

EXECUTIVE SUMMARY

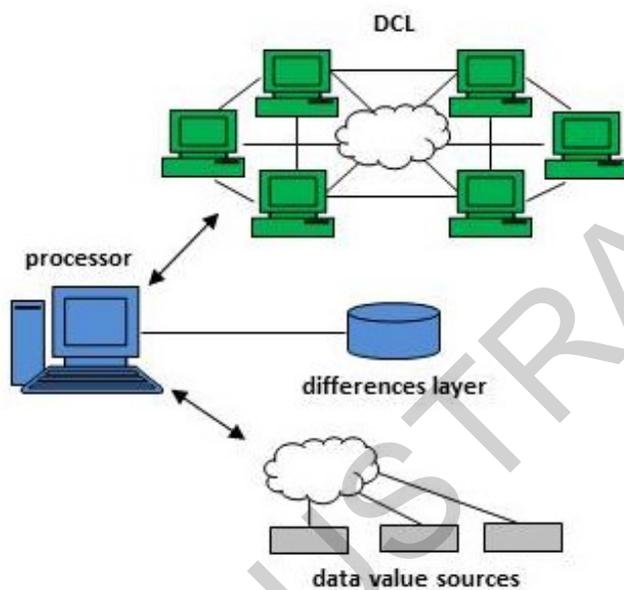
Financial exchanges are developing and launching hybrid ledger systems. Hybrid ledger solutions are enabling exchanges to introduce new products, develop new markets, and improve the operations of existing businesses.

In their efforts to replace LIBOR (the London Inter-Bank Offered Rate - the world's most widely used fixed-income index), exchanges and their partners are developing replacements based on actual transactions executed and re-reported on purpose-built blockchain systems.¹

Other intermediaries are applying hybrid ledger systems to address the efficiencies, costs, and transparency of asset securitization and loan trading.^{2, 3}

Other exchanges have launched "physically settled" cryptocurrency futures which employ hybrid blockchain architectures using combinations of distributed, decentralized, and centralized ledgers systems.

ILLUSTRATIVE APPLICATION



the figure illustrates a basic system with components which include:

- (i) a distributed computer ledger (DCL),
- (ii) a centralized or decentralized differences layer (DL),
- (iii) data values (DV) and data value sources (DVS), and
- (iv) a processor which executes inter-component operations

the diagram illustrates a basic system where:

- (1) a centralized (or decentralized) system operates as an order matching system (DVS),
- (2) the system executes trades, stores data, processes data, and produces published index values (DVS & DL),
- (3) each occurrence of a loan results in the minting (generation) of multiple tokens for transparency and efficiency (DCL),
- (4) the blockchain system aligns and links the tokens of its decentralized (or distributed) ledger to off-chain data (DCL), processor, DL, and
- (5) settlements and maturities extinguish or burn tokens (DL, DCL)

'797 UNIQUE BENEFITS

'797's technology enables products and systems where transactions and transaction records are maintained on a blockchain or alternative distributed ledger ("on-chain"), but where the processes and storage of critical descriptive and/or numerical values are maintained "off-chain". Traditional "smart contract" arrangements are built around "on chain" operations and "on-chain" external data calls which raise problematic storage, efficiency, and security concerns. '797 benefits include blockchain efficiency, system-wide security, data integrity, and the ability to properly validate, secure, and recreate books and records in a blockchain distributed system.

1. "Ethereum Alternative Now Challenges Bond Market Benchmark LIBOR", Forbes, Michael del Castillo, Nov. 19, 2019

2. "Figure closes first-ever mortgage securitization on blockchain", Mortgage Professional America, mpamag.com, Candyd Mendoza, Mar. 16, 2020

3. "Provenance Facilitates Securitization & Issuance of \$150M in Bonds", securities.io, Joshua Stoner Mar. 11, 2020

CURRENT AND PROJECTED SIZE

Industry experts expect hybrid blockchain solutions to bring material efficiencies to asset securitizations and loan trading; blockchain cost saving estimates for the U.S. \$3 trillion securitization industry are as high as \$30 billion.³

Hybrid and physical-settlement systems around cryptocurrencies are relatively new, but some of the largest exchange companies already have operating businesses. Like all other markets, the development and adoption of a "physical" futures market will be necessary for regular price discovery and proper regulation of cryptocurrencies.

ILLUSTRATION ONLY