

# Token Changer Whitepaper



editorial

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The Platform for Financial DApps

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## 1.0 Introduction

This whitepaper presents a technical treatment of the Token Changer project. The [ICO paper](#) is a shorter document that deals with the Initial Coin Offering. Thus the price of the token, our financial structure, project roadmap, commercial opportunity and where to buy the token.

## 2.0 Background

Everything is being tokenized on the blockchain. From financial and physical assets to events, work, activities, business networks and even time. In the beginning, web based centralized exchanges like Mt Gox, BitStamp, Kraken, Bitfinex, Coinbase etc were set-up to provide a means of exchanging blockchain coins and eventually tokens.

The drawbacks of web based centralized exchanges has lead to the emergence of decentralized exchanges that use smart contracts to protect users from internal fraud

and exchange hacks. Some of these exchanges are EtherDelta, OasisDEX, Ox and AirSwap.

So, what does Token Changer bring to the table?

Before answering that question, it would be useful to point out the commonality between centralized and decentralized (DEX) crypto exchanges. Currently both exchange types support transactions having two attributes: quantity and price.

But buying, selling, giving or receiving value is more complicated than this. In financial services, there are hundreds of trading protocols having a multiplicity of transaction attributes. For example, an options contract has three attributes: quantity, price and time. Buyers and sellers of an options contract need to open and close their position within a predetermined time.

The same applies to various industrial sectors. For example a blockchain token powering a reward program might have quantity, value and qualification rules. Thus to receive the token you have to do something or buy something.

## 2.1 A New Game

Imagine a platform that can handle simple transactions like the trading of tokens and money remittance as well as complex transactions like futures contracts, debt securitization and invoice discounting.

Furthermore, imagine that the software powering the above listed transactions can be run on multiple blockchains to provide security and that users can interact with the software through a web browser.





In January 2017, we imagined these possibilities and today, we have built it. The Token Changer decentralized financial applications platform is live now on the Ethereum blockchain. You can trade dollar futures on the platform, earn a reward token called Block Points when you play market making roles in exchange transactions. You can also exchange this reward token for the platform's token called the TOC.

Token Changer dramatically extends the scope and mission of current decentralized exchanges.

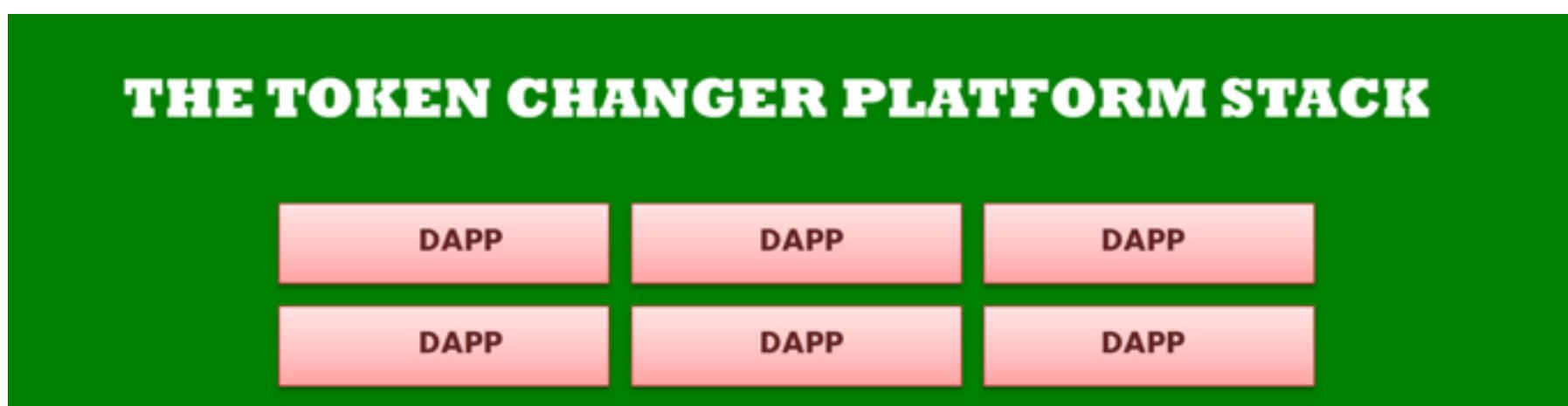
## 3.0 Our Mission

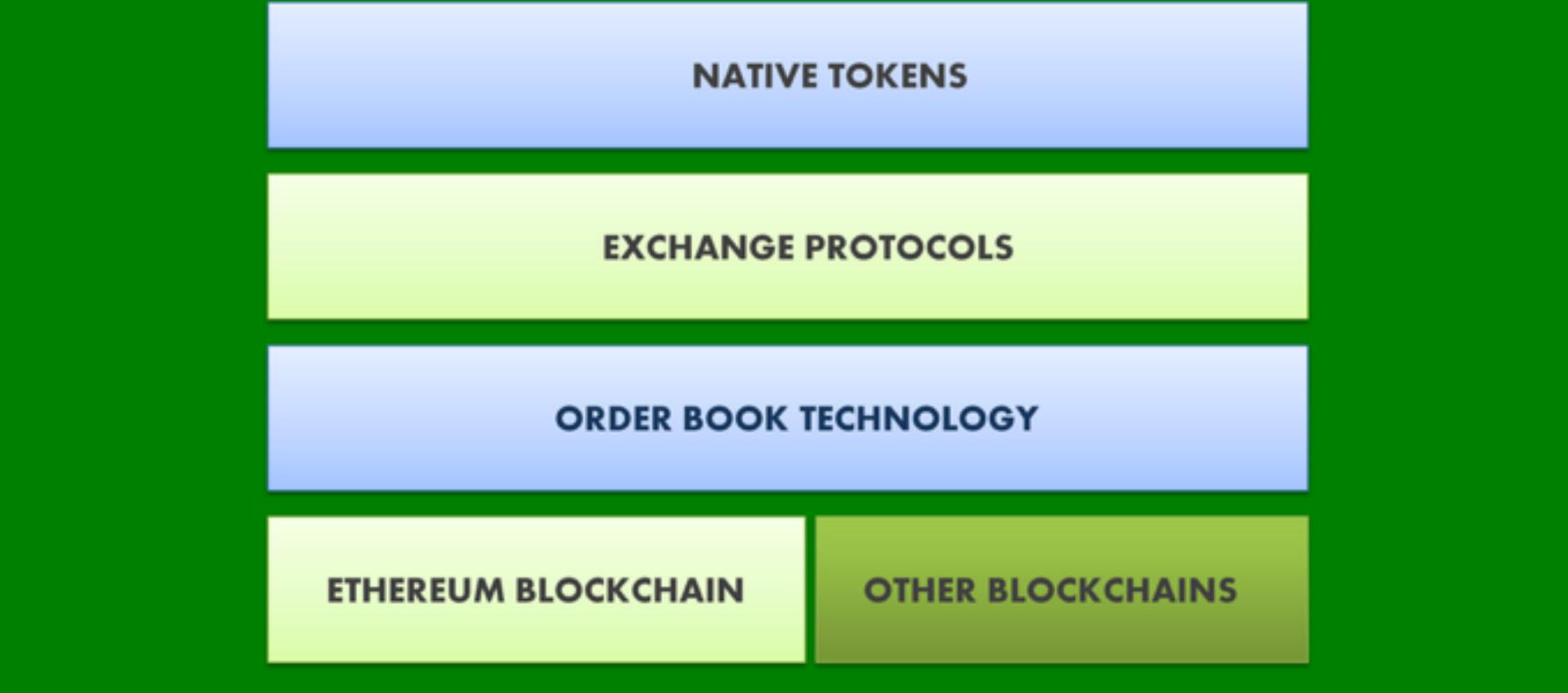
Token Changer's mission is to be the leading blockchain based platform that can support a wide variety of simple and complex financial applications.

Just like the Apple Store is a destination for mobile applications and Amazon, Ebay and Alibaba are buying and selling destinations on the world wide web. Token Changer's intent is to become a destination for decentralized financial applications (DApps).

## 4.0 The Platform

The Token Changer platform stack is illustrated in the diagram below.





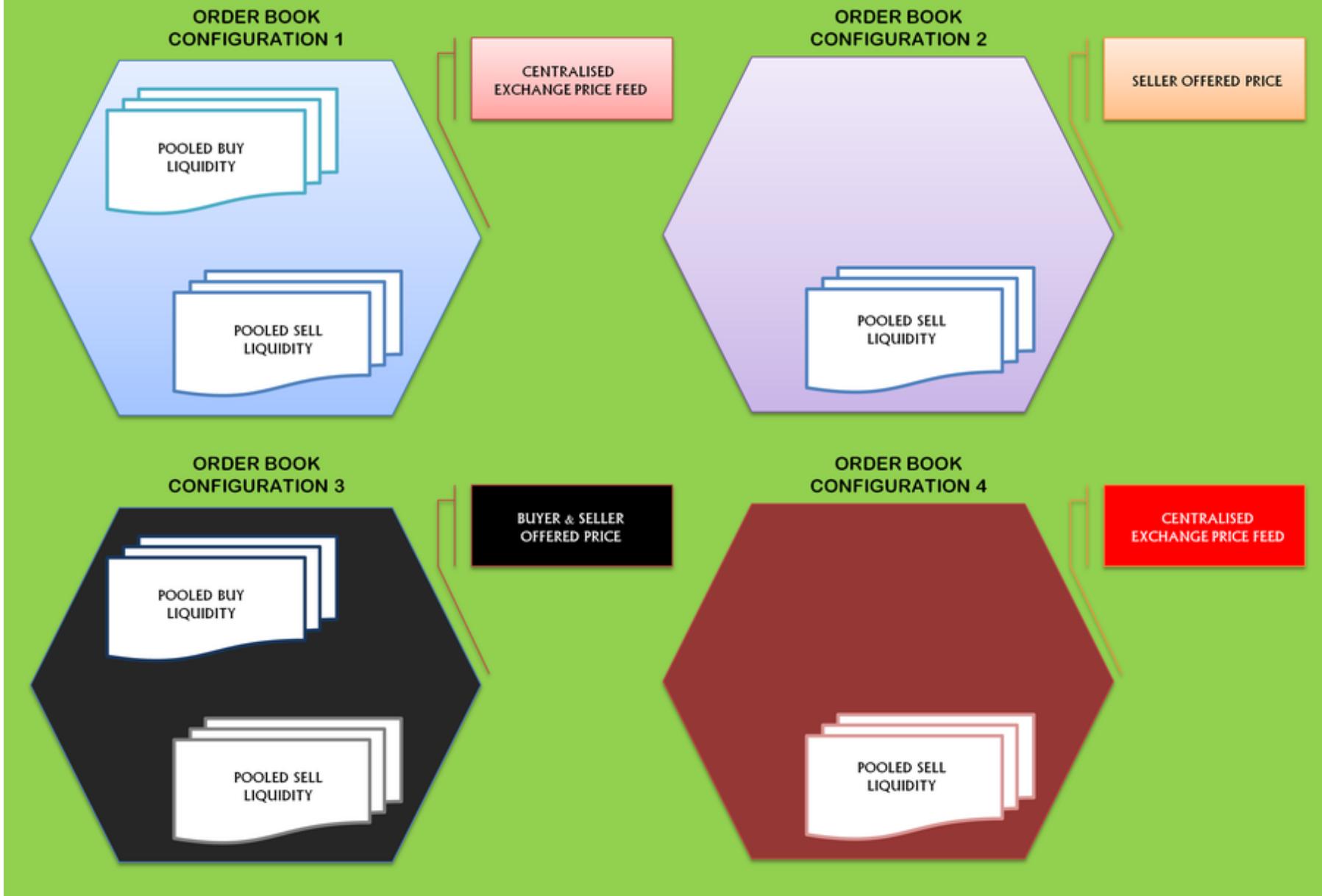
Before describing specific components of the Token Changer platform, there are generic and important features to bear in mind. Firstly, users discover DApps (distributed applications) through a web directory interface.

Secondly, the platform is designed to use different blockchains, however the Ethereum blockchain is the platform's primary blockchain. Thirdly, although DApps can be used through specific blockchain client software (like myetherwallet or parity), for a consistent user experience, DApps are designed to be used through the platform's web browser interface.

## 4.1 Order Book Technology

For security reasons, the entire server side logic of our DApps reside on the blockchain, this also means that the order book has to be on the blockchain as well.

Because of the need to have a low data footprint, the order book pools (consolidates) buy and sell orders from market makers. It then uses external price feeds or market maker(s) supplied prices to transact orders from takers. As shown in the diagram below, our order book can be configured in many ways. The configuration implemented depends on the DApp. Furthermore, Token Changer applications can have more than one order book depending on what is been exchanged.



## 4.2 Exchange Protocol

An Exchange protocol is a set of rules and methods that govern the exchange of value between two or more parties. Exchange protocols are designed within the framework of our order book technology and the blockchain, in particular the ethereum blockchain.

With the tokenization of everything gaining momentum, we see a vast innovation space for various types of exchange protocols of varying complexity. Some of these exchange protocols will be doing old things in new ways and some will be completely new.

## 4.3 Native Tokens





Native Tokens are blockchain tokens issued by Token Changer. They are central to the design blueprint of some exchange protocols. It is worthwhile to note that not all exchange protocols incorporate native tokens in their design, some do and some don't. A native token is processed by DApps that implement the associated exchange protocol.

There are currently two native tokens on the Token Changer platform: the TOC and Block Points. The behaviour and rules governing the exchange of these two tokens are outlined in the Genesis exchange protocol.

The TOC is a market traded token of which 20% of the total mint is held in reserve to reward market makers on the Token Changer platform. Another 30% of the total mint is sold to during an initial coin offering (ICO).

Because the TOC is market traded, that means its price moves up and down. We needed a non-tradable token to allocate rewards to market makers in a predictable way. And this is the purpose of Block Points.

Block Points is a non-tradable, non-transferable native token which is given to platform users that play market making roles in DApps.

Periodically, we will exchange TOC tokens for Block Points. This action will reduce the reserve of TOC tokens available to fund market maker rewards. To maintain the market maker reserve, we will use Ether revenue to buy TOC tokens from token holders at *above* market price. Token buyback ensures our customer loyalty program is sustainable and the buyback price acts as a mechanism to transfer operating revenue to token holders.

## 4.4 Distributed Financial Applications (DApps)

If exchange protocols are architectural drawings, DApps are like houses built using these drawings. A distributed application consist of server side software on the blockchain and Html/Javascript on the client side. Token Changer DApps can be discovered by users through a directory structure on our [website](#).

To maintain a coherent directory structure for applications in the long term, we have delineated three major branches for distributed applications. These branches are described as follows.

### Peer-2-Peer:

Peer-2-Peer is applied to distributed applications used by peers. This could be individuals transacting together or businesses transacting together.

### One-2-Many:

This is a category applied to DApps that mediate value exchange between an organisation and its public. Examples include a flash sale or an initial coin offering application.

### Many-2-One:

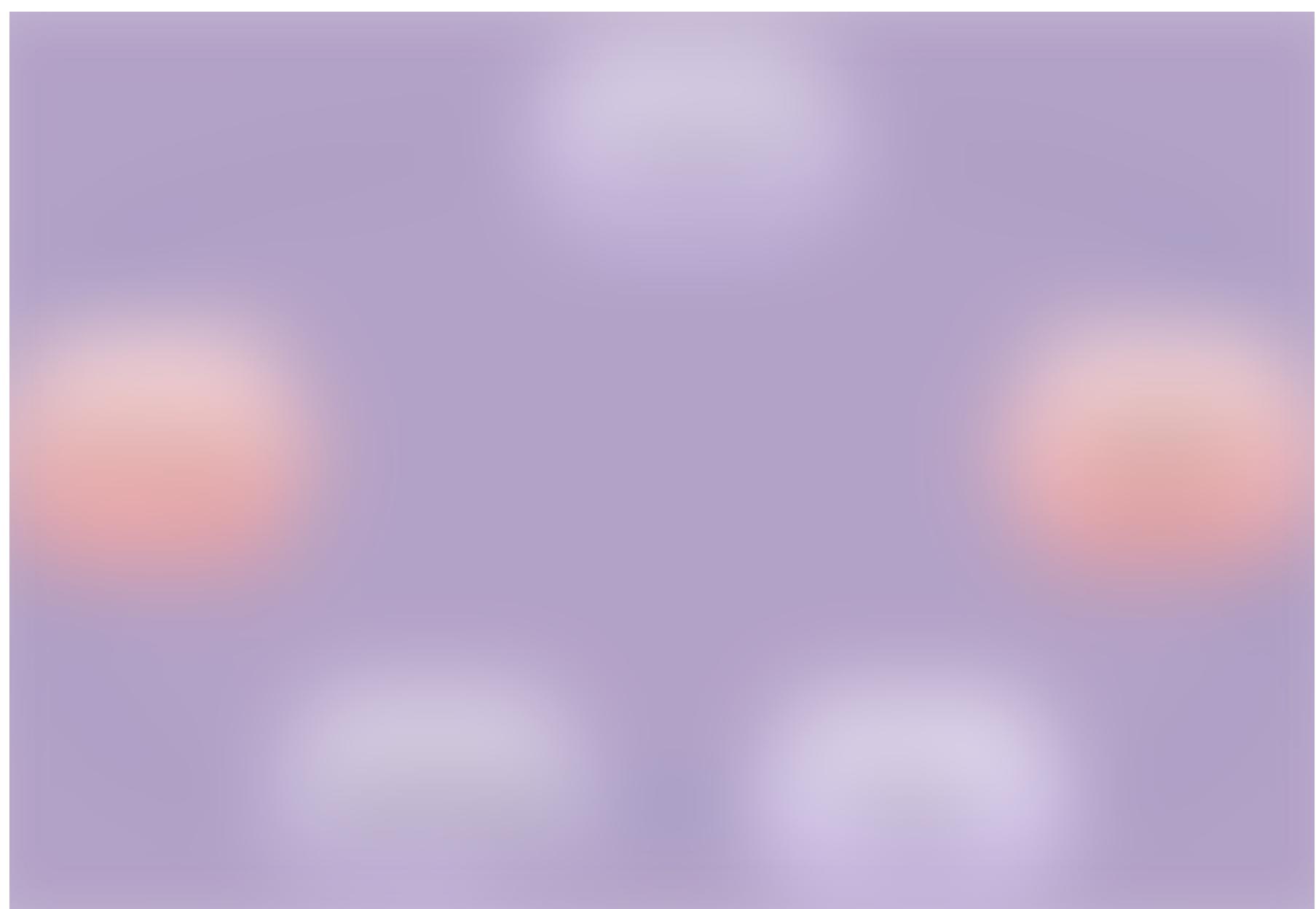
This is the reverse of One-2-Many. A reverse auction application where many buyers bid to buy a product or service from one supplier will be classified as a Many-2-One distributed application.

# 5.0 Business Strategy

Although we are excited about designing all manner of blockchain based exchange protocols, we believe that one of the ways Token Changer will create sustainable market advantage in the medium to long term is to develop exchange protocols that leverage the native token layer of our platform stack to create virtuous circle effects.

Section 5.1.1 below outlines how the current native tokens achieve this virtuous circle effect whilst 5.1.2 outlines in a generic manner how future native tokens will be designed to achieve virtuous circle effects.

## 5.1.1 TOC & Block Point Flywheel

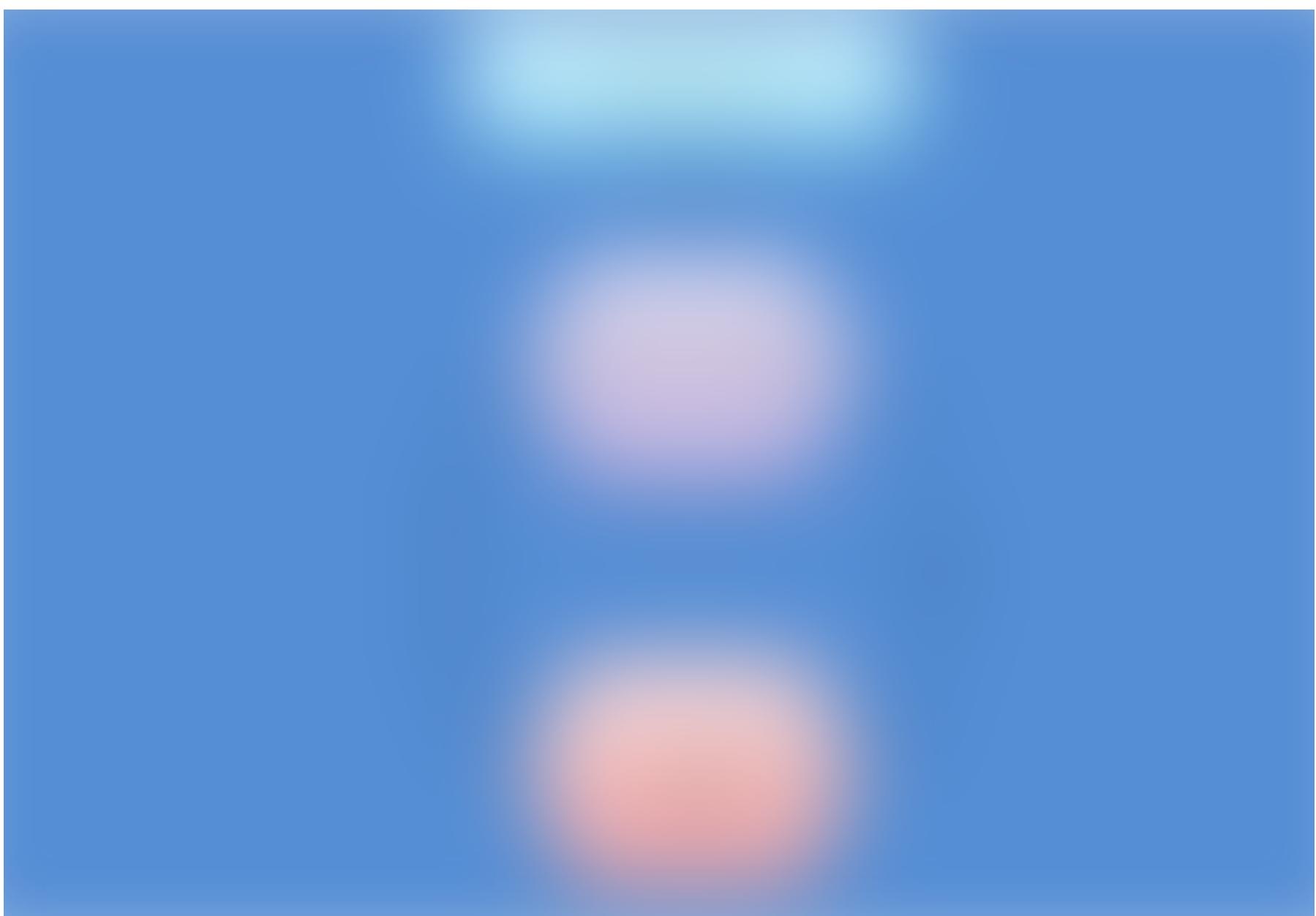


The diagram above illustrates what we call the TOC & Block Point flywheel. Whilst the purpose of the TOC and Block Point tokens have been described in section 4.3, it is

necessary to state at this point that the TOC and Block Point design is part of a broader strategic intent to use native tokens to build sustainable market advantage.

## 5.1.2 Token Networks

We define a Token Network (TN) as a group of actors whose adoption of a Token Changer native token amplifies the economic utility of the token for all actors within the group. Depending on the purpose of the token, this group of actors can come in many configurations. The diagram below shows how a native token produces network effects.



Air Miles is an example of an off-chain artefact that has similarities to a Token Network. The early adoption of Air Miles by important group actors (airlines) increased the utility value of Air Miles (equivalent to a blockchain token) for another set of actors (consumers) within the group. The adoption of Air Miles by consumers once again

increased the utility value of Air Miles for merchants outside the airline industry.

For the following reasons, Token Changer is well positioned to create Token Networks.

**T**oken Changer is a neutral token issuer working in the interest of all group actors.

**T**oken Changer has the right platform component (dapps) to administer the issued token.

**We** provide tools and services for off-chain processing of native tokens.

## 5.2 Business Networks

The second way we intend to create sustainable competitive advantage is to develop DApps that power Business Networks. Whilst business networks sounds similar to token networks, the two concepts mean different things.

Token Networks are about the adoption of a Token Changer issued token by a group of actors *loosely connected* by the token. A business network on the other hand is the use of one or more Token Changer DApps to create *operational synergy* between businesses.

A business network might use a native token or it might not. The native token is not the driver, what drives the business network is the notion that linkages at the operational level between businesses in the network makes the whole greater than the sum of its parts. Some hypothetical business networks are described as follows.

## 5.2.1 Currency Union

A select group of Bureau de Change operators around the world use a DApp hosted by Token Changer to offer cross border money transfer services to their customers. A capability none of them can develop on their own.

## 5.2.2 Trading Co-Operative

A group of local food crop producers use a DApp hosted by Token Changer to sell forward some of their output to international buyers. By working together, they increase the output offered for sale which in turn makes the trading DApp attractive to big international buyers.

## 6.0 Conclusion

Token Changer represents fundamental innovation at the blockchain application layer. The platform's user interface makes it easy to use blockchain applications. With thousands of DApps envisaged in the long-term, our dapp directory structure is designed for discovery. Finally, the TOC and Block Point reward tokens create a symbiotic relationship between Token Changer and users of the platform.

## Important Links

[Token Changer ICO Paper](#)

[ICO DApp](#)

[The Convergence of Money](#)

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