



Polybird Exchange

A global marketplace for tokenized assets and securities, and an end-to-end issuance and exchange platform for tokenized assets and securities

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Mission: To make global capital markets more efficient

Vision: To be the go-to global issuance platform and the largest stock exchange¹ in the world, and reduce the role of middlemen such as global investment banks

Tokens would replace equities & bonds and revolutionize capital markets. – Citigroup²

Introduction

Polybird Exchange provides a marketplace for global tokenized assets. As an end-to-end global exchange platform that facilitates buying and selling of these tokenized assets, it enables the issuance of digital tokens to raise equity and debt capital, and then allows trading of those tokens. Tokenizers can also list existing tokenized assets on the platform such as equities, bonds, commodities, currencies and commercial real estate.

Polybird Exchange is a third-generation advanced global exchange platform for all tokens of value and is a financial instrument (i.) issuance and (ii.) trading platform that envisions to streamline issuance, interest rate or dividend payments, trading, clearing, settlement, custodianship, and other processes.

- (i.) direct issuance on platform via issuers or intermediaries, and
- (ii.) an exchange for matching buyers with sellers (secondary market)

The token offering could be done directly on the platform, rather pursuing offering first independently or through a financial intermediary, and then seeking to list, like in the case of current state of security and token offerings, thereby reducing the role of various intermediaries. Tokens could be utility coins or backed by assets such as stocks, bonds, commodities, or real estate.

Asset documentation will be on EOS decentralized storage platform, whereby making relevant documentation available to market participants and hence, is transparent, accessible, time-stamped, and immutable.

¹ 'Stock exchange' is a misnomer as most stock exchanges trade more than stocks; bonds, ETFs, etc.

² See <https://www.hfm.global/hfmweek/news/citi-research-digitised-tokens-could-replace-equities-and-bonds>



Our utmost technological priority is security of funds and of the platform; and we would choose a simple user-interface over a sophisticated one, if the usage of such interface would mean a faster and more scalable platform.

Our utmost non-technological priority is compliance. We intend to ensure that each asset within any asset class listed on our platform is compliant with jurisdiction it is being offered to investors, offered through, and the jurisdiction of the exchange. While on the other hand, we want to ensure that issuers, investors, buyers, and sellers have access to only those offerings or trades that they are compliant to participate in.

Capital market participants, investor(s) and issuer(s), would greatly benefit from cost and time savings, and expanded market opportunities. Whereas, financial market intermediaries, including the investment banks, would find a more organized and a standard process to facilitate capital market transactions.

Capital markets are highly inefficient & ripe for disruption

It is estimated that the global financial sector is \$13tn per year.³ (i.) Issuance and (ii.) trading constitute a large portion of this sector and are core drivers of the global economy. These markets across the world are swamped with too many intermediaries, opaque processes, over-priced securities, rampant inefficiency, and consequently, higher barriers to entry both for issuers and investors.

Multiple critical processes within capital markets today take too long to execute and are manual in nature, which increase costs and limit market potential. Through tokenizing traditional financial assets and securities, assets can be digitized and critical processes can be automated; via usage of smart contracts-based issuance, issuances can be made much faster, cheaper, and of less-hassle. Digitization of assets and automation of critical capital market processes would bring much needed efficiency, transparency, and reduction of various costs associated with it. This would lead to reduction in the role of various middlemen, who previously served as ‘trusted’ intermediaries and ‘gatekeepers’.

To gain such efficiency in capital markets, these securities would need to be converted into digital assets or ‘tokens’ and various issuance processes which currently are time consuming and manual in nature, would need to be executed by smart contracts; such time consuming and manual processes include, but not limited to, settlements, transfer of asset ownership, auctions, book-building, syndications, dividend distribution, and proxy voting. We believe that tokenized assets and automated processes would disrupt the current capital markets infrastructure and its dependence on intermediaries such as global investment banks.

Timing is optimal

Capital markets today are highly inefficient and expensive. Traditional capital markets have been broadly disrupted as more companies choose to remain private. We see a gradual decline

³ See <https://www.investopedia.com/ask/answers/030515/what-percentage-global-economy-comprised-financial-services-sector.asp>



in the number of public companies, for instance, in the world's largest equity market, there are fewer listed companies today than there were in 1976; the number of publicly traded companies in the US was ~4,300 in 2015, down from a peak of ~8,000 in 1996, according to a study from accounting firm EY. And in 2016, 112 IPOs occurred, down from 291 in 2014, the year IPOs reached their highest level since 2000.⁴ Some believe that it may be due to availability of private financing, regulatory reporting burden, myopic public scrutiny, or litigious environment, but the majority agrees that the current processes to go public are outdated, expensive, and full of hassle.

Whereas 'Initial Coin Offerings' or 'Initial Token Offerings' are becoming an increasingly popular fundraising mechanism, from small to large offerings, which surpassed many avenues of traditional financing at the time of this writing, but the shift is now towards more compliant offerings and towards actual securities (stocks, bonds) rather than just 'utility' (utility coins), often referred to as 'Security Token Offerings' (STOs), that are compliant with existing securities laws in the offering and incorporated jurisdiction(s). Timing is of critical importance in any business. Hence, launching Polybird Exchange amidst this landscape creates an unparalleled business opportunity.

The global market opportunity for Polybird is quite substantial. With our initial focus on crypto, stocks, bonds, and real estate, which constitute the majority of global asset value and daily trading volume, the market opportunity is upwards of tens of trillions of dollars.

Our revenue model is broadly divided into two streams: issuance fee and trading fee. We would be charging about 0.1% to 3% for issuances done on our platform, which in comparison to existing systems is much cheaper. We would also be charging a trading fee for trading of assets on our platform that would range from 0.1% to 1% of the trading volume.

That said, we not only expect issuances and listings of new securities on our platform, but we also expect secondary offerings and listings of existing securities on our platform. These existing securities, for instance, could be securities that are being traded on less liquid exchanges in various countries globally.

⁴ See <https://www.gsb.stanford.edu/insights/decline-ipo>



Value proposition: Polybird Exchange

1. **Standardization of global capital markets for issuance and trading.** Global capital markets today is scattered, non-standardized, inefficient, and opaque. On the asset-side, trillions of dollars of assets and investment opportunities are locked in various asset classes due to high barriers to entry, uneven access, and inefficient capital markets. Whereas, on the capital side, large pool of capital is untapped due to similar reasons—high barriers to entry, uneven access, and inefficient capital markets. Polybird provides a single global platform for issuers, investors, and intermediaries, that aims to standardize the primary (capital raising) and secondary markets (trading post-financing). A standard platform brings efficiency, transparency, visibility, and hence, reduction in time and costs.
2. **Visibility and access—investor base is large and global.** Polybird being a global platform, provides visibility to issuances and tradable assets listed on its platform, that is, an instant access to a global borderless investor and trader base. Visibility to issuances and tradable assets leads to higher efficiency, faster financing, and better liquidity, as visibility harnesses a large global base of investors and traders, each of whom has different needs, such as risk appetite and holding period.
3. **Reduced role of middlemen—issuance on Polybird platform and usage of security tokens reduce the role of middlemen.** Issuance of digital assets on Polybird issuance platform is conducted via smart contracts that automate a number of processes that have traditionally been performed by investment bankers, brokers, lawyers, and accountants. Usage of such smart contracts-based issuance reduces the role and relevance of these middlemen and intermediaries, thereby leading to reduction in costs (as much as 5% to 10% in fees, previously paid to investment banks and other intermediaries) and time (as processes are not only digital, but also automated through smart contracts), and increased accessibility, better transparency, and lower barriers to entry.

Intermediary industries such as the brokerage industry, escrow industry, investment banking industry, custodian industry, factoring industry, and legal services industry are set to be partially or fully disrupted. Agreeing that each of these industries is a multi-billion or trillion-dollar industry, the time and money value saved for market participants is quite considerable, and hence the revenue generating opportunity for Polybird is substantial and unparalleled.

4. **Compliant access to global opportunities.** Each jurisdiction has its own set of regulations and regulatory objectives, which may or may not match with other jurisdictions'. Yet it is critical to stay compliant in not only one jurisdiction, but all jurisdictions simultaneously. To achieve this goal, opportunities on the platform are selectively visible, often referred to as 'Chinese Walls' in the investment banking industry. Chinese Walls are self-implemented barriers by an entity with the objective of serving as a barrier for interaction. For instance, if a certain investor is not eligible to participate in a given offering or trading of a certain asset for a certain reason (geographical location,



non-accredited investor status, legal lock-up period, etc.), one will not be able to view the opportunity on the platform in the first place.

5. **Asset documentation on blockchain.** For Polybird, a platform for tokenized assets, transparent documentation of the transfer of asset rights to tokens and other asset information is key to gain trust of market participants and to conduct a trustless business on the platform. Various other asset-related data such as reporting, governance, dissemination of information can also be recorded on the blockchain.

Polybird ensures this through maintaining a tamper-proof repository of all documentations supporting a given issuance, listing, and other asset-related information via using a decentralized blockchain platform to store these documents, that is permanent, secure, time-stamped, and tamper-proof. This transparency ensures prevention of various potential disputes and litigations that may have taken place due to lack of trust and misinformation.

These documentations will be available to the eligible participants. They will be stored on a decentralized storage platform and hence made available on blockchain to ensure they are immutable and time-stamped. Details of each asset would be readable on the platform.

6. **Reduced friction is accessing capital.** Fundraising through smart contracts-based issuances of digital tokens removes the need of various intermediaries and time/costs often associated with them. This minimizes the friction issuers often face while accessing capital throughout the capital structure across the geography. Fundraising through smart contract-based issuances, Initial Coin Offerings, has unleashed a wave of innovation across crypto capital markets, democratized access to capital across the globe, and allowed entrepreneurs anywhere to pursue their visions. This also points towards the ease of raising capital via smart contracts-based issuances. Similar mechanism could be implemented in traditional capital markets for issuances of various financial instruments such as equities and bonds.
7. **Opening up of capital and opportunities.** Opens up wide-ranging opportunities on both sides. A large share of global participants has limited access to diverse investment opportunities, due to which a large amount of deployable capital is locked. On the other side, Polybird opens up a large number of untapped opportunities and assets, by providing a platform with direct access, minimal need of intermediaries, and low costs and time— aspects often not associated with traditional way of doing business. Thereby unlocking trillions of dollars of assets previously locked due to inefficiencies in global capital markets.
8. **Direct communication and transaction between issuers and investors.** Polybird issuance platform makes it easier for issuers to interact directly with prospective investors, thereby facilitating transparency and the ability to execute faster transactions, absent in



traditional markets. Same feature of the platform could also be used to disseminate information to token holders of a given asset.

9. **Platform is open 24 x 7.** Similar to crypto exchanges, Polybird platform is a global platform of digital assets and hence, assets listed on the platform are open to be traded 24 x 7, thereby enabling the idea that anyone can buy anything from anywhere at any time of the day, given the opportunity is available and compliant in nature.

Value proposition: Security tokens

10. **Brings visibility and liquidity to less-liquid assets.** There are many asset classes such as commercial real estate and private equity funds that are illiquid in nature. Tokenization⁵ of those assets and visibility on our platform bring liquidity to such less-liquid asset classes, thereby unlocking trillions of dollars of assets. There are two ways liquidity is achieved:
 - 10.1. Time—lockup period (due to nature of the asset, but not legal lockup) is reduced substantially as the asset can be traded to any willing buyer at any time immediately after the investment takes place. That is, now an investor can trade his real estate token even before the construction of the building has started and can trade his private equity tokens without waiting for the usual fund lockup period of 5 years to 10 years. Legal lockup, for instance, is when an accredited investor has to wait for 180 days before selling his shares.
 - 10.2. Size—**fractional ownership** or unitization. Any amount of the asset from a very small portion to all of it, can be traded as per needs. On the other hand, fractional ownership increases access, due to its nature of being in small units, paired with visibility to a global investor base.
11. **Elimination of various processes and infrastructural necessities.** Tokens, which are essentially digital assets, and smart contracts enable elimination or automation of various critical processes and infrastructural needs of financial markets such as settlements, share transfer, book-building, and dividend distribution. This leads to a reduced role of various intermediaries, and elimination in some cases, manual input, and associated infrastructural needs. Given, most time and cost in the sector are associated with these intermediaries and processes, their reduced role or elimination leads to significant reduction in cost and time, and hence, less friction and more efficient capital markets. For instance, when equities are tokenized, they are recorded on blockchain, thereby bypassing centralized depository and clearing infrastructures. This also brings transparency and certainty of ownership, instantaneously, as one can look up the information immediately.
12. **Ease of asset ownership and transfer, without physical ownership; instantaneous transactions; reduced role of Transfer Agents.** Several assets, such as commercial real

⁵ **Tokenization** is the process of transferring ownership and other rights to an asset to digital tokens that are created on blockchain, to gain the technological advantages of a digital asset, while keeping the characteristics of the traditional asset; such technological advantages are security, speed, and ease of transfer.



estate, are often very difficult to transfer requiring buyers and sellers to process a large amount of paperwork and prolonged procedures. By transferring the ownership of such real-world assets to digitized tokens, such procedures and paperwork can be partially or wholly eliminated, thereby unlocking trillions of dollars of assets that can be exchanged in real time on Polybird.

A counter-argument could be that commodity exchanges have already substituted physical paper with electronic transactions and standardized agreements, but the overheads of these systems are massive, they're opaque, and have to rely on trusted central parties—which in our case is recorded on blockchain.

13. **Impeccable record-keeping and tracking record of ownership and shareholder information on blockchain.** In the current system, it is hard to keep track of ownership at different times from private market to IPO to secondary market. Various intermediaries maintain their own siloed records. Cases have been recorded at times when there were more outstanding shares of a company, than issued in total, which led to billions of dollars of value at risk, involving a room of corporate lawyers, bankers, and accountants to solve the puzzle.⁶ When assets are tokenized, the tokens and their history could be tracked seamlessly, with minimal hassle, as these tokens are blockchain-based.
14. **Instant settlements, or t+0.** No need of settlements; transactions are real-time as these are digital assets and settled instantly when transactions take place. Instant settlements save billions and eliminates the role of middlemen previously in-charge of settlements.

Value proposition: Smart contracts-based issuance on blockchain

15. **Smart contracts-based issuance on blockchain.** A set of given terms and conditions of an issuance can be encoded within smart contracts, which then are programmatically executed and assets are released accordingly and algorithmically, as those terms and conditions are met. Hence, making issuances automated and with less manual input and intermediaries. Identical to initial coin offerings (ICOs), where investors send their digital assets and in return receive issuer's tokens in their wallets, security token offering could be conducted in a similar fashion, thereby making issuances more automated, which is faster, cheaper, and of less hassle.

Another advantage of smart contracts-based issuance is its record-keeping nature on blockchain. Given the transactions take place on blockchain, the records are always there, permanent, tamper-proof, time-stamped and without the need of one needing to keep records; thereby saving time and resources that usually goes in record-keeping, which reduces the role of Transfer Agents, who has traditionally been in-charge.

⁶ See <https://www.bloomberg.com/news/articles/2018-07-27/samsung-securities-ceo-resigns-after-105-billion-stock-blunder>



16. **Process automation via smart contracts.** Several issuance process can be automated or eliminated via smart contracts-based issuance and blockchain record-keeping. Some of these processes are following:

- 16.1. **Book-building.** Book-building can be conducted on smart contracts such that investor participants can commit funds at the highest possible valuation. This book can be built and the demand can be locked prior to the listing on exchange. Thereby, functioning the same way as a traditional IPO, but with more automation and less involvement of intermediary underwriting investment banks. One successful example of book-building on smart contracts is the initial coin offering of Gnosis.⁷ We believe that in the short-term the role of the intermediaries would not be eliminated as they'd still be needed for pricing of assets, among other things, but issuance via smart contracts would reduce their role substantially.
- 16.2. **Equity voting.** Equity holders in a company often receive rights to have a say in the operations of the company through equity voting rights. Traditionally, equity voting has been painstaking, expensive, and perplexing as it is mostly manual and usually managed by third-party services providers. But with smart contracts, it doesn't have to be. Equity voting can be administered via Polybird platform and smart contracts, through which issuers and investors can seamlessly communicate, and securely record their votes, that can be authenticated by participants. This enables improved and transparent governance that prevents any future dispute such as claims that notifications weren't provided as what, when, and to whom details are all permanently recorded on blockchain.
- 16.3. **Recurring payments such as dividends and interest payments.** Requirements for recurring payments can be encoded within the smart contracts, which would then execute the encoded smart contracts and release assets when those requirements are met. Over period of time, this can also be changed as per requirements. Such encoded smart contracts are also visible to the market participants, thereby increasing transparency.

⁷ See <https://blog.wings.ai/a-gnosis-dutch-auction-for-all-in-the-wings-smart-contract-library-92b7b698fa9a>



Smart Issuance

Smart contracts-based issuance combined with Initial Exchange Offering. We propose issuance of various financial instruments via smart contract-based issuance on exchange, called Initial Exchange Offering (IEO). Token offering, financing, issuance, or origination can be conducted on Polybird platform via IEO or traditionally known as Direct Public Offering (DPO). Though the difference between IEO and DPO is DPO is plain vanilla listing on an exchange, whereas IEO enables issuance and hence, new round of capital raising, which is not possible via DPO. IEO is an issuance mechanism in which an asset is directly listed on an exchange without having to go through private placement independently or through an intermediary. The listing provides the issuance a platform-wide visibility, which in our case is global. Immediately after the issuance is completed, the asset is ready to be listed on Polybird Exchange, or can be listed post the lockup period.

Issuance Mechanism Example – Initial Bond Offering

1. An issuer creates a smart contract replicating the functionalities of a given bond; periodic payments of coupons and repayment of principal at maturity.
2. This particular asset is listed under the bonds classification and sub-classification on Polybird Exchange.
3. Interested investors in that particular asset sub-classification are informed of the offering. Whereas, it's also visible to the eligible participants on the platform to discover the given offering.
4. Interested investors send their digital assets to a given wallet address(es) and specify the lowest coupon amount they are willing to receive.
5. After the offering concludes, the smart contract automatically builds the order book with investors who are willing to accept the lowest coupon first; the marginal investor needed to fill the order book sets the coupon for a bond. (similar mechanism can be replicated in equity issuance, but with more external help such as determining the initial price of the stock through various valuation methods)
6. The smart contract is executed, which constructs the order book of investors ready to accept the lowest coupon first; the marginal investor required to fill the orderbook sets the coupon rate.

Smart contract-based issuances have their own advantages

The advantage of conducting an IEO on Polybird is that the offering gains visibility directly via the exchange and doesn't have to spend resources on investor access, outreach, and marketing, often done via the help of investment banks who act as gatekeepers. Though any independent effort spent on marketing doesn't hurt, it adds to the cost of capital (and time) and hence, decreases the efficiency of global capital markets. For financial instruments, there is no lag time or uncertainty between issuance and listing. The other benefit is that the issuer can directly sell its offering to investors, hence reducing the cost that is often spent on intermediaries, thereby increasing their capital efficiency. It specifically helps the smaller issuances or companies across the capital structure that cannot afford costs related to traditional processes and may have faster capital needs.



Framework for Compliance

Jurisdiction, Compliance, and Regulatory Approvals. Innumerable complex challenges and risks arise due to differences between countries in their regulations and regulatory objectives, and due to the absence of a global securities and exchanges regulator for monitoring and governance of global capital markets. For Polybird to be successful, staying compliant in all jurisdictions and conditions is crucial, and hence compliance is our utmost non-technological priority.

Compliance in the primary market can broadly be divided into two classes of jurisdictions for an international token offering on Polybird:

- First, and the foremost, the regulations and the regulatory objectives of the jurisdiction(s) of investors; i.e., prudential regulations such as investor protection rules, inclusive of, but not limited to, disclosure requirements that serves to protect investors from market manipulation
- Second, the jurisdiction where the token offering company is incorporated
- For secondary market compliance, we will acquire exchange licenses of jurisdictions that recognize asset-backed tokens as securities, such as Switzerland's FINMA⁸, but not limited to

To place ourselves in the primary market, we will be acquiring broker-dealer licenses in various jurisdictions to be able to offer security issuance products to investors on our platform. Polybird will gradually acquire other necessary licenses and approvals to ensure that each and every primary or secondary market transaction is compliant in its entirety. Following are some of the jurisdictions from which we aim to acquire licenses for compliant issuances:

- China: China Securities Regulatory Commission
- Germany: Federal Financial Supervisory Authority
- Hong Kong: The Securities and Futures Commission
- Malaysia: Securities Commission
- Singapore: Monetary Authority of Singapore
- Switzerland: Financial Market Supervisory Authority
- United Kingdom: Financial Conduct Authority
- United States: Securities and Exchange Commission

Compliance for Market Participants

There are important differences in the activities permitted by financial authorities across jurisdictions to certain market participants (such as, US SEC prohibits non-accredited investors from investing in restricted securities). Each participant, whether individual or institution, when onboarded on our platform would need to go through a thorough one-time verification process such as Know Your Customer (KYC), Anti-Money Laundering (AML), Sustainability, and Accreditation verification. Verification check of platform participants,

⁸ See www.finma.ch/en/news/2018/02/20180216-mm-ico-wegleitung



would only be needed once. Post verification, participants will have the opportunity to participate in various offerings and can trade tokens as per needs.

Projects in the space have suggested such compliance measures should be encoded within tokens, such that any non-compliant trade that takes place is rejected by the smart contract. Given the above complex global compliance requirements, we believe that if transactions are rejected *after* an opportunity has been discovered and the order has been placed, it would lead to inefficient processes and systems. We have proposed that in addition to coding such compliance measures within tokens, such measures are implemented at the exchange level first. That is, if Chinese Walls are implemented within the exchange such that an asset or a transaction is non-compliant for a certain participant, that asset or transaction would be invisible to the participant in the very first place.



Important notice and disclaimer

The information set forth in this paper (“White Paper”) is not exhaustive and does not constitute a contractual offer. The content is therefore not binding for persons intending to participate in the token generation event for the Polybird token as described in this White Paper. Contributors to the token generation event (often referred to as ICO) are advised to read this document and to inform themselves on the regular updates hereof. Readers must be aware that the White Paper has been developed by our founders and advisors based on the basis of their respective best knowledge of the current state of the token and blockchain space which is developing at high speed and by its very nature will evolve fast and continue to present new challenges and risks. Therefore, it may be changed and modified from time to time on the basis of the discretionary judgement of Polybird, before, during and after the token generation event.

No investment, legal, tax, regulatory, financial, accounting or other advice is offered, nor is the intent to provide the sole basis for any evaluation of participating in the token generation event. To the extent a person wishes to participate in the token generation event from the perspective of an investor or saver, the assumption in this White Paper and its future iterations is at all times that such person has sought prior legal, investment, tax, accounting, and other advice or willingly foregone the same assuming full risk for any consequences thereof. In addition, it is all times the sole responsibility of such person to ensure that participating in the token generation event is compliant with the laws to which such persons are subject at any time.

As the nature of a token and the legal qualification thereof is from a global perspective still developing and may also greatly differ per jurisdiction, it is expected that not all persons from all jurisdictions will be allowed by Polybird to participate in the token generation event. Polybird does so to avoid that persons and Polybird would inadvertently transact in a non-compliant manner in relation to the tokens offered for exchange in the token generation event. Please note, such exclusion does not imply that Polybird assumes such transaction would be non-compliant with relevant laws in such jurisdiction or the reverse if participation from a jurisdiction is allowed by Polybird, but merely that currently Polybird uses its discretion to sensibly invest resources and limit potential risk for Polybird and future token holders.

This White Paper is therefore not a prospectus of any sort or a solicitation for investment, or an offer or solicitation of an offer to buy securities in any jurisdiction and in particular also not composed in accordance with or subject to laws or regulations of any jurisdiction which prohibits or in any manner restricts transactions in respect of, or with use of, digital tokens. It is therefore the responsibility of each potential token holder to determine whether participating in the token generation event is allowed in the relevant jurisdiction and the same applies for using the functionality of the token or making any transaction with or in respect of the token.

Statements, estimates and financial details contained in the White Paper in part constitute forward-looking statements or information that both involve known and unknown risks and uncertainties and are in part based on assumptions, which in whole or in part may be wrong and result in actual developments materially differing from the statements, estimates and financial details referred to in this White Paper and its future versions. We aim to use English to disseminate to further inform on the token generation event and further developments. From time to time it may happen that the information will be translated into other languages. Readers of this White Paper should be aware that some of the information may be inadvertently omitted or not adequately translated, leading to the risk of mistakes and misinterpretation. Accuracy of such alternative communications cannot be guaranteed. In the event of conflicts or inconsistencies between translations and the original language, the provisions of the document in the English language shall prevail.