dForce Network

An Integrated, Interoperable and Scalable Open Finance Protocol Network

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Content

Open Finance Overview and Our Vision

dForce advocates for building an integrated and interoperable open finance and monetary protocol matrix serving as unified liquidity pool and back-bone infrastructure for DeFi and open finance applications.

Crypto and blockchain open up vast opportunities for disrupting finance, where traditionally kept within a heavily regulated territory with information silos and regulatory barriers restricting free flow of capital and money.

The way finance operates as we know it, is privileged and restricted value flow facilitated via layers of trust and counterparties. The credit creation, lending activities, payment, security underwriting, IPO etc all are processed in a centralized way with trusted parties, this is the closed finance system we as a civilization lived through thousands of years.

Centralized trust is costly, the ultimate source of its superiority is often government or sovereignty power that dictate all important primitives of money under its realm, including the purchasing power/inflation of its legal tender (i.e fiat currency), interest rate and fiscal policies. On a smaller scale, for example, individuals have to rely on layers of middlemen and custodians to carry out transactions (i.e depositors need to lend its idle cash through a bank to a borrower in need), or a corporate needs to use an underwriter to help raise fund via stock offering or engage a financial advisor for private fund raising. Trust is inherently difficult to scale, i.e the trustworthiness of an institution (i.e a local bank or local insurance company) in a country need to overcome significant hardship to expand its creditworthiness beyond its jurisdiction or territory, such constraints significantly restrict free flow of money and capital. Traditional money needs to flow through webs of trusted parties and those trusted parties are the bottlenecks for capital and money flow.

Since Bitcoin's creation, the greatest achievement of crypto or blockchain broadly is the ability to transact value across the network with trust-minimized setup, it removes the bottleneck for capital flow and restores money back to its root, being the information of value, the bit that can be freely flowed in light speed without friction.

The permissionless, trustless nature of cryptocurrency and blockchain technology allows us to reimagine money and reinvent finance.

Ethereum greatly expands Bitcoin's capability as a value and settlement network, and for the first time we witnessed the emergence of an ever-expanding and self-improving financial protocol network. Ethereum fosters a rich testbed for financial and monetary experiments unimaginable in history. We can experiment token offering, stablecoin, decentralized exchange, money market, lending market, insurance, perdition markets, gaming on a global scale permissionlessly, trustlessly without friction, energizing the great movement of open finance.

The open finance movement gives its users the ultimate rights over their own assets, the ability to make their financial decisions without relying on the mercy of their counterparties, be it domestic custodian or sovereignty regime, and it facilitates financial protocol innovations and iterations at faster speed and creates even better products capable of outreaching to billions of people across the globe.

Super Liquidity Galaxy and Our Protocol Matrix

Liquidity, if measured by locked value in Ethereum DeFi protocols, has amassed to the tune of $1.5bn by end of June 2020, a 30x growth since the beginning of 2008. The on-chain liquidity spreads across a dozen protocols, from lending, liquidity to asset protocols. The on-chain liquidity pool allows DeFi protocols to facilitate cheaper loans and large volumes DEX trading with minimal slippage. The liquidity galaxy is forming and expanding at unprecedented speed. The fluidness of liquidity enables efficient capital flow, however, it also makes it easier to escape from the

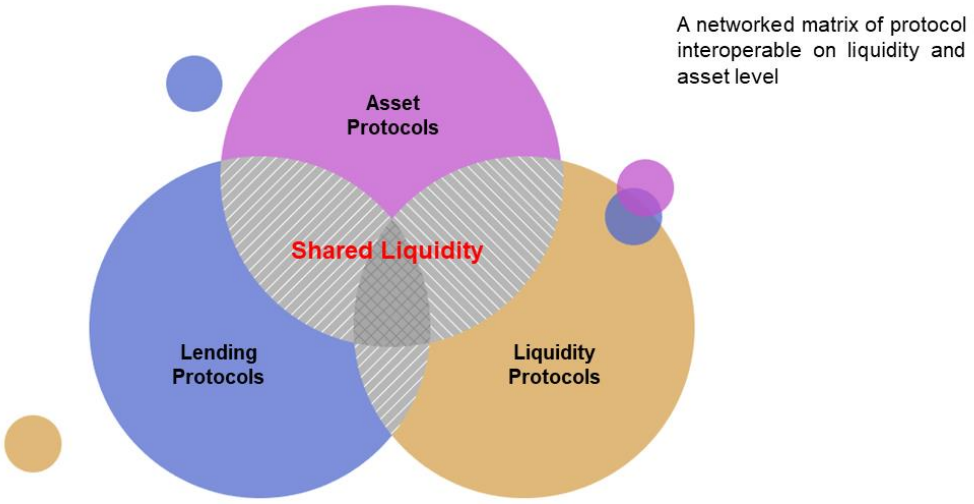
gravitational pull of any vertical protocol. Liquidity has its tendency to yield the best out of itself, it is difficult for vertical protocol to preserve liquidity, hence capture value of its network.

As open finance and DeFi developed, innovation and iterations are moving in lightspeed in the space, we need to construct our protocol matrix to retain liquidity and capture value. There are broadly three categories of protocols that we believe are critical for the foundation of an open finance network, namely asset protocols, liquidity protocols and lending protocols.

In each vertical of the above protocols, there are already some players in unique position, with like DAI, USDT, USDx in the asset protocol category, Uniswap/dForce Swap in the trading camp and the like of Compound, Aave in the lending camp.

Our vision is to build core protocols in each of the pillar camp and ultimately create a networked matrix of protocol interoperable on liquidity and asset level and interact and integrate with all three broad categories of protocols. We aim to build some of the core protocols to cultivate intra-protocol liquidity and network effects, while remain in full openness to interact and integrate with other protocols.

dForce Protocol Matrix



Our protocol architecture has one fundamental principle, to create protocols that maximize the best potential of liquidity within our matrix, which are camped into three important dimensions, the first dimension is asset protocol, which is primarily featured by stable asset tokens (i.e. USDx) and yield tokens (i.e. dToken); the second is lending protocols including lending market, hybrid lending facility, money market etc; and thirdly, liquidity protocol, including dForce Swap, Dex, trading protocols, derivative protocol etc. The protocols are inherently interoperable with other open finance protocols and across different blockchain platforms, so we could easily expand our protocol matrix beyond Ethereum to other platforms (including layer 1 and layer 2).

Our design goal is to expand dForce's network value via easy protocol integration, so that other protocols or dapps or blockchains to connect or interoperate with us with minimal friction, building dForce into a self-evolving, self-adapting and self-incentivizing open finance and monetary network governed by DF token holders.

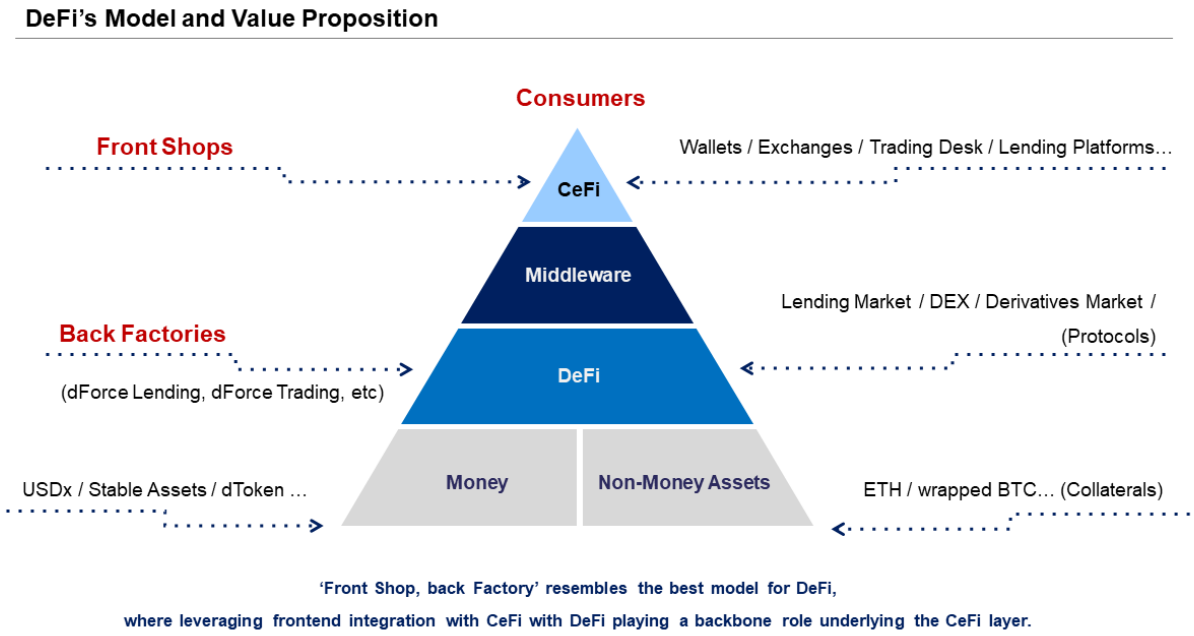
dForce Token (DF) is the utility token that facilitates governance, risk buffers and interest alignment across the dForce Network.

Given its vibrant and robust open finance ecosystem, at the initial stage, we will deploy our network on Ethereum, including our platform token DF and its underlying protocols (i.e dToken as asset protocol, liquidity protocol, lending protocols, and etc).

However, as we are all well aware of Ethereum's own constraints (including layer 1 scalability constraints, lack of consensus flexibility, monetary sovereignty and absence of fee abstraction), as our network matures, we may consider migrating to an independent chain to implement our own consensus and token model, we, however, will always remain blockchain agnostic.

DeFi Model and its Value Capture

DeFi protocols are positioned to be an infrastucture layer for crypto finance, which sit at the bottom of the pyramid. At the very bottom of the protocol set, we have asset protocols that provide the nessesary foundation for upper layer funtional protocols, the major asset protocos are stablecoins (DAI, USDT, USDC etc), commodity-back tokens (XAUT, PAGX etc) and yield tokens (cToken, dToken, rToken etc)



We believe crypto finance is converging on CeFi and DeFi, with CeFi playing the users interface layer (front shops) and DeFi acting as a fundamental layer which provides the dry powder (back factories) for the upper layer applications and CeFi interfaces. The ultimate goal is to create a network that penetrates the ecosystem.

As liquidity and assets grows in DeFi protocols, it will become a unified pool that provides native liquidity for all protocols. Our goal is to create an embedded protocol matrix, which penetrates within DeFi ecosystem and be the wormhole that connect the parallel universes between CeFi and DeFi.

Protocol Matrix

1. Asset Protocols

Summary

- Asset protocol is featured by the process of tokenizing on-chain or off-chain assets, by wrapping the asset in different forms and variants. For example, DAI is an asset protocol within MakerDAO system, where users can deposit ETH and other collaterals to mint DAI. There are also yield tokens, i.e Compound's cDAI or our dDAI. Both tokens represent the interest-bearing instrument on top of an asset in a yield generating pool where user can redeem the token in principal with interest.

- Our asset protocols include stablecoin protocol - the USDx protocol, our first synthetic stablecoin protocol, and yield token protocol- the dToken (which is an interest-bearing token with stableasset as its underlying constituent assets). We also will introduce other asset protocols in the future.

- Asset protocol is an upstream protocol that is able to create strong and lasting moat and network effects and it is the critical source of liquidity for downstream functional protocols.

Asset protocols can be composed into other asset protocols and functional protocols (DEX, lending etc), creating moats attached to downstream protocols and providing money primitives that could build strong network effects. For example, if a protocol integrated DAI, DAI will become a permanent part of the integrated protocol and form an asset layer within that protocol.

Stablecoin resembles the strongest network effects among all asset protocols, and we believe building a general stableasset yield protocol that supports the majority of stableassets will create lasting and sticky network effects that could help retain liquidity and assets within our protocol matrix

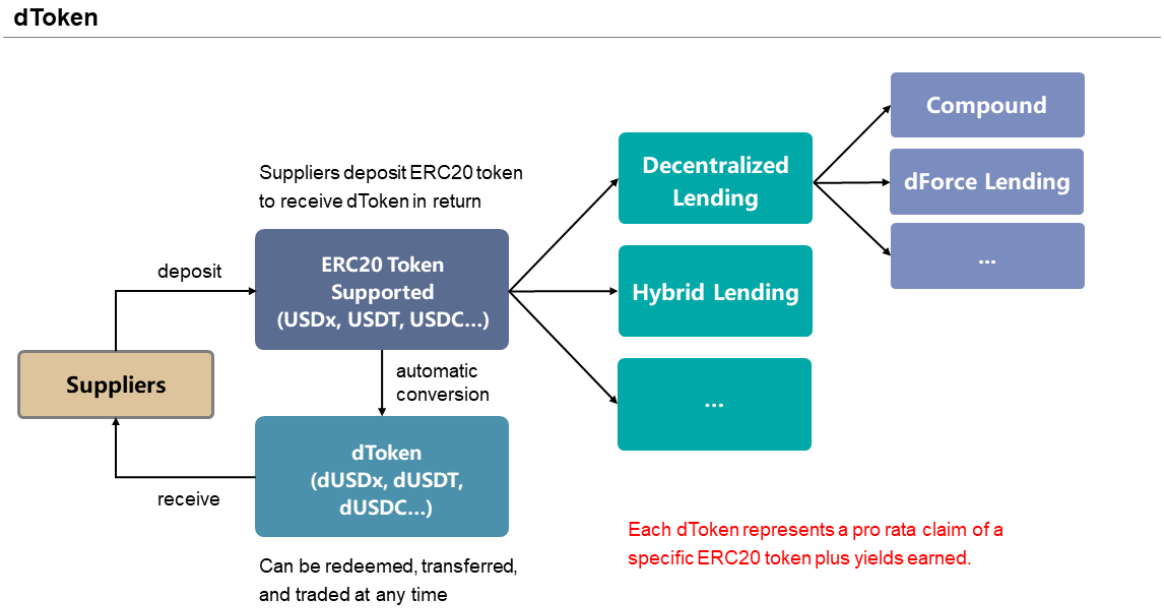
Stablecoin stands out as the most compelling asset protocol that serves as:

1. Fundamental transaction layer and building blocks for all functional DeFi protocols;
2. A vehicle to facilitate borderless capital flow as its major use case. The total outstanding stablecoin issuance today stands at $11bn, almost tripled from the beginning of 2020.
3. A bridge to facilitate transactions across traditional financial infrastructure. Stablecoin is the fluid of open finance, and it removes reliance on traditional financial infrastructure.

Our protocol matrix is centered around stablecoins, empowering stablecoins to yield their best potentials.

Stablecoins are supported and integrated across all our three major categories of protocols. In addition to our own stablecoin protocol USDx, we also develop a yield protocol supporting the most popular stable-assets. The yield protocol is utilized to harvest yield and most importantly, pool and preserve liquidity and assets within our protocol matrix.

Upstream yield token is a critical traffic and proxy that pools and retains liquidity for our downstream liquidity and lending protocols. In return, the downstream protocols also provide yielding opportunities for yield tokens. While retaining liquidity within our matrix is important, it also allows open access to other protocols like Compound, dYdX etc.



To elaborate, lending protocols like Compound or dForce Lending has algorithmic interest rate model which automatically adjusts lending and borrowing rates based on pre-determined interest rate curve. However, there is conflicting agenda for lenders and borrowers, where lenders seek to maximize the return on capital, but borrowers want to borrow at the lowest cost of capital. We believe the yield token design provide a solution to reconcile the conflicts.

The yield token allows us to separate capital supply (lenders) and demand (borrowers). It creates a pool of capital to farm attractive risk-adjusted yield on capital by supplying them to lending/liquidity protocols including dedicated pools (i.e hybrid pools) for high yield assets, at the same time maintains the flexibility to subsidize the pool of capital it supplied to its associate lending protocols at favorable rates. Such that, it is possible to reconcile a higher supply yield with a lower borrowing cost (of associate lending protocols).

In addition to stablecoin and yield token, we also plan to launch asset token representing economics of other sovereign currency and commodity and other real-world assets in the future.

We will turn to our lending protocol and elaborate our optimized lending protocol design.

2. Lending Protocols: Lending Markets, Money Market, Interest Rate Market

Summary

- Lending is one of the most critical downstream functional protocols within our matrix, providing interest rate markets for upstream asset protocols and gravitating liquidity via interest rate dynamics
- Interest rate market is the most critical infrastructure in modern finance, commanding fundamental capital allocation. The interest rate market in crypto is a wormhole that connects two parallel universes (the new and the old world) and allows liquidity from arbitraging in and out of the two systems.
- Current DeFi lending protocols have strong competitive edges in terms of capital efficiency due to their asset and liquidity interoperability and composability.

- Lending creates interest rate market, which provides yield for capital (i.e stablecoin) and compensates for the opportunity cost holding capital within an open finance network. It doesn't need to rely on yield from traditional finance world.

However, the current general DeFi lending protocols have the following pitfalls:

- Most lending protocols (Compound, Aave) have no debt ceiling (with exception of Maker, which caps debt ceilings for each of its collateral). Given the evolving state of DeFi, an uncapped debt exposure could post existential risk to a protocol in any hack or malfunction.
- The current permissionless and open design can't accommodate users with heavy compliance requirements and/or those who require a counterparty to transact with. It highly restricts its protocol outreach and confines itself to a subset of users.
- DeFi lending protocols today also are prone to composability risks from upstream asset protocols (i.e USDT, USDC and DAI), especially when combing it with transaction atomicity and flash loan, the risks will be greatly amplified.
- DeFi protocols in its current form are not ready for mass adoption, due to its inflexible risk control modules and particularly, difficult to support users with a need for customization.

Given the evolving landscape in DeFi, our lending protocols will adapt into different forms catering to different markets. We will build permissionless version of lending protocol but with more embedded risk control parameters; at the same time, we will partner with CeFi to launch lending facilities catering to users and assets of their chosen.

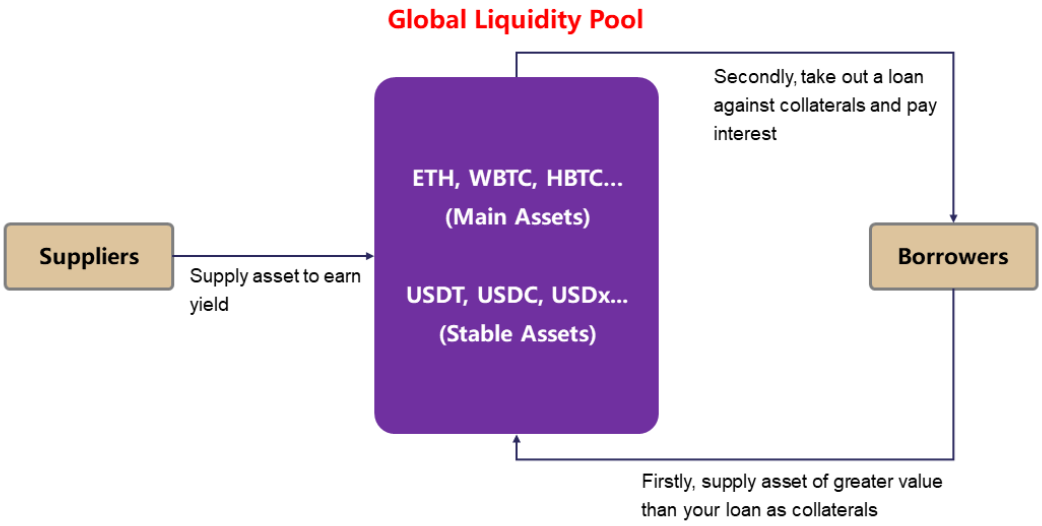
dForce will focus on DeFi and fully open and permissionless protocol development and technical assistance and our CeFi partners will engage in setting up their own customized interface interacting with our protocol. The protocols catering to our CeFi partners still run in a verifiable, on-chain, fully automatically and open manner.

The hybrid model comprises of a general DeFi lending protocol (dForce Lending) and a Hybrid Lending Facility Platform, so that we could create a wide range of separate borrowing pools (which connects to the dToken's Hybrid Pool) catering to users of different needs and risk tolerance, i.e pool for stablecoin, commodity assets, staking assets lending, liquidity provider shares lending etc.

The hybrid model allows dForce's lending protocols to address the widest possible markets while maintaining great flexibility, i.e to optimize its yield for its yield token pool, with higher yield from its Hybrid Lending Facility Platform (with different risk tolerance and collateral requirement); in the meantime, to provide lower cost of funding to borrowers with its fully decentralized dForce Lending protocol.

dForce Lending, a protocol similar to Compound and Aave, is a fully permissionless and open DeFi lending protocol with diversified sources of capital supply (dToken pool and other sources).

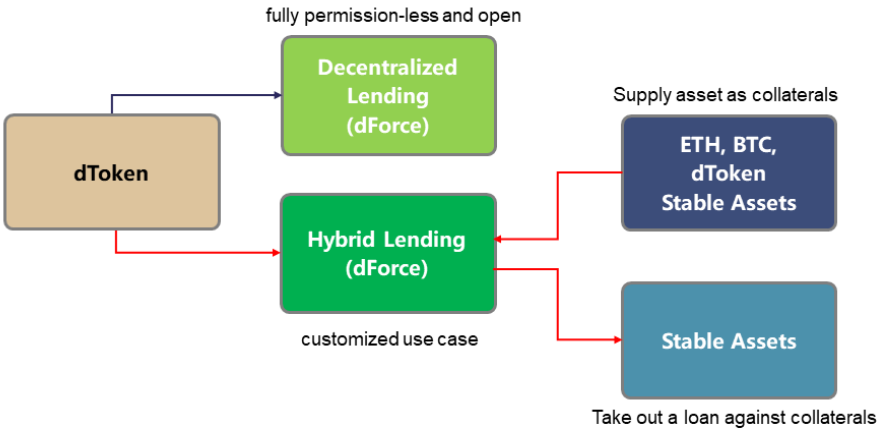
Decentralized Lending (dForce)



On the hybrid lending facility platform, the majority of the funding will come from dForce Hybrid Pool within dToken Pool

Below is an illustrative diagram of our hybrid lending facility architecture:

Hybrid Lending Facility (dForce)



We could further expand the protocol portfolio to include other lending protocols.

3. Liquidity Protocols: Swap, DEX, Derivative Protocols, etc

The last piece of our protocol matrix is liquidity protocol, where the primary usage is to facilitate the exchange of token ownership in a decentralized manner.

DEX ecosystem has evolved vastly over the past two years, with the emergence of order book DEX like dYdX, automatic market maker protocol like Uniswap and stablecoin-specific Curve.Fi.

Given the nature of blockchain transaction ordering and gas cost, it has competitive advantages to transact big tick size and low frequency trades, like stablecoin to stablecoin swap or long-tail token swap. But, for transactions requiring high frequency and low latency, DEX in current form can't effectively compete against centralized exchanges.

Trading is the most viable value capture along the crypto value chain, given its high turnover and frequency, we believe that trading protocol is best combined with lending protocols to make the best use of shared liquidity and help prevent value leakage and subsidize other protocols to retain liquidity.

This is the final piece that creates the ultimate open finance feedback loop that help lock in liquidity within our matrix.

Imaging a token holder, who holds, for example 100 USDC; he needs somewhere to harvest yield on holding 100 USDC, otherwise, he will be burned by the opportunity cost. So, he needs a yield market where he could deposit 100 USDC to earn yield on his holding. He may also want to have USDT for temporary use, so now he could deposit the 100 USDC as collateral in a lending protocol and borrow USDT and let's further assume that he owes his friend 50 USDC, what he could do is to swap 50 USDC for equivalent amount of USDT and repay his friend.

If we break any of the above loops, liquidity will escape from our ecosystem, i.e, if you don't have a trading protocol, he may go to Uniswap to swap his holding to other tokens. Once that escapes, the liquidity will vanish from our horizon.

Combining with yield tokens, i.e use yield token as reserve, liquidity protocols like Swap and AMM, will present strong competitive advantage, which could substantially increase the yield for liquidity providers. Our current roadmap featuring swap and AMM as key trading protocols for future development.

4. Ultimate Vision: A Unified Open Finance Platform

The DeFi protocols strike strong momentum both in protocol offerings and growth of locked value over the past year, however, not many protocols have the moats necessary to accrue value for the longer term, i.e some DeFi protocols may prefer to stay within a narrow band of vertical play, i.e, AMM like Uniswap or more vertical swap of stablecoins like Curve.Fi. But ultimately, DeFi is all about liquidity and if liquidity could have its finest hour providing its work in three interlocked protocols at the same time, it won't just stay in one, the instinct of liquidity is to maximize its usefulness and there will always be liquidity leakage in any vertical play, so it has to unify or be pooled in one way to another.

Our protocols matrix is to minimize liquidity leakage and provide the gravitational pull to preserve and contain liquidity; liquidity, once escapes from our horizon, it may never return; just like an astronaut spinning towards outward space and may never be able to come back alive.

The future of open finance or DeFi, will feature several mega clusters of protocol matrix interlocked via protocol tokens and several protocol super clusters will form the open finance galaxy and command most of the value flow within open finance universe.

Ultimately, it will form a new parallel financial infrastructure that facilitate value flow just like information flow and pooled liquidity and capital on global scale, this is truly the new finance reinvented and the new money reimaged and a whole new self-evolving and self-sustaining financial infrastructure.

Token Economics

Network Participants and Utility of DF Token

There are a variety of actors across dForce's protocol matrix. i.e liquidity providers/takers, lenders/borrowers, traders, developers and community contributors etc.

We believe the dual token model is the most viable one for an open finance platform, with stable-assets (i.e USDT, USDC, DAI, USDx, dToken, etc) being the transaction tokens in the network and platform token (DF token) serving the role of providing utility and acting as a proxy to govern the protocols and accrue the network effect of the platform.

As an open finance protocol network, dForce's key values are driven by liquidity, assets/token reserve and network effects built around these protocols.

The token economics is to encourage positive feedback loops and facilitate sustainable and long-term incentive alignments.

DF Token is platform utility token that enable protocol governance, fee payment, staking, incentive and insurance pool. DF will facilitate the following functionalities:

- **Governance Token**

DF Token acts as a voting vehicle within the ecosystem and community engagement. Governance also allows DF token holders to dictate the dForce's protocol and DF's token primitive, i.e to modify, expand and govern key features of dForce protocol matrix and expand DF token's own utility.

However, fully decentralized on-chain governance takes time and it is a gradual process, we believe it's' important to find the protocol market fit before taking massive leap towards fully decentralizing governance.

- **Fee Payment**

DF can be utilized as a fee payment token within the dForce ecosystem, including coin mintage/disaggregation fee payment, lending market interest payment etc.

i.e in the case of USDx Protocol, the disaggregation fee, need to be paid in form of DF token when users want to convert USDx back to constituent non-security stablecoins.

- **System Stabilizer**

DF acts as the last resort for safeguarding all dForce's protocols in extreme events, i.e bad debt and accidental hack in asset, lending and liquidity protocols or other unintended consequences in extreme events. i.e in the event that the massive bad debts crystallized as a result of protocol malfunction or hack, DF shall be issued or auctioned to cover those bad debts and recapitalize the protocol.

- **Incentive Token**

DF is the ultimate system token of dForce's protocol matrix and its ecosystem platforms (i.e lending market, dex etc), hence it is the vehicle that captures the economic values of the entire system and it will also be facilitated as major vehicle for providing lending/liquidity mining and staking incentives.

- **Staking Token**

The staking model serves the purpose of maintaining more aligned engagement, adaptive on-chain governance, consensus and it encourages long-term participation.

The overall design goal for the staking model is to ensure that incentive are long-term oriented, to introduce more non-speculative contributions to the protocols and that that we could build a blockchain agnostic, self-incentivized and interoperable infrastructure.