



XVII Conference of the Association of  
Eurasian Central Securities Depositories  
“Reforming Financial Markets”



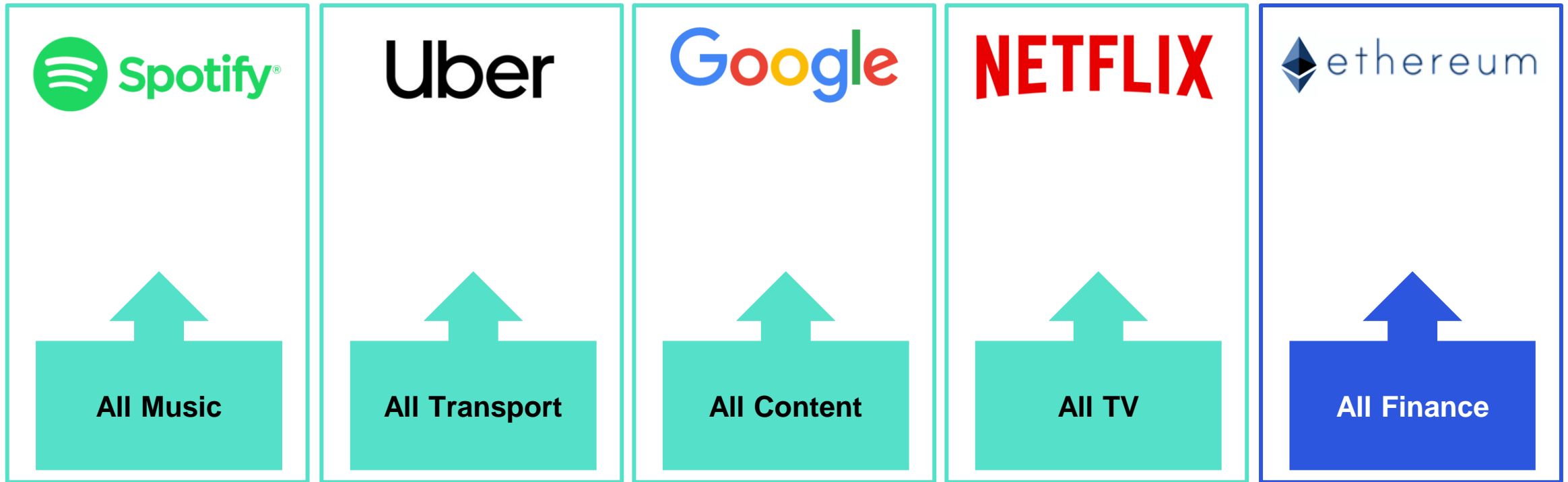
Blockchain technology: How is the world of capital markets changing?  
By Professor Monica Singer

South Africa lead for Consensys

27<sup>th</sup> October 2021  
Armenia

# You cannot build a Spotify of CD-ROMs

## You cannot build the future of Finance on legacy infrastructure



Promissory note issued by the 2nd Bank of the United States in 1840

Common stock issued by B&O Railroad Co. in 1903



Certificate of deposit issued by the U.S. Postal Savings System in 1932



Common stock issued by Pennsylvania Railroad Co. in 1959



Federal reserve note issued by the U.S. Government in 2009

# That permeates throughout our entire financial ecosystem

---

## Settlement times

- Reliance on manual processes impedes opportunities for automation, lowering straight through processing, increasing operational costs, systemic risks and settlement times.

## Heavy compliance

- Retroactive audits and the need to manually reconcile data to perform them increases risk of misconduct and regulatory investigations.

## Disconnected data silos

- Disconnected data silos between counterparties and intermediaries creates coordination problems and operational risks.

## Double-spend

- Double-spending protection relies on central trusted third parties which represents a single point of failure from both availability and trust viewpoints.

**Additionally, siloed / non-fungible balance sheets and collateralization lead to capital inefficiency**

# Blockchain technology can dramatically improve these issues

## Programmable

- Programmable digital assets smart-contracts allow for automating the creation and management of digital assets such as distribution, valuation, clearing and settlement.

## Immutable & Transparent

- Immutable ledgers with trusted real time transactions audit trail providing direct and cryptographically secure ownership of investors

## Compliant

- Enable the implementation of on-chain and off-chain compliance checks to automate compliance with several legal requirements, especially KYC and AML.

## Efficient and liquid

- Markets can be designed as natively global, allowing trading of smaller units with international payments and delivery of assets cleared and settled in seconds, with transparency and finality.

“Tokenization on Ethereum allows physical and digital assets to be represented by almost-infinitely divisible, traceable, secure units of ownership.

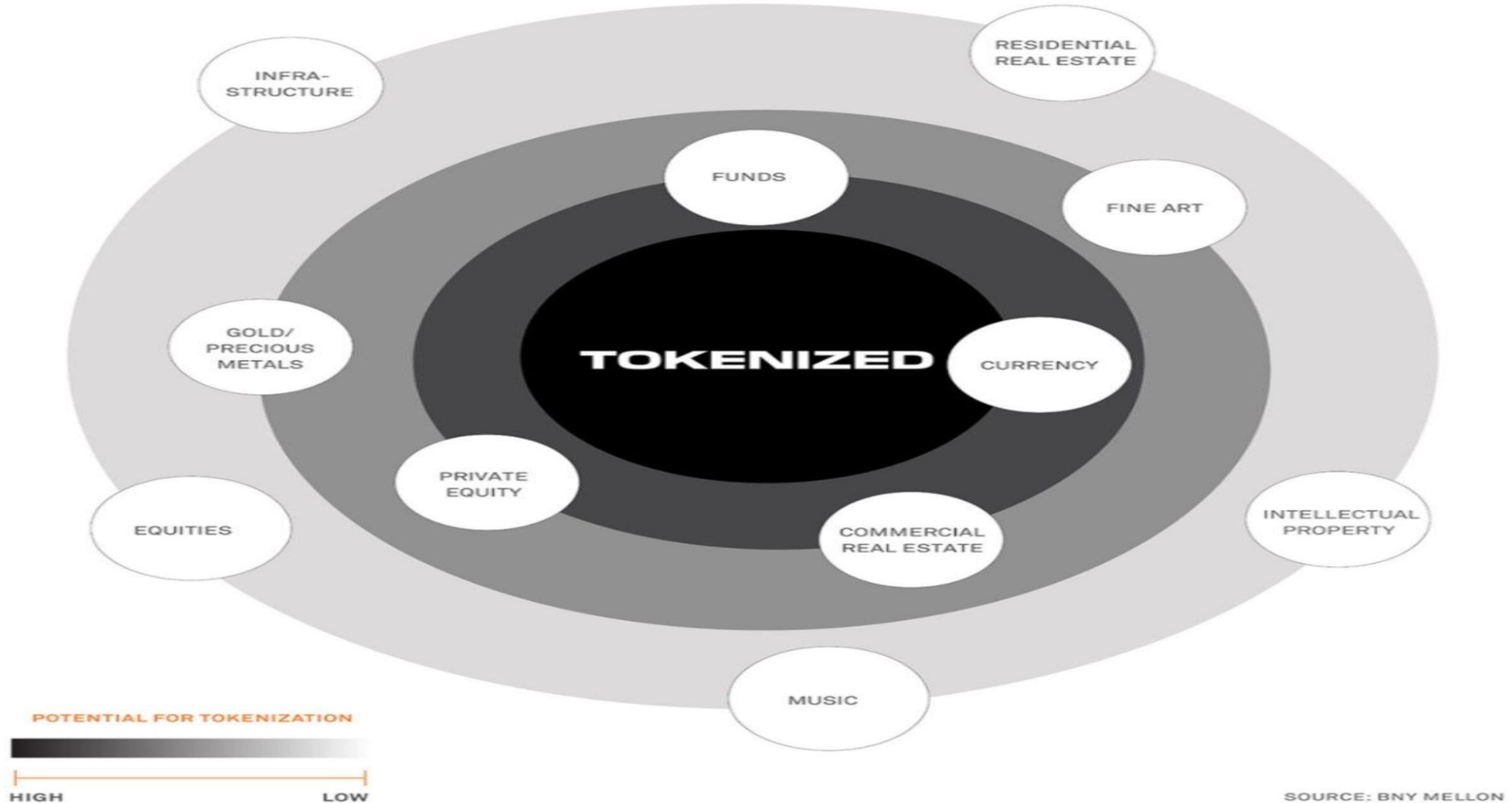
With real-time settlement, reconciliation will be eliminated or at least require less time, energy, and capital to execute, ensuring that companies can operate at their maximum optimization and profitability.

Joe Lubin

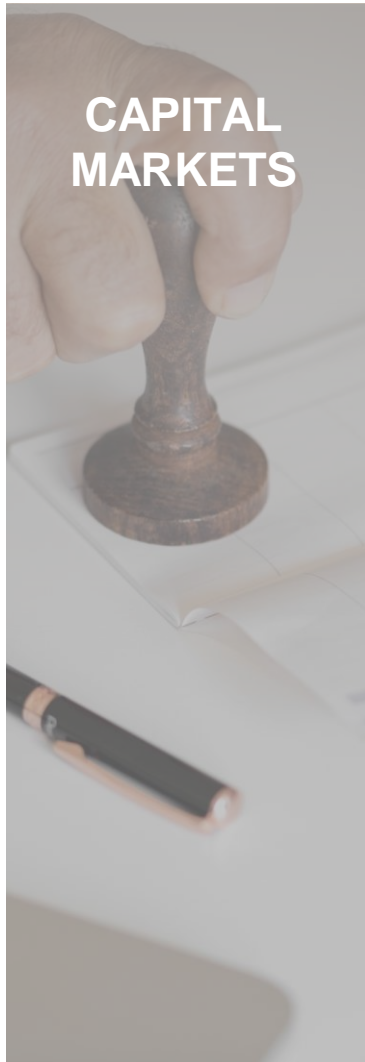
ConsenSys founder  
Ethereum co-founder



# Asset Tokenization: the new game changer



# Asset example: speciality finance



# Why the tokenization of assets?

## Share Transfer in a Publicly Traded Company



## Token Sale



*Ownership transfer off- vs on-chain, SMART VALOR, 2018*

# Security Tokens Have 8 Major Benefits



24/7 markets



Fractional ownership



Rapid settlement



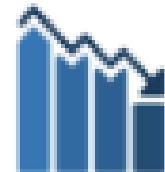
Increased liquidity & market depth



Flexibility of smart contracts



Automated compliance



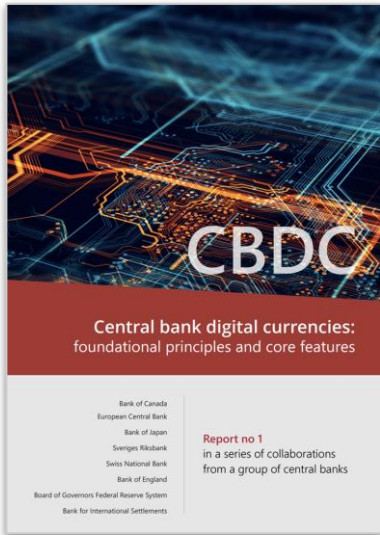
Reduction in direct costs



Asset interoperability



# The emergence of CBDC is happening now



## Why are Central Banks considering CBDC?

Ensure monetary sovereignty vs. private sector & other Central Banks

Adapt to digitization of our economy as cash is less and less convenient

Improve a broken financial infra. which leaves behind 1.7B+ people

Foster digital innovation in a regulated environment

# Both wholesale and retail payments are up for transformation

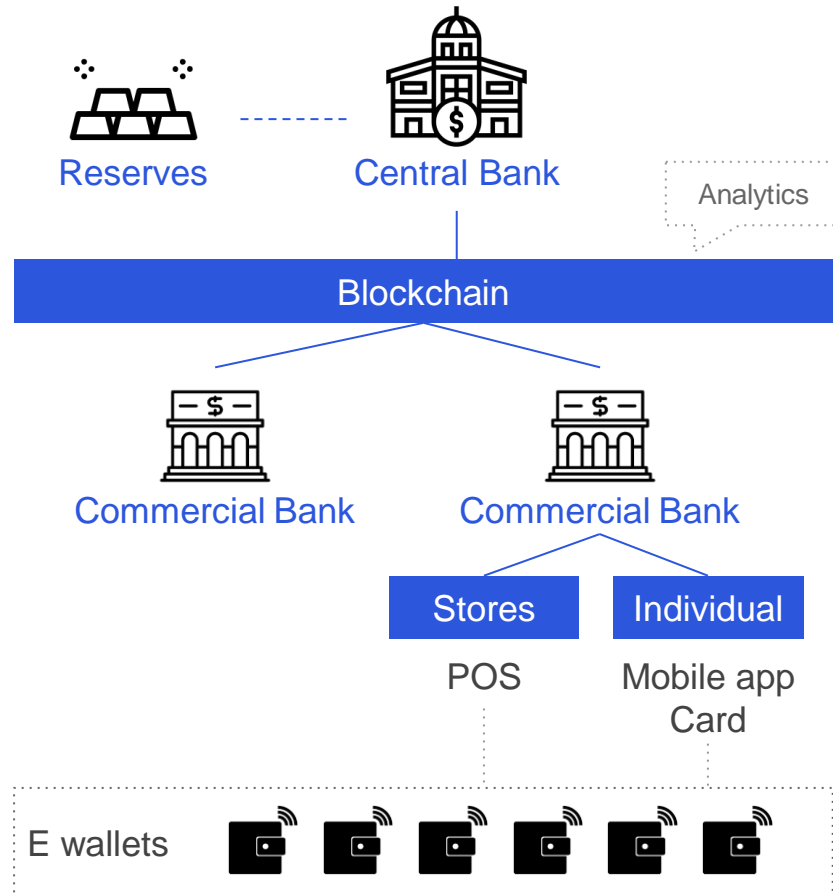
## Wholesale features, solely accessible to regulated entities

- Financial assets atomic settlement
- Configurable money system
- Cross border payments

Reinvent Capital Markets and Asset Management



Central Banks



## Retail features, widely accessible

- Payment system diversification
- Programmable money
- Foster digital innovation with new products and services for end users

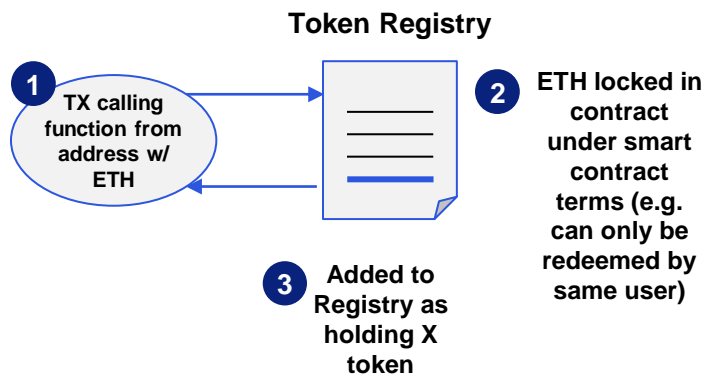
Reinvent retail payments



Central Banks

# Delivery vs Payment (DvP) Mechanic Options on Ethereum

## DvP using ETH

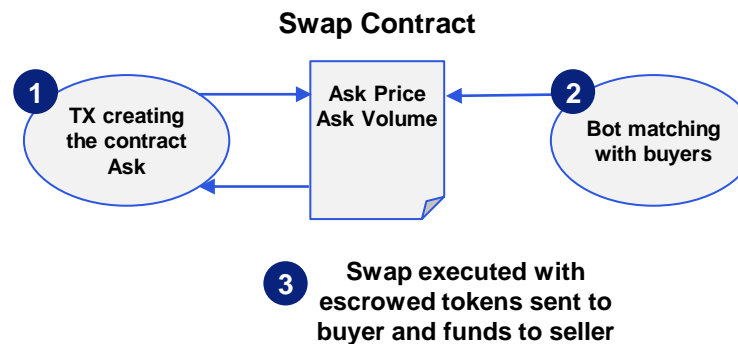


If the native token of “ETH” is considered a payment token of value, then the simplest DvP occurs when buying exposure to ERC-20 tokens.

The user sends a TX directly to the smart contract which updates the registry and stores the ETH in that contract.

In DeFi, there are more contracts involved to pay dividends, but it ends up being a similar “Total Value Locked” metric for getting exposure to tokens.

## DvP between two tokens (Swap)

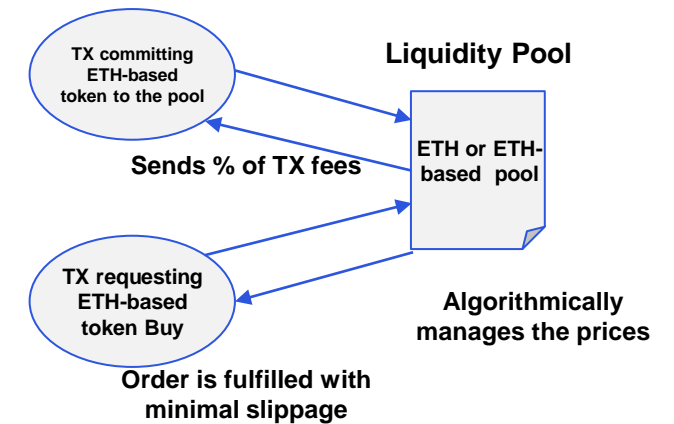


A static swapping contract (e.g. Liquidity) would create a new contract that would escrow the token and has a static quote with set volume and price. This open ticket would be fulfilled through an off-chain bot that fulfills the order for another user.

The advantage to Liquidity is the ability to perform these actions across different blockchains by having identities providing liquidity to fulfill the TXs on both networks.

The disadvantage is in price slippage and need for escrow of the asset for it to be fulfilled.

## DvP with an AMM (Aggregator)



Automatic Market Maker (AMM) contracts manage Liquidity pools of committed ETH-based tokens. The AMM contract will aggregate best prices and assist with the full swap.

The Liquidity pools are pre-committed with tokens that incentivize the ETH providers with trader fees received from executing the swap

# Blockchain use cases and convergence

## Traditional Banking Institutions

- Reduce high fees for international payments
- Reduce internal costs in the banking system
- Include non swift connected institutions
- Reduce KYC time and cost
- Leveraging Digital experience

Operational Benefits & Consortia

## Fintech/ Techfin

- Allow for international payments and remittances
- Allow for access to additional goods and services (e-commerce)
- Leverage existing digital identities
- Customer stickiness to upsell financial services insurance, health and global trade

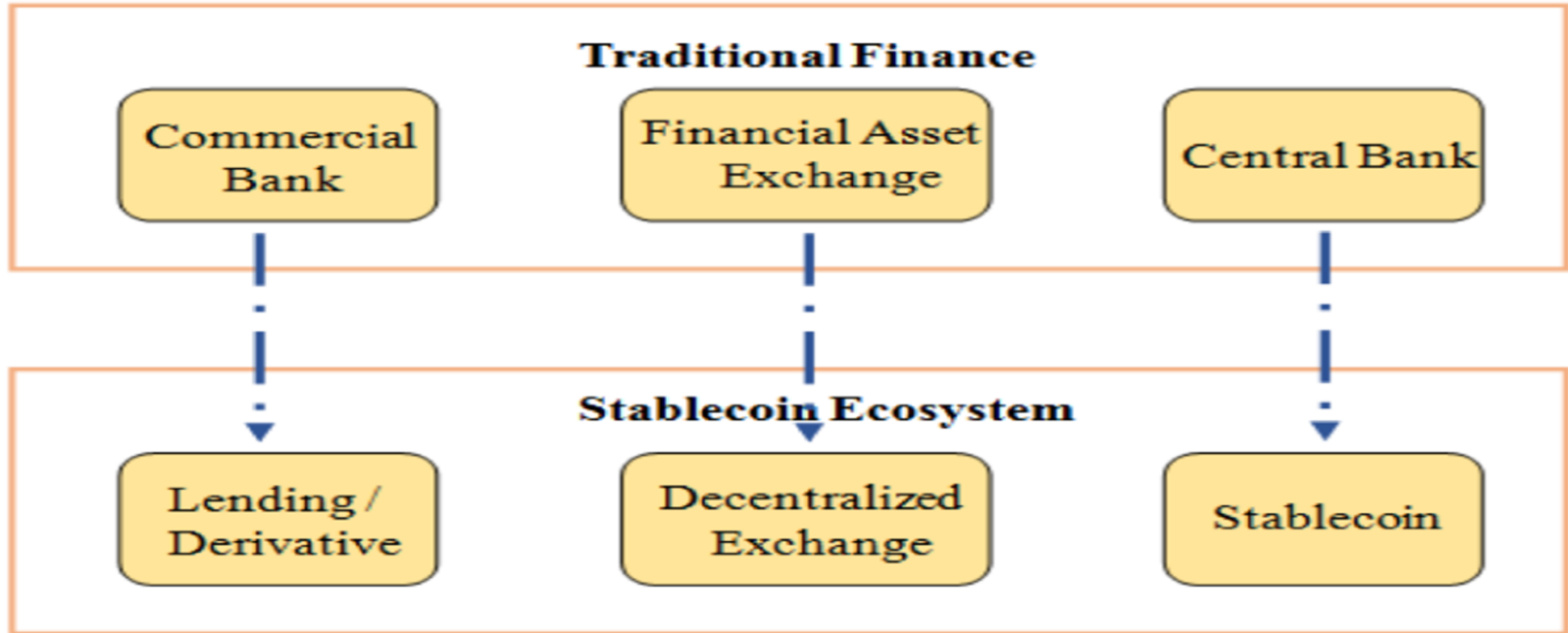
Dapp Store Potential

## Defi

- Access to interest rate exposure & non intermediated asset management
- Crypto Lending & Borrowing and Margin trading
- International payments and stablecoins
- Decentralized Exchanges, DeFi Infrastructure & Dev
- Insurance, Marketplaces, Derivatives, Staking, Tokenization of Assets

New Bespoke Financial Products

DeFi (Decentralised Finance) is building a new financial system  
Build on technical code vs built on trust



# Why is DeFi Incredibly Interesting?

DeFi enables a set of **arbitrarily composed** and **atomically executed** interactions with **self-sustainable economic abstractions**, each of which operates in a **predefined** and **tamper-proof** fashion and has **liveness**.

## Economic Abstractions

Rather than using counterparties, the abstraction allows for:

1. Predefined set of **formal rules** encoded in smart contracts
2. **Tamper-proof** code
3. **Liveness** responding to every query within reasonable time frame
4. **Self-sustainable** stability of operation

## Composability

Connecting abstractions patterns can be built with new end-to-end TX analysis. There's streamlined interaction that couples DeFi instruments together.

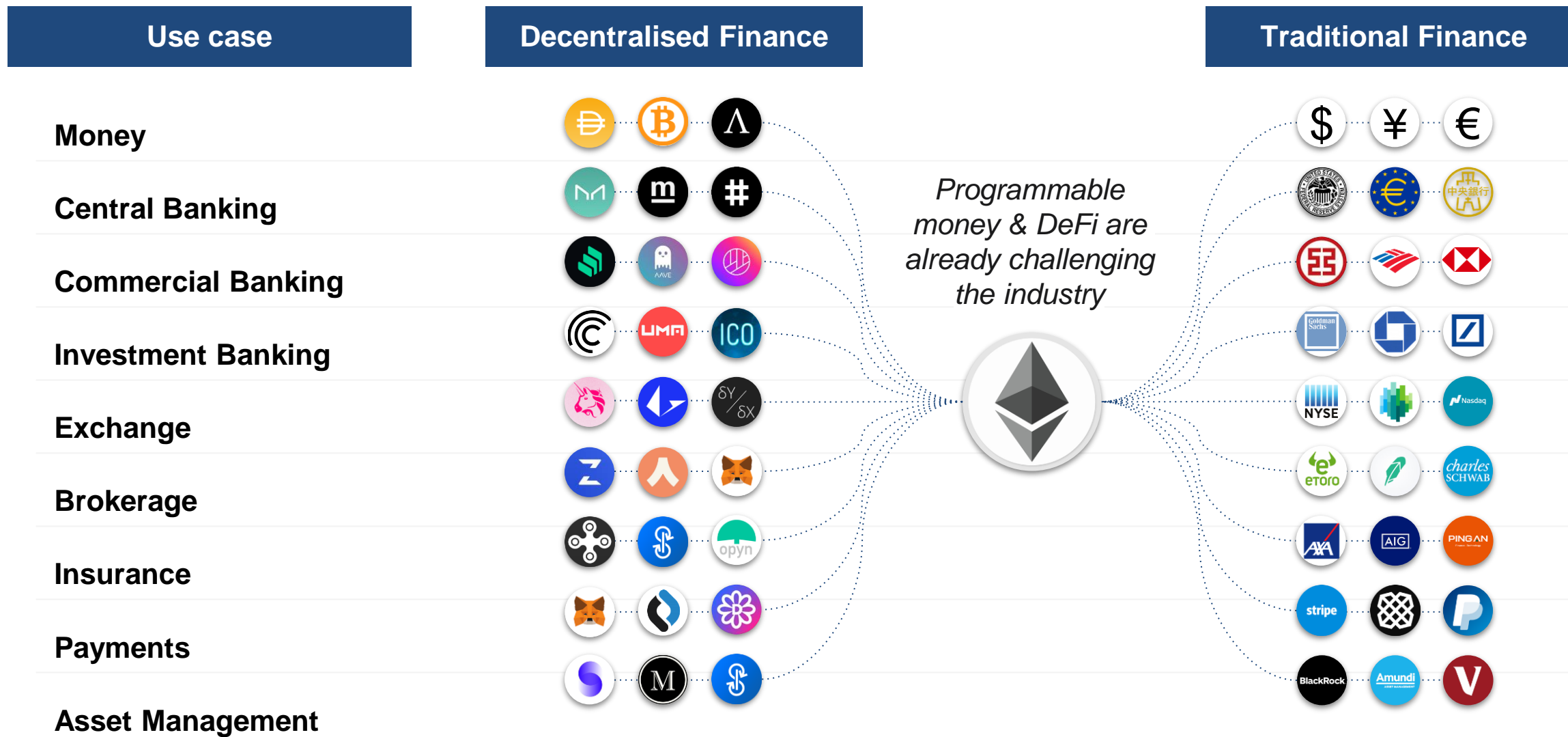
1. New business models at low integration costs
2. Similar instruments can be grouped and presented into packages

## Atomic Execution

Guaranteed complex TX batching and processing with full success or full fail with state reversion.

Feature removes most of the uncertainty when a trader is presented with an arbitrage opportunity (risk is only in the network fee).

# ConsenSys is in-between the Enterprise world and the fast growing innovation happening in the public blockchain world



# UNISWAP (DeFi)

# COINBASE(CeFi)

@ 4/2021

- 1.25M users
- \$6B total value locked
- \$92B trading volume
- \$276M net income
- Valuation \$ 16B

- 56M registered users, 30% up from Q4 2020
- \$223B in assets on the platform, 148% up from Q4 2020
- \$335B in trading volume
- \$730-800M in net income
- Valuation pre listing \$ 100B
- \$1.8B in total revenue, up over 200% from \$585M last quarter, and surpassing its entire 2020 annual revenue of \$1.3B.



# Bridges are being built

---

**NYSE:**  
**2800 trading pairs in 228 years**



**Uniswap v2:**  
**36,000 trading pairs in 1 year**



# Bridges are being built

EXCLUSIVE **DEFI**

## Aave has been granted an Electronic Money Institution license by the U.K. Financial Conduct Authority

 by **Michael McSweeney**

[Download PDF / Print](#)

August 24, 2020, 12:00PM EDT · 2 min read

THE BLOCK

## Singapore bank DBS starts currency and crypto exchange

City-state moves forward on digitization to cement financial hub status



DBS' new digital exchange will allow for trading in Singapore dollars, U.S. dollars, Hong Kong dollars, Japanese yen and four cryptocurrencies. © Reuters

DYLAN LOH, Nikkei staff writer  
December 18, 2020 20:48 JST

Story from **Business** →

## Swiss Exchange SDX Joins Enterprise Ethereum Alliance, Looks Beyond R3 Corda

"You cannot ignore the Ethereum ecosystem as a driver of digital asset flow," said SDX chief Tim Grant.



A SDX logo sits in the entrance hall of the SDX Swiss Exchange AG in Zurich. (Stefan Wermuth/Bloomberg via Getty Images)

# TradFi exploring DeFi - SocGen

## [Security Tokens Refinancing] MIP6 Application for OFH Tokens

■ Collateral Onboarding ■ Collateral Onboarding Applications (MIP6) ■ collateral-app



SylvFromSG-Forge

1 6d

Dear MakerDAO Community,

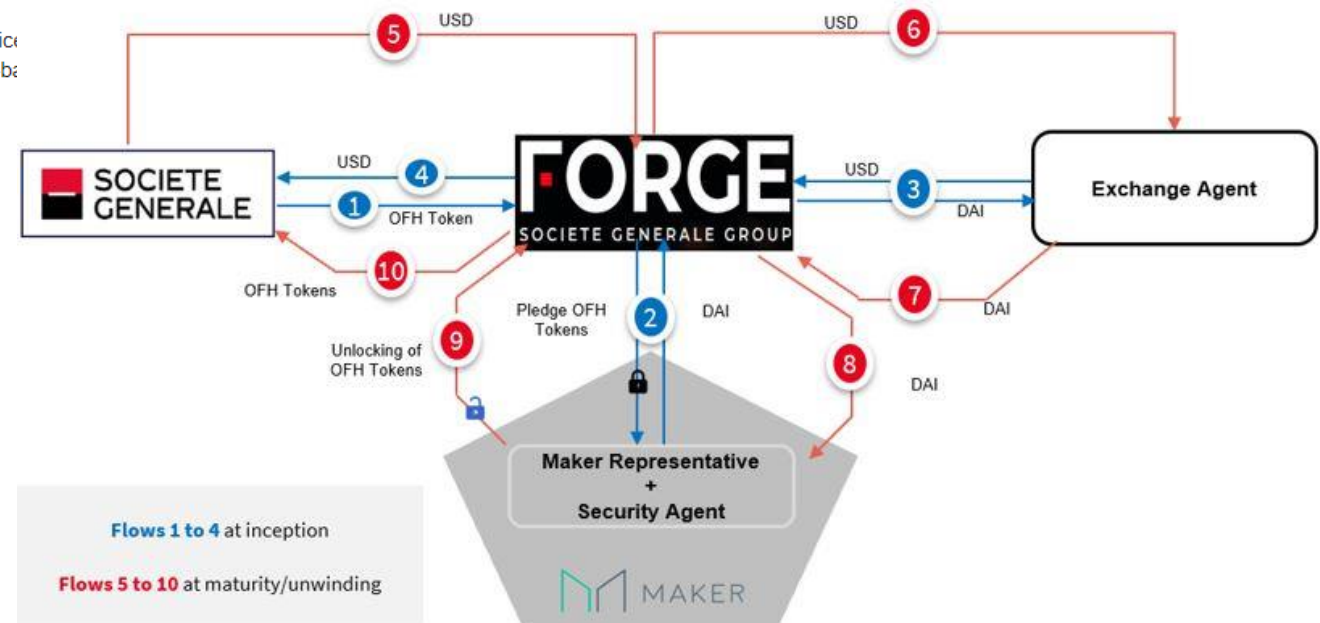
We submit to you, on behalf of European investment firm Societe Generale-Forge, this MIP6 application for discussion and approval of Security Tokens refinancing. This first experiment at the crossroads between regulated and open source initiatives, as described below, is intended to refinance a Covered Bond Token that has been issued last year on the Ethereum public blockchain. We let you take into consideration all the details, and we look forward to receiving your feedback. Thank you.

### 1. Who is the interested party for this collateral application?

Societe Generale – Forge (“SG – Forge”) is a regulated subsidiary of Societe Generale (“SG”) lic as an investment firm under MiFID 2 regulation, and dedicated to digital assets and blockchain-b: projects.

Oct 1

1 / 28  
Sep 30



# Digital post-trade platform D7 enables end-to-end digital securities processing-Deutsche Börse

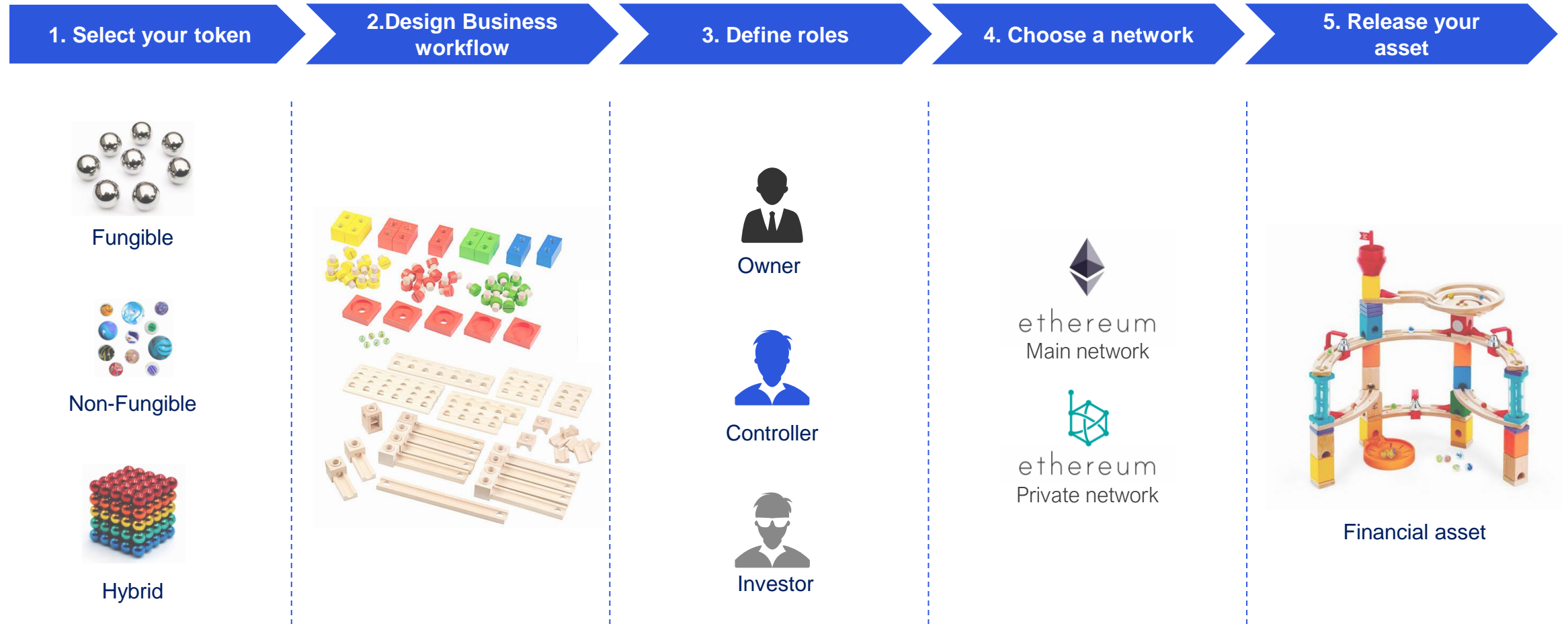
- Deutsche Börse plans to launch a regulatory compliant, fully digital post-trade platform called D7, anchored in the recently introduced German digital securities law framework.
- The D7 platform paves way for same-day-issuance and paperless, automated straight-through processing for the entire value chain of issuance, custody, settlement, payment and asset servicing for digital securities. As of mid-2022, over 80 per cent of German securities will be digitisable via D7, fostering digitisation of the German and European financial markets
- “It’s time to reinvent post-trading altogether for a stronger, more sustainable and digital future of securities markets.” Stephan Leithner, member of the Executive Board of Deutsche Börse

# The innovator's dilemma-Harvard professor Clayton Christensen

---

- Businesses that listen too closely to customer feedback can easily fall into the trap of stagnation, even though they reacted directly to what their consumers wanted
- American businessman Henry Ford summed this up perfectly when he purportedly said:“If I had asked people what they wanted, they would have said faster horses.”
- Businesses are constantly faced with two choices - they can either continue doing what they know is currently working well, or adopt disruptive advancements in an attempt to stay relevant. The predicament is faced by all companies, and is only going to intensify as innovative technology continues to expand.

# A highly configurable protocol for creating custom applications



# Core components of a Digital assets strategy execution

---

## 1. Technology:

- Digital asset **custody** in house or outsourced.
- In-house **token factory**. Tokenizing bonds, equity, currencies, carbon credits, utility tokens...
- **Internal blockchain** environment. Get ready for **global blockchain networks**.
- Work early on: **Borrowing & lending, Automatic Market makers, Internal settlement coins**.
- Favour **local initiatives** rather than global masterplans. The world moves are various paces.

## 2. People:

- **Train** exec & tech people. Online academy, mentors...
- **Define roles** to hire for this paradigm shift.
- Build an attractive **brand** for top talents in this field.

## 3. Business:

- **Join experiments** from central banks, stock exchanges, stablecoins projects.
- Identify **new topics and assets** which will start exclusively on the **new** digital asset **infrastructure**.
- Connect to other **banks projects** to learn faster, benefit from their network effects
- Identify markets where distribution will leapfrog (Thailand, Philippines, ...)

# Thank You!

[Monica.singer@consensys.net](mailto:Monica.singer@consensys.net)

