token and digital money (e-money)	✓ CoinMarketCap.com only focuses on Cryptocurrency
✓ DigitalMarketCap.net It offers systematic listing approval based on preset condition programmed in the smart contract (Blockchain based)	✓ CoinMarketCap.com is not Blockchain based and addition of coin is manual by human
✓ DigitalMarketCap.net better design with Assets backed coins as a reference for other coins and tokens	✓ CoinMarketCap better design with Assets backed coins as a reference for other coins and tokens

Fig. 5 Digital Market Cap Comparison

4 Conclusion

The presented United Africa Shilling ecosystem with Proof of Wealth (PoWL) integration could be used as solution, as a paymet system, and it will provide a stability and scalibity. Providing scalable, reliable and a fast network is essential to issues faced by traders today. Telex protocol denterlization of trade and wealth represntations are currently considered the only method to avoid extreme volatility. This will enable a decenterlized structure to have fast orders, and other features which are essential for secure decenterlized trades. Future work will focus on the details and the implementation of Proof of Wealth (PoWL) and United Africa Shilling Ecosystem with Telex protocol.

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