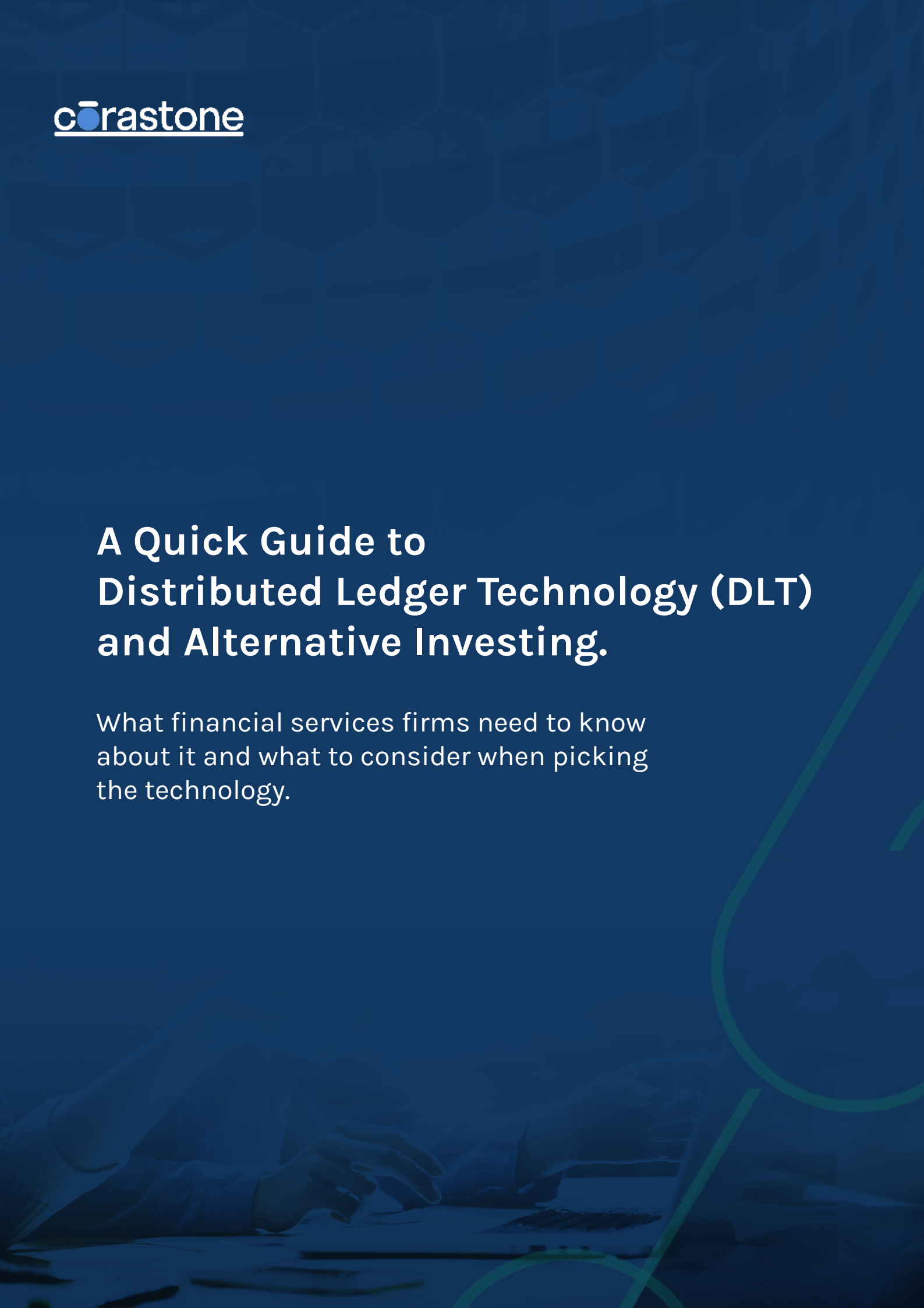
cōrastone

A Quick Guide to Distributed Ledger Technology (DLT) and Alternative Investing.

What financial services firms need to know about it and what to consider when picking the technology.



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Introduction

Investors Investors continue to demand more access to alternative investments. A recent study released by Bank of America showed that Eighty percent of young investors are looking to alternative investments, such as private equity, commodities, real estate, and other tangible assets. In addition, they allocate three times more of their investment portfolios to alternative strategies (16%) and half as

Alternative Strategies

16%

and half as much to

Publicly Traded Stocks

25%

much to publicly traded stocks (25%) than older investors (5% and 55%, respectivel).

However, the industry faces operational challenges to support the growing demand for alternative investments. High fees & limited access to the best-performing funds impact investor returns and tamper the demand from financial advisors and investors. Distributed Ledger Technology, a.k.a. Blockchain, offers an innovative way to solve the industry's current operational inefficiencies. However, as with any new technology, buzzwords, and an avalanche of 'tech' terms making decisions on the best version of Blockchain for your business can be daunting.

Let's take a look at:

- Basics of blockchain technology, the two types, key similarities & differences.

- What financial service businesses need to consider when picking between the technologies.

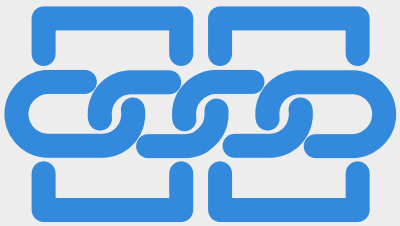
Sources
Bank of America Study

Basics of blockchain technology, various types, and key similarities & differences.

Blockchain is an advanced database mechanism (a shared ledger) that allows transparent information sharing within a business network—a blockchain stores data in cryptographically coded blocks and is linked together in a chain. The data is chronologically consistent because you cannot delete or modify the chain without consensus from the network. As a result, Blockchain creates an unalterable or immutable ledger for tracking orders, payments, accounts, and other transactions. Further, it has built-in mechanisms that prevent unauthorized transaction entries and create consistency in the shared view of these transactions.

There are two types of blockchain technologies:

Public/Open



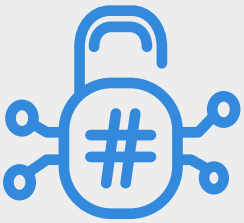
Private/Permissioned

Sources
What is Blockchain

Similarities

Uses Distributed Ledger Technology (DLT) for Record Keeping

A distributed ledger is the shared database in the blockchain network that stores the transactions, such as a shared file to which the network participants can contribute/write transactions. Distributed ledger technologies have strict rules about who can commit and contribute to the ledger. You cannot delete entries once they have been recorded.



Uses Cryptography & Hash Functions

Data on the Blockchain is stored in blocks. A hash function's literal 'function' is to create an output of the data stored in a block into a specific 'hash' or a long string of letters & numbers that represent the data. Hashes of the data cannot be reverse-engineered as it is incredibly complicated. Any attempt to alter the underlying data will result in a different hash, allowing anyone to verify instantly that the data has not been tampered with. This way, the actual data in the block is safeguarded.

Uses Smart Contracts

Companies use smart contracts to self-manage business contracts without the need for an assisting third party. They are programs stored on the blockchain system that runs automatically when predetermined conditions are met. They run if-then checks so that transactions can be completed confidently. For example, an issue or advisor can have a smart contract that automatically rejects a request to buy alternatives from a customer who is not eligible.

Differences

Private/Permissioned Blockchain

Closed

Permissioned Blockchains are dedicated networks where only designated & trusted parties can participate. In simple terms, you need PERMISSION to access the system.

Strong Privacy

Permissioned Blockchain offers strong privacy protection & security as participants need permission to access any transaction data or other records. An outsider cannot access or enter transaction information without being verified or granted permission.

Low Energy Consumption

Due to limited users, the networks require less computational power hence consume less energy.

Digital Asset Securities

Traditional securities are converted to digital asset securities and recorded on the distributed ledger when applied to alternatives.

Records of all transactions are held with the issuer & shared with transfer agents, custodians, advisors, and investors who have been granted permission to transact on the Blockchain. No private key is needed as the network operates using accounts vs. wallets. Hence, if investors lose access to the account/network, the record of transaction/ownership will still remain with the asset manager & all other parties on the network.

Public/Open Blockchain

Open

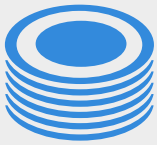
Public/Open Blockchain - anyone is free to join and participate in the core activities of the blockchain network. In simple terms, you DO NOT need PERMISSION to access the system.

Transparent

Less privacy & security due to the open nature. Transactions are transparent & transaction execution can be viewed by literally anyone with the software to read the ledger.

High Energy Consumption

Typically requires large amounts of computational power by so-called "miners" to verify transactions and generate hashes to commit the transactions to a block. However, newer data verification mechanisms require less consumption.



Tokens

When applied to alternatives, open blockchain networks issue tokens representing ownership of a security that functions like bearer form instruments. Investors access their wallets with the use of a private key. Loss of private key could lead to loss of the asset.

What financial service businesses need to consider while picking the technologies to help in digital transformation.

Does your business need to store historical investor data or financial or transactional data?

Typically, for most financial organizations, the answer is YES. For example, issuers need to maintain records of investors; transfer agents need to maintain records of transactions, advisors need to maintain records of their client's investments, and so on. Both private & public Blockchain offers the same immutable record-keeping capabilities & can transform back-office operations & gain efficiencies. The next step would be identifying which type of Blockchain best suits your business needs.

Does your business have data reconciliation needs?

Financial services firms that do not need to reconcile data or transactions with other businesses can use public blockchain networks, as the public Blockchain itself represents reconciled transactions that have been verified and added to the Blockchain by either proof of work or proof of stake consensus mechanisms. Permissioned Blockchain is better suited for businesses that need to reconcile with the data maintained in primary "books and records" systems that are not on the chain. All the participating organizations can maintain their own book entry records. The distributed ledger technology inherent in the permissioned blockchain networks provides the mechanism for each entity's records to be recorded on the Blockchain, thus allowing all participants to ensure that all transaction records are accurate and transparent.

As it stands in the world of alternative investing today, every financial services entity participating in the alts marketplace, namely issuers, transfer agents, custodians, and advisors, maintains their own book entry format records for ownership & transactions. These organizations are constantly struggling with reconciling the data from varied sources, with documentation often being classified as NIGO's (Not in good order) to meet regulatory requirements. Permissioned Blockchain is a great tool to solve this data reconciliation issue. Participating firms with access to the permissioned blockchain network can record transactions on the Blockchain while maintaining their own book-entry records, these records on the Blockchain can be shared with other participants on a need-to-know basis. This infrastructure provides transparency & immutable reconciliation of data vital for organizations operating in a heavily regulated environment.

Who needs to manage the network & what are your privacy requirements?

Open/Public Blockchains are an excellent choice for institutions that do not want to manage the network and want uninterrupted public participation. Public blockchains are open to everyone, and anyone can participate, which is why it has been adopted by financial services firms offering cryptocurrencies, as the goal here is mass adoption.

Closed/Permissioned Blockchains are a better choice for firms who need to control who participates in the network & what information is shared. Typically firms dealing in alternative investing require customers to meet specific criteria to be eligible to invest; for example, they need to be accredited investors. Firms must also adhere to compliance mandates set by Federal Agencies, and SRO's and comply with Blue Sky Regulations. This sort of gatekeeping can be achieved with permissioned blockchain networks where only known participants can access the network.

What level of security is needed?

Open blockchains facilitate transactions with the use of public & private keys. Assets are held in a wallet. A wallet is more like a keychain than a wallet, as no coins are actually held in the wallet; instead, it holds a customer's private key, which is linked through cryptography to a public key. When customers want to access their assets on the open blockchain network, they use their private key from their wallet and match it with the public key. If customers lose their private key, they lose access to their assets. This is similar to other traditional bearer form financial instruments like stock certificates.

Private/Permissioned blockchains facilitate transactions using accounts rather than wallets because only known participants can participate in the network; hence participants need to provide certain information to open an account, the same way one would open a bank account. This is useful for firms dealing with alternatives as they need to maintain KYC & AML requirements. Furthermore, using accounts instead of keys allows customers to regain access to their accounts if they forget a password. The business entity maintaining the network can verify its identity and help them regain access. Just like in the case of online banking today.

Can blockchain, tokenization & other digital tools solve the capital markets' liquidity issues?

No, blockchain technology & tokenization, which is a byproduct of the technology, cannot solve liquidity issues stemming from the market's structure or the financial products. However, they can help create more efficient markets and allow more access for investors as they solve the operational issues that currently make investing in alternatives hard. For example, some of today's barriers to entry are paper-based subscription docs and high fees resulting from operational inefficiencies.

To understand why, let's understand what tokenization is. A token is a wrapper around the asset that represents the asset on the Blockchain. A wrapper around a piece of candy represents what type of candy you are buying. The wrapper's sole responsibility is to show you what kind of candy you will get via images, logos, colors, and branding. Similarly, the token on the Blockchain can only be used to represent a share or stake in an asset; it cannot make your underlying asset any more liquid as it cannot change the nature of the underlying asset. For example, suppose the token bought by the investor represents a share in a fund whose terms & conditions indicate a $100000 minimum buy-in and a hold period of 10 years. The wrapper/token cannot influence or change those underlying terms & conditions. All it does is represent the fund you bought into with its inherent terms and conditions, which may or may not be liquid. The wrapper in the case of the candy & the token in the case of the asset on the Blockchain is just a tool to help represent something under it that is more complex.

Does blockchain technology require me to change all my business & operational processes?

No, it's up to each individual business to decide its internal processes & procedures and can pick and choose which business problem would be best solved or which process would be better improved using blockchain technology as a tool. For example, blockchain technology can be used for better record-keeping & back-office operations, and CRMs like salesforce can be used for sales-related functions. The two can be linked via API to ensure accurate record-keeping.

Secondary market trade in alternatives is only possible if tokens are used?

No, Stocks trading on the NYSE today have no certificates or tokens to represent the trade, yet in H1 of 2022, the market average daily volume was 38.3M contracts. The records of these transactions & contracts are digital and are held with NYSE. Blockchain technology can provide this infrastructure, and tokenization is one way to execute trades, but it's not the only way.

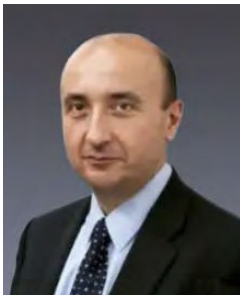
Sources:

Bank of America Study

What is Blockchain

NYSE

Authors



Rashad Kurbanov - CEO and Co-Founder

Rashad has 24 years of experience in the financial services industry. Prior to starting Corastone, Rashad held progressively more senior roles at the largest financial services firms, including Merrill Lynch, UBS, JP Morgan Chase, and Barclays Capital.

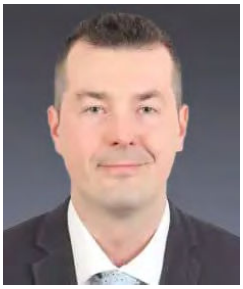
Co-Authors

Greg Dillard - Head Of Customer Support & Operations

Greg has over 20 years of experience and has served in a variety of roles spanning Technology and Operations at PWC, JP Morgan, and AIG. In his current role Greg works closely with our clients to ensure successful implementation and support.

Hamid Gayibov - CBDO & Co-Founder

Hamid has 23 years in the financial markets, focusing on M&A and private placements. Prior to Corastone, Hamid worked at JPMorgan, BPand Xenon Capital Partners.



Viktor Nikolenko - Chief Technical Officer

Viktor has over 20 years of experience. Before Corastone, he led e-commerce services development for Danish market with goldenplanet.dk, enterprise integration for SWIFT and design and implementation of enterprise blockchain systems with Intellecteu.