

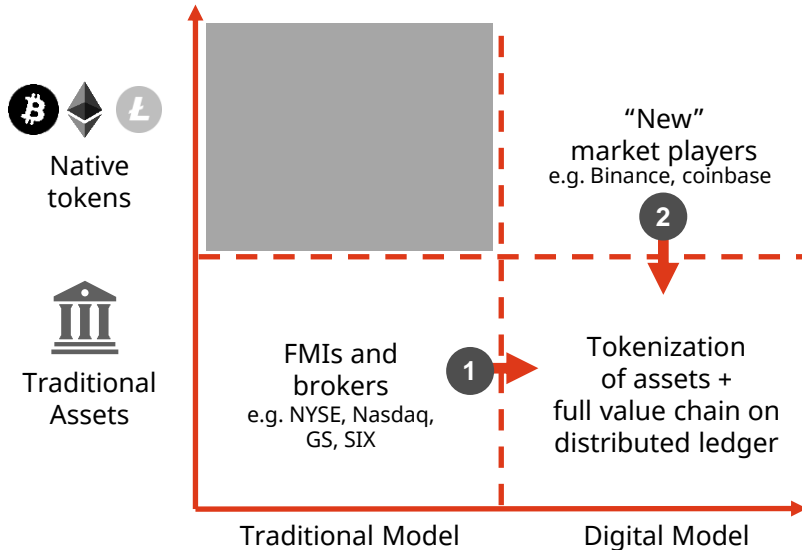


SPTC Update on DLT

SIX - Urs Sauer, ISSA Working Group Chair

“DLT – Principles for Industry-Wide Acceptance”

Observations on DLT developments























1 Incumbents (FMI & brokers, etc.) moves

- Bringing traditional market activity onto distributed ledgers
- Starting tokenization of assets and payments
- Aiming to achieve resource efficiencies and increased transparency and simplicity along the value chain

2 "New" market players moves

- Bringing public-blockchain assets to the traditional universe of investors
- Leveraging their digital market infrastructure and services for the traditional asset space threatening/disintermediating of incumbents business models

1 DLT plans by traditional market infrastructure players

Player	Announcement	Announced
 DEUTSCHE BÖRSE CASH MARKET  DEUTSCHE BUNDESBANK EUROSYSTEM	<ul style="list-style-type: none"> • Jointly develop prototypes for securities settlement based on blockchain technology • Prototypes support the settlement of securities transactions, payments, interest payments and repayments at the maturity of a bond 	Oct 2018
 ICE  NYSE	<ul style="list-style-type: none"> • Announced Bakkt, a global platform and ecosystem for digital assets including clients BCG, Starbucks, Microsoft and others • Combining regulated infrastructure with institutional and consumer applications to create open ecosystem that brings transparency and trust to unregulated markets 	Aug 2018
 MAS  SGX ANQUAN  Nasdaq Deloitte.	<ul style="list-style-type: none"> • Partnership to provide Delivery versus Payment (DvP) capabilities for settlement of tokenized assets across different Blockchain platforms • Will deploy Blockchain technology to efficiently link up funds transfer and securities transfer, eliminating both buyers' and sellers' risk in the DvP process 	Aug 2018
 SIX	<ul style="list-style-type: none"> • Will launch full end-to-end and fully integrated digital asset trading, settlement and custody service • SIX Digital Exchange ("SDX") will enjoy the same standard of oversight and regulation as current SIX FMI companies 	July 2018
 ABN-AMRO Clearing  Nasdaq  EuroCCP Make a difference  euroclear	<ul style="list-style-type: none"> • Developed a joint proof of concept to make the use of securities for margins calls more efficient, leveraging Blockchain or other DLT technology 	June 2018
 Nasdaq  citi	<ul style="list-style-type: none"> • Integrated payment solution using a distributed ledger on Chain's Blockchain technology • Nasdaq New York is supporting existing digital assets exchanges, and announced a technology deal (surveillance technology) with Gemini in April 2018 	May 2018
 Boerse Stuttgart	<ul style="list-style-type: none"> • Bringing cryptocurrency trading to the mass market by launching a zero-fee trading app • Smartphone app, called 'Bison,' will be free to use as of fall 2018 	Apr 2018
 DEUTSCHE BÖRSE CASH MARKET  HQLA ^x MAKING THE POWER OF LIQUIDITY  R3.	<ul style="list-style-type: none"> • Will release a Blockchain-based securities lending platform on R3's Corda Blockchain • Deutsche Börse also considers offering cryptocurrency related products to their customers 	Mar 2018
 Cboe [®]  CME Group	<ul style="list-style-type: none"> • Chicago's two largest derivatives exchanges started listing Bitcoin futures as a response to growing investor demand 	Dec 2017



② In parallel, new market players such as Binance and coinbase are entering the market for traditional assets



- Largest crypto currency exchange (based on trading volume) with expected profit up to USD 1bn in 2018
- Partnering together with Malta Stock exchange to create the world's first decentralized global stock exchange
 - Based on the Ethereum Blockchain
 - Allows companies in the EU to create tokenized securities called Equity Token Offerings
 - Enables companies to use the Blockchain to legally raise funds from customers

coinbase

- Bitcoin broker that provides a platform for traders to buy and sell bitcoin with fiat money, as well as Bitcoin exchange and wallet provider
- Continuously expanded its offering to cover the full value chain:
 - Acquired a broker license in the US in June 2018, allowing them to list ICO tokens.
 - Launched cold-storage and custodial service for digital currencies in July 2018, following the acquisition of three fintech companies
- Coinbase vision, COO
"Ultimately, we can envision a world where we may even work with regulators to tokenize existing types of securities, bringing to this space the benefits of cryptocurrency-based markets"

Beyond Binance and Coinbase, an estimated 500+ digital asset exchanges have already been established

A new ecosystem is developing



Findings in the most recent ISSA report

- Lack of trust in the integrity, safety and efficiency of the crypto-asset markets is a major obstacle to investment in them by institutional investors
- The missing regulatory and legal frameworks are re-enforcing the lack of trust
- Prevention of catastrophic loss of private wallet keys is a major obstacle
- Services by FMI's in a DLT environment can only be offered through a permissioned network

Findings in the most recent ISSA report

- FMI's definitively have a role to play in in a decentralized world:
 - Integrity of issuance process
 - Safe settlement (settlement finality challenge in a DLT environment)
 - Standardization
 - Interfacing with existing centralized infrastructures
 - New forms of governance and network operations
 - Regulated offerings
- Mutualization of compliance costs by FMI's (KYC, AML, Sanction Screening) and the risk reduction achieved with it could become a major benefit for our industry

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