



BLOCKCHAIN & FINANCIAL SERVICES

ABOUT

A brief history of Blockchain and summary of how it works including benefits and limitations. Review of financial services companies that are actively using this technology.

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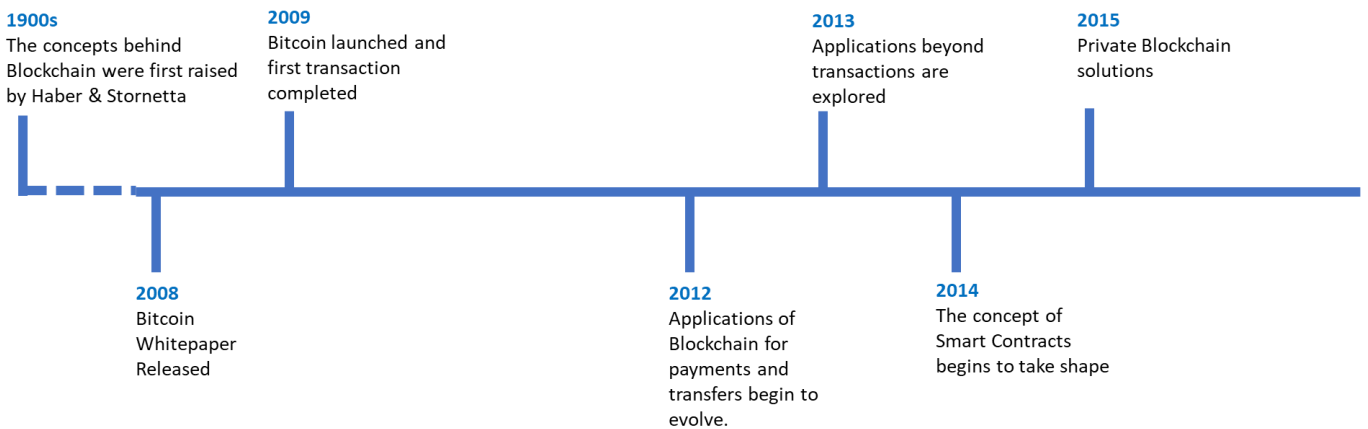
Simplify Consulting

Blockchain & Financial Services

One of the key talking points at Simplify Consulting is Blockchain, the technology, its growth and the impact it is having on Financial Services and the opportunities it presents. Below is a simple summary of Blockchain, which talks about how it came about through to the many companies embracing the technology to support the Financial Services industry.

A brief history

Blockchain came out of the development of the Cryptocurrency Bitcoin, by a person or group using the pseudonym Satoshi Nakamoto, initially as a solution for a digital ledger. It provides a mechanism where timestamps can be recorded, but not tampered with.



The application of Blockchain technology is currently being considered by firms in many industries but particularly Financial Services, where significant back-office efficiencies could be realised. However, adoption of Blockchain and Distributed Ledger Technology remains relatively small.

What is a Blockchain?

The common description is that a blockchain is a public digital ledger which distributes digital information across many nodes (computers), so that it cannot be altered. However simply described, a Blockchain is just a chain of blocks of information. This allows for transactions to be verified and audited with a high level of confidence.

One party to a transaction creates a block which is verified by the nodes distributed throughout the network. The verified block is added to a chain, which is stored across the entire network, creating a record with a unique history.

William Mougayar, a Blockchain specialist provided the following description of Blockchain using Google Docs as an analogue.



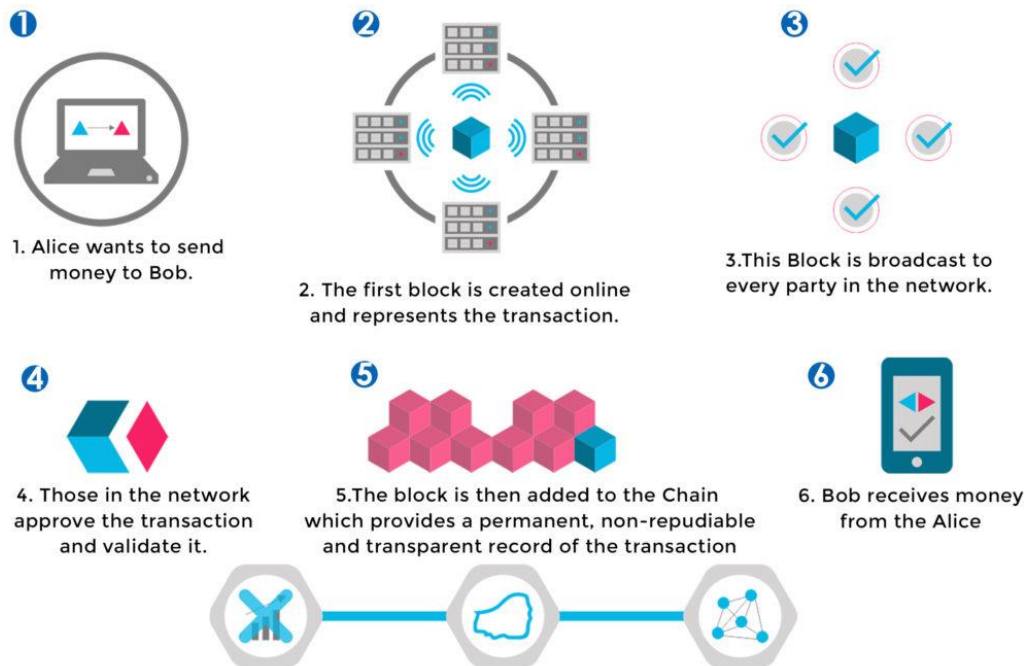
The traditional way of sharing documents with collaboration is to send a Microsoft Word document to another recipient, and ask them to make revisions to it. The problem with that scenario is that you need to wait until receiving a return copy before you can see or make other changes, because you are locked out of editing it until the other person is done with it. That's how databases work today. Two owners can't be messing with the same record at once. That's how banks maintain money balances and transfers; they briefly lock access (or decrease the balance) while they make a transfer, then update the other side, then re-open access (or update again).

With Google Docs (or Google Sheets), both parties have access to the same document at the same time, and the single version of that document is always visible to both of them. It is like a shared ledger, but it is a shared document. The distributed part comes into play when sharing involves a number of people.

You don't need a blockchain to share documents, but the shared documents analogy is a powerful one.



HOW BLOCKCHAIN WORKS?



Note: Transactions are not valid until added to chain. Tampering is immediately evident. The Blockchain is regarded as safe as everyone in the network has a copy. The source of any discrepancies are usually evident immediately.

Source - <https://www.devteam.space/blog/how-to-use-blockchain-technology-for-identity/>

Distributed Ledger Technology

Distributed ledger technology, or DLT as it is commonly referred to, is the broader technology that Blockchain belongs to. DLT is where a ledger is decentralized and all participants within the network can access the information.

Blockchain is a form of Distributed Ledger but differs from other types as it is structured in to blocks that are added but cannot be edited and are therefore completely Decentralised.

What are the benefits?

Information held on a blockchain exists as a shared, and continually reconciled database. The blockchain database isn't stored in any single location, meaning the records it keeps are transparent and easily verifiable. Hosted by millions of computers simultaneously, its data is accessible to anyone on the internet.

There are several ways blockchain is more secure than normal record-keeping systems.

- Transactions must be agreed upon by consensus before they are recorded. As no centralised version of the information exists, it is very difficult for a hacker to corrupt.
- After a transaction is approved, it is encrypted and intrinsically linked to the previous transaction. Therefore, a fraudster would need to amend not just one record, but the record of every transaction which preceded it, meaning that to falsify a single record someone would be required to alter the entire chain.
- Information is stored across a network of computers instead of on a single server, making it very difficult for hackers to compromise the transaction data.

When exchanges of goods are recorded on a blockchain, you end up with an audit trail that shows where an asset came from and every stop it made on its journey. This historical transaction data can help to verify the authenticity of assets and prevent fraud.

For most businesses, reducing costs is a priority. With blockchain, you don't need as many third parties or middlemen to make guarantees because it doesn't matter if you can trust your trading partner. Instead, you must trust the data on the blockchain. You also won't have to review so much documentation to complete a trade because everyone will have permissioned access to a single, immutable version.

The opportunities

Currently, finance offers the strongest use cases for the technology. Some examples are:

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- International Bank Transfers - Blockchain potentially cuts out the middleman for these types of transactions. Personal computing became accessible to the general public with the invention of the Graphical User Interface (GUI), which took the form of a “desktop”. Similarly, the most common GUI devised for the blockchain are the so-called “wallet” applications, which people use to buy things with Bitcoin, and store it along with other cryptocurrencies.
- The potential for added efficiency in share settlement makes a strong use case for blockchains in stock trading. When executed peer-to-peer, trade confirmations become almost instantaneous (as opposed to taking three days for clearance). Potentially, this means intermediaries — such as the clearing house, auditors and custodians — get removed from the process, saving Asset Managers in the region of \$2.7bn per year
- Distributed ledgers enable the coding of simple contracts that will execute when specified conditions are met. At the technology’s current level of development, smart contracts can be programmed to perform simple functions. For instance, a dividend could be paid out automatically when a financial instrument meets certain benchmark.
- Anti-money laundering (AML) and know your customer (KYC) practices have a strong potential for being adapted to the blockchain. Currently, financial institutions must perform a labour intensive multi-step process for each new customer. KYC costs could be reduced through cross-institution client verification, and at the same time increase monitoring and analysis effectiveness.

What are the limitations?

Blockchain is a Foundational Technology not a disruptive technology. It is not like traditional Fintech, targeting a traditional business problem with a lower-cost solution. Instead blockchain has the potential to create new foundations for our systems. The process of adoption will be gradual and steady, not sudden, as waves of technological and institutional change gain momentum.

Due to its distributed nature, Blockchain suffers from low processing speeds. There is currently no Blockchain network in large enough to sustain the number of transactions the major card issuers like Visa or MasterCard process every day. As of late 2016, it can only process about seven transactions per second, compared to the 50,000 per second Visa currently process

Private Blockchains

Both Public and Private Blockchains, commonly referred to as Permissioned Blockchains, are decentralised peer to peer networks, which maintain replicas of a digital ledger and where

updates require a consensus. A Private Blockchain is different from a Public Blockchain in that its participants are restricted and can take part by invitation only, whereas a Public Blockchain is open for anyone to join

It is fair to say that many companies are investing in or piloting the use of Blockchain technologies, running tests to prove the processing of transactions and trades.

Where is Blockchain being used?

Here are some examples within Financial Services where blockchain technology is being actively used:

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Exchanges:

Numerous stock and commodities exchanges are prototyping blockchain applications for the services they offer, including the ASX (Australian Securities Exchange), the Deutsche Börse (Frankfurt's stock exchange) and the JPX (Japan Exchange Group). Most high profile because the acknowledged first mover in the area, is the Nasdaq's Linq, a platform for private market trading (typically between pre-IPO startups and investors). A partnership with the blockchain tech company Chain, Linq announced the completion of its first share trade in 2015. More recently, Nasdaq announced the development of a trial blockchain project for proxy voting on the Estonian Stock Market.

Bankorus:

Bankorus provides a crypto wealth management solution for high net worth individuals to ensure that their investments in crypto-assets are secure and managed properly. Their platform is a private wealth management platform powered by AI and built on blockchain.

Calastone:

In May 2019 Calastone will be launching its blockchain-enabled '*distributed market infrastructure (DMI)*' which will digitise order management and settlement of Mutual Funds.

Overnight the DMI will become the largest Blockchain community. The Proof of Concept has proven the performance capabilities that enable the processing of transaction volumes and fund flows to be many times greater than are expected today, demonstrating scalability of the new infrastructure.

Santander:

Santander was the first bank in the UK to use blockchain to transfer live international payments through a mobile app. The solution uses technology provided by Ripple, the creator and developer of the blockchain -based Ripple payment protocol and exchange network. Payments of between £10 and £10,000 can be made at any time of day. Funds will appear in the recipients account the next working day so the wait for international payments to be processed is over.

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Prudential:

Prudential has teamed up with Singapore telco StarHub to launch a blockchain-based digital trade platform for small and medium-sized enterprises (SMEs). With the new platform – called Fasttrack Trade (FTT) – SMEs will be able to find business partners and distributors, make payments and track goods, as well as buy insurance.

The partnership will see StarHub offering business customers access to services over FTT, with Prudential providing insurance options. Alternative financing options will also be made available via peer-to-peer lender Funding Societies.

BNP Paribas:

BNP Paribas Asset Management successfully completed a full end-to-end fund transaction using blockchain technology.

The test was conducted by leveraging on BNP Paribas Securities Services' blockchain programme, PlanetFunds

and FundsDLT, a blockchain based decentralized platform for fund transaction processing, which has been developed through collaboration between Fundsquare (a subsidiary of the Luxembourg Stock Exchange), InTech (a subsidiary of POST Group) and KPMG Luxembourg.

The test demonstrated that PlanetFunds is able to connect with other blockchains, opening the door to a new model of interoperability and marks a key milestone for fund distribution. The transaction included each part of the fund trade process, from delivery of the order to the processing of the trade.

FNZ / Big Issue:

Platform technology provider FNZ has supplied the blockchain system powering The Big Issue's new impact investment platform.

The Big Exchange platform will offer funds from fund managers, including Aberdeen Standard Investments Columbia Threadneedle, Alliance Bernstein and Alquity.

Big Issue Invest says the platform will bring social and environmental funds direct to retail consumer for the first time.

How will blockchain impact you?

As these examples testify and at time of writing, businesses are taking blockchain and Distributed Ledger Technology seriously. Many companies not just within Financial Services are exploring innovative ways to apply the technology. There will be growth and opportunity for many but in

some areas added efficiency could see intermediaries and custodians being cut out of the process.

As we see organisations develop and integrate blockchain technology, who will be the winners and who will be the losers? How will blockchain impact your business? We would appreciate your comments.