PolkaBridge Whitepaper

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By PolkaBridge

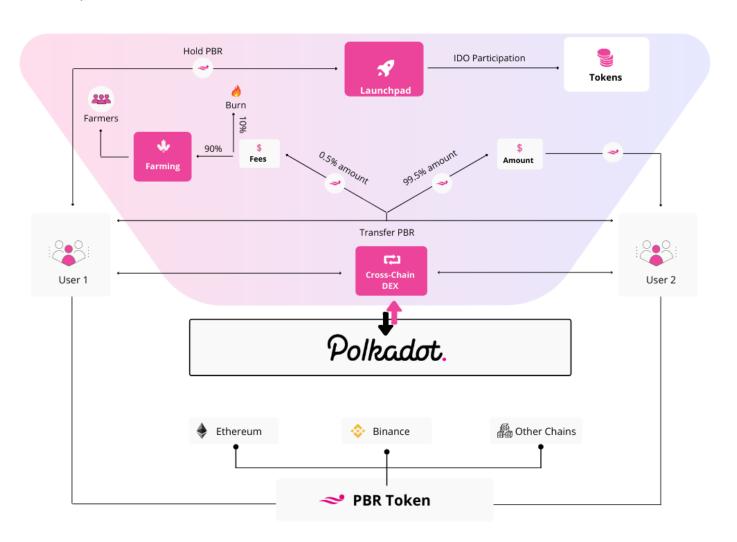## Sep 01, 2021

Problem Statement

Decentralized Finance (DeFi) is a rapidly growing sector of the blockchain ecosystem and brings a lot of benefits to users in the market by offering vast improvements over the traditional financial system. Currently, decentralized applications (DApps) are mostly deployed on Ethereum.

Polkadot is a blockchain protocol with a strong development team, and has many advantages over Ethereum in terms of processing speed and scalability. How can users experience all DeFi applications on many different platforms in one place? This is what PolkaBridge was born for.

PolkaBridge is a decentralized all-in-one financial applications platform. The PolkaBridge ecosystem is expected to include multi-chain & cross-chain automated market maker (AMM), farming, lending, fundraising platform (launchpad), prediction, NFT, and more. All products will be developed with Polkadot as the base.

Products
1. PolkaBridge Automated Market Maker (AMM)

Automated Market Maker (AMM)

An Automated Market Maker (AMM) is a liquidity aggregator and decentralized exchange (DEX), which allows for order-matching without using a traditional order-book. Instead of offers (ask) and counter offers (bids), it utilizes algorithms with smart contracts which deterministically compute the asset price at any given time automatically and uses liquidity pools to execute swaps. A liquidity pool is itself a smart contract, containing assets from different users, looking to put their capital to work.

Generally, Automated Market Maker (AMMs) utilize the constant product formula x*y=k for the liquidity pools.
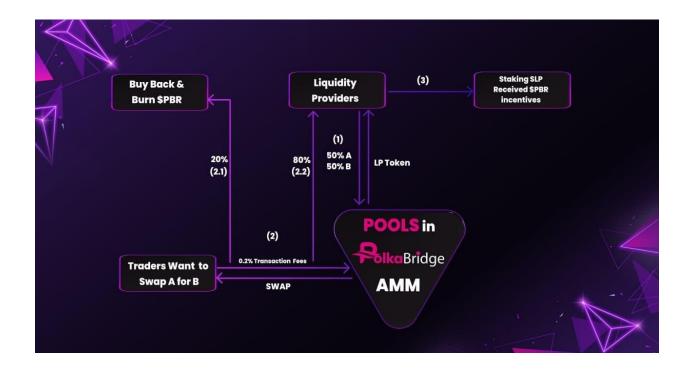
where

x represents the first token A

y represents the second token B

k must be maintained by traders wishing to withdraw the second token B by depositing first token A proprotionally. The fees is charged seperetely, deep liquidity reduces slippage and price impact.

Multi-Chain Automated Market Maker (AMM)

PolkaBride is designing a multi-chain Automated Market Maker (AMM) type decentralized exchange, which will allow the users to simulatenous execute swaps or trade assets on different blockchains. It is going to be the flagship PolkaBridge product. It will support Ethereum, Polygon, Solana, Polkadot and Binance Smart Chain (BSC) – after full deployment. For instance, users can swap Ether (ETH) with PolkaBridge (PBR) token on the Ethereum blockchain and also exchange Binance Coin (BNB) with PolkaWar (PWAR) token – all from one platform. PolkaBridge multi chain AMM decentralized exchange would charge 0.2% fees per swap, out of which 80% would go to the liquidity providers and the remaining 20% would be routed to a wallet, later used to buy back the native PBR token and burn it. This will increase the value of the PBR token.

Cross-Chain Automated Market Maker (AMM)

After the launch of multi-chain AMM type decentralized exchange, the next step would be the development of cross-swap functionality on it. Essentially, it's the ability to swap one asset on one blockchain with another asset on the other blockchain, without using any intermediary or third party. For instance, you want to exchange Ether (ETH) on the Ethereum blockchain with Polkadot (DOT) on the Polkadot blockchain.

For the primary Polkadot base, PolkaBridge uses Moonbeam's parachain solution, allowing Ethereum compatible smart contracts to run on Polkadot and allowing the protocol to maintain a connection. In practice, PolkaBridge will use two smart contracts running in parallel to swap: one on Polkadot, the other on the corresponding blockchain e.g Ethereum. The same principle will be utilized to connect to Solana, Binance Smart Chain and Polygon also.

How Do Swaps Operate?

Let's say that you are trying to execute a swap from ETH (on Ethereum) to DOT (on Polkadot):

- On the PolkaBridge User Interface (UI), users will find one pool called 'ETH-DOT pool'. This pool has two components: one containing ETH token on the Ethereum blockchain and the other containing DOT token on the Polkadot blockchain. Users will swap tokens through the liquidity available in these pools. The liquidity providers will be able to claim the swap fees when users execute trades, their rewards are proportional to their share in the liquidity pools. See reward calculation in the farming section.
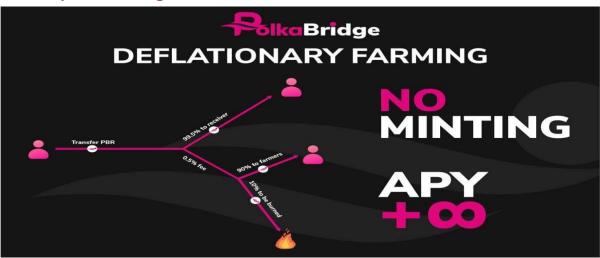
- The user's ETH will be transferred to the ETH liquidity pool of ETH-DOT pool. Here, data on the existing tokens in the pool will be used to calculate the conversion rate to DOT. After calculating the amount of DOT, the Moonbeam smart contract will return DOT token to the user's wallet. The swap process is completed.
- Users will be able to choose a slippage rate from the Decentralized Application (DApp) UI for the swap, depending on their requirements. A higher slippage rate ensures that the transaction has more probability of succeeding, though it comes at the cost of receiving lower amount of tokens and bot induced front running.

Assuming that the current ETH price is $1000 and the DOT price is $10. In the liquidity pools, there will be ETH and DOT at the ratio of 1 ETH:100 DOT. For example purposes, consider that the pool has 100 ETH and 10,000 DOT tokens. When the user wants to swap x ETH to y DOT, the number of DOT received will be calculated according to the following formula:

$$LP\ DOT\ -\ \frac{LP\ ETH\ \cdot\ LP\ DOT}{x\ +\ LP\ ETH}$$

In this case, this user would receive 99.009 DOT for every 1 ETH, where the slippage is 2.01%.

2. Deflationary Farming

Farming is a mode of liquidity mining which incentivizes token holders to contribute their tokens into a pool for provision of essential liquidity – making trading possible with optimal slippage. The user contributed liquidity is also used for other purposes. They are rewarded by additional tokens in lieu of liquidity support and efficient price discovery. However, farming has a fundamental issue.

The conventional farming is inflationary in nature and simply keeps increasing the total supply via rewards, essentially diluting the value of the existing tokens and actively penalizing passive holders – who aren't contributing to the pool. PolkaBridge has devised a solution. The platform wouldn't issue new tokens or unlock existing ones. Instead, it's going to charge a tiny 0.5% fee on all PBR transactions.

This small fee gets distributed to our holders farming on the platform. This ensures that the participants are rewarded without inflating the circulating supply. Apart from the farmers receiving a 90% cut out of the 0.5% fee, the remaining 10% gets burned forever and removed from circulation. It reduces the available supply over time through monthly burns and via scarcity raises the PBR tokens value continuously.

For example: Let's say that a user is processing a 10,000 PBR on-chain transaction on a decentralized exchange, they would receive only 9,950 PBR. The remaining 50 PBR tokens would be divided into two parts. 45 PBR would be sent to the farming pool to be distributed among stakers and the remaining 5 PBR tokens are burned forever.

This creates extensive value for PBR token holders, by allowing the supply to be burned with increasing usage and creating a positive feedback loop. Both active farmers and passive token holders benefit from the value accruing to PBR tokens continuously.

Farming Reward Calculation Mechanism

The reward is calculated with the following formula. Generally, it means that the participants are rewarded according to their share in the farming pool. The higher the share, the higher the rewards and vice versa.

$$\frac{numbershare * fees/trans}{totalpool}$$

Let's see an example again, suppose that the platform has an existing DOT-USDT pool with a current liquidity pool (LP) of 10,000 USDT and 1,000 DOT. Now, if a user has 2,000 USDT and wants to farm: the user would need to add 1,000 USDT and 100 DOT (bought with 1,000 USDT at the price of $10 per DOT, minus slippage) to the farming pool.

At this point, this user's LP DOT-USDT share in the pool is 100 / (1,000 + 100) = 9.091%. As such, when 1,000 PBR tokens are added to the pool for rewards derived from user transactions, this user would earn 90.91 claimable PBR tokens.

3. PolkaBridge Multi-Chain Launchpad

PolkaBridge also has an Initial Decentralized Offering (IDO) Launchpad platform. This allows PBR token holders to participate in interesting concepts and high yielding crypto-projects in the early stage, ensuring high profit margins and a lucrative opportunity, which was previously available to only investors with high capital and resources. All projects are vetted by the PolkaBridge team allowing users to invest with confidence, not having to worry about the legitimacy of the project.

4. PolkaBridge Multi-Chain Staking

A multi-chain staking platform is also on the cards, the users would be able to stake PBR tokens on different blockchains. This will ensure a tailor made customized DeFi experience without the need to choose a particular blockchain. The users will be able to earn yield on their PBR tokens by simply depositing it into the pool with variable Annual Percentage Yield (APY).

5. PolkaBridge Lending & Prediction

The team has also planned a lending and predictions platform, where users would be able to lend their assets for yield generation, borrowers can access capital for certain interest rate. Therefore, creating a decentralized economy. Further, we will introduce a predictions platform, allowing users to bet on real world events and earn reward if their prediction was right. We will integrate oracle function to relay data to smart contracts to decide on the event outcome.

PBR Token

PBR is the native token of the PolkaBridge ecosystem. The main features of the PBR tokens are:

1. Rewards for farming – Like other DeFi platforms, there will be many pools for farming. Liquidity providers will earn an amount of PBR that corresponds to the total amount of liquidity that they added.

2. Governance – PBR holders have the right to vote to change parameters, features and developmental roadmaps of the PolkaBridge ecosystem in the future.

3. Lending fee – Using PBR for fees to borrow on PolkaBridge Lending, the user will receive a 50% discount, and the remaining 50% will be burned to support the deflationary token mechanism.

4. Launchpad – To participate in future projects on PolkaBridge Launchpad, a user must lock a certain amount of PBR to farm lottery tickets.

5. Automated Market Maker (AMM) Buy Back And Burn – The platform would retain 20% of the 0.2% swap fees to be utilized for PBR buy back and burn.

Additionally, PBR will play an important role in the development and expansion of the PolkaBridge ecosystem in the future. Marketing strategies, bounties, listing exchanges and more will all use PBR as rewards and for fees.
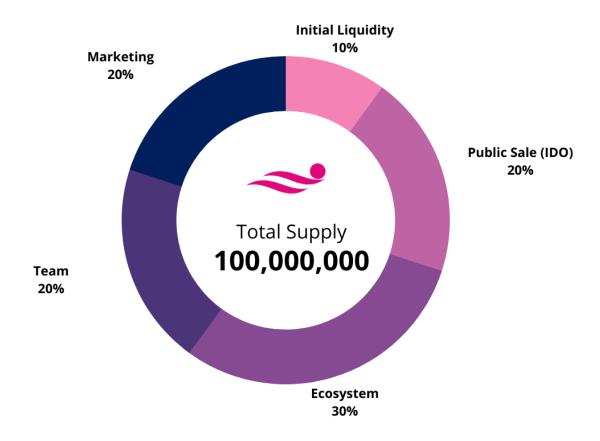
Security

DeFi is becoming more popular and offers great opportunities for cryptocurrency investors. The total value locked (TVL) in DeFi has reached more than $80 billion in 2021. However, as a result of the rapidly evolving and innovating nature of DeFi, vulnerabilities have been exposed and exploited by hackers. Sadly, in many cases, when this occurs, the end user is the one that suffers when the funds irreversibly disappear.

There are several solutions that PolkaBridge will implement to maximize its security:

♦ Smart contract audit: All Polka Bridge's smart contracts, before running on main-net, will be fully audited by a reputable third party such as Quantstamp, CertiK or ConsenSys.
♦ The monitoring system will review transactions on the DApp to detect unusual transactions, such as large volume transactions, high frequency transactions in a short time frame and other suspicious activities.
♦ Until the platform is tested and deemed to be mature, we will retain the functionality to immediately pause the contract system in the case of an emergency.
♦ A reserve fund will also be created for insurance and compensation purposes.
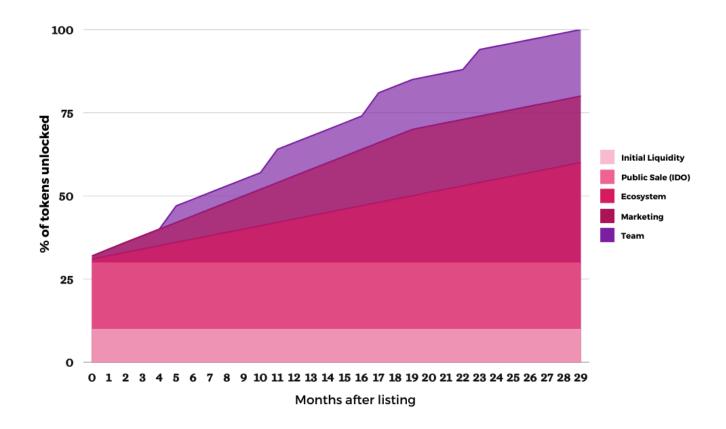
Tokenomics

Initial Liquidity 10%

Marketing 20%

Public Sale (IDO) 20%

Team 20%

Total Supply
100,000,000

Ecosystem 30%

Max PBR supply will be 100,000,000 (100M) PBR. The token allocation details are as follows:

1. Public Sale (IDO): 20% (20M). Public sale tokens will be unlocked right after listing on **Uniswap**. Tokens that aren't not sold in the pre-sale will be burned.

2. Initial Uniswap liquidity: 10% (10M). After the pre-sale, PBR will be listed on Uniswap for trading. It's expected to add 60% amount of ETH from pre-sale.

3. Ecosystem Fund: 30% (30M). This fund is used to develop the PolkaBridge ecosystems, including future developments and legal issues. The 30M tokens in the Ecosystem fund will be unlocked at a rate of 1M tokens per month from the token generation event (TGE). Therefore, it will take 30 months for the Ecosystem unlock to be completed.

4. Marketing Fund: 20% (20M). This fund will be used to implement marketing campaigns, advertising and bounties, for the purpose of developing the community, products and ecosystem of PolkaBridge. 1M tokens will be released every month from TGE.

5. Team & Foundation: 20% (20M). This fund will be shared between the founders and developers of PolkaBridge. All of them will be locked for 2 years, with tokens releasing at a rate of 5M tokens every 6 months from TGE.

All the token locks and unlocks will be done automatically by the PolkaBridge smart contract on the Ethereum platform, and no one will be able to intervene and change it at any stage.

PBR Token Release Schedule

Roadmap

1. **Q3, 2020**: **Research**

- Research on DeFi & cross-chain solutions

- Research on Polkadot Ecosystem

2. **Q4, 2020**: **Team & Tokenomics**
- Team forming & project brainstorming
- Design Tokenomics for PolkaBridge token (PBR)

3. **Q1, 2021**: **Listing & Farming**
- Develop smart contract and website

- Complete White-paper
- PBR token IDO
- Listing PBR on Uniswap
- Listing on Polka Project
- Farming
- Listing on Tier-2 CEXs

4. **Q2, 2021**: **Staking & Launchpad**
- Multi-chain Launchpad
- Multi-chain Staking

5. **Q3, 2021**: **AMM**
- Multi-chain AMM (Ethereum, Binance Smart Chain, Polygon)
- Develop test-net on MoonBeam
- Expand to Polygon Ecosystem
- Listing on tier-1 CEXs

6. **Q4, 2021**: **Polkadot Integration**
- Migrate PBR to MoonBeam parachain
- Integrate Polkadot into PolkaBridge DeFi application (AMM, Staking, Farming, LaunchPad)

7. **Q1, 2022: Cross-chain AMM**
- Launching Cross-chain AMM

8. **Q2, 2022**: **New Features**
- Lending
- Prediction
- TBD

Disclaimers

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