WHAT IS BLOCKCHAIN TECHNOLOGY?

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ADVOCATES

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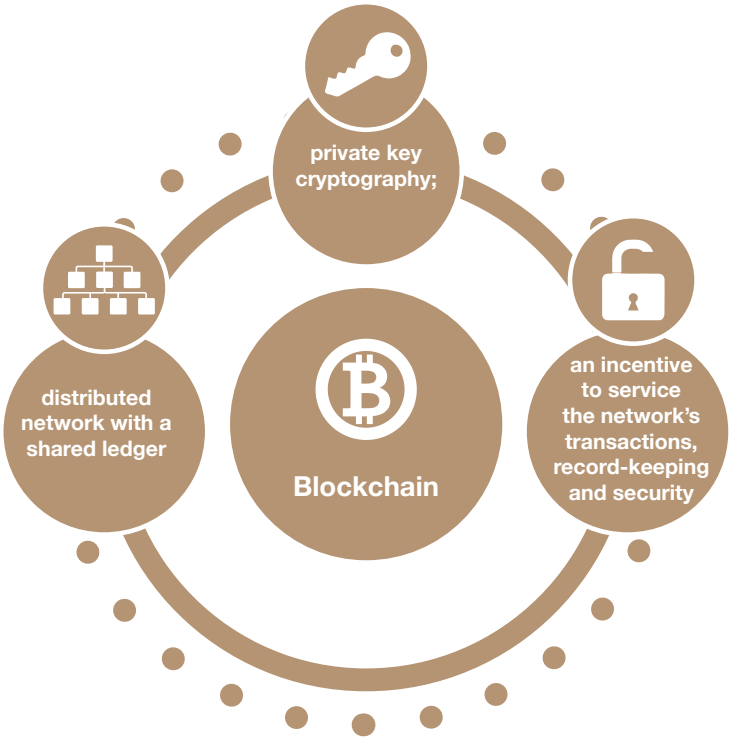
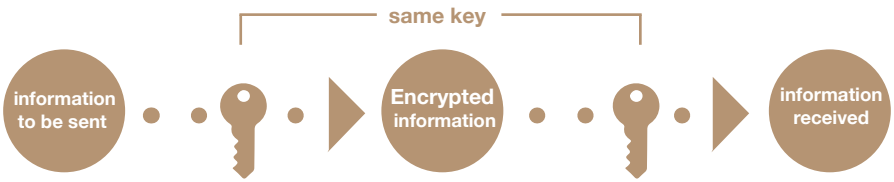
The most suitable definition is “digitized trust”. Blockchain is a secured and reliable distributed ledger technology, operating on a peer-to-peer network to be validated without the need for an intermediary, thus ensuring traceability and transparency.

It is also the most relevant definition today since we live in a time when counterparties trust each other less and less and the trust gap needs to be bridged. Blockchain technology is one of the most intriguing technologies currently on the market. It has received a lot of attention in public spheres and in the media. Some enthusiasts claim that blockchain is the biggest invention since the emergence of the internet.[1]

Similar to the rising of the internet, blockchain has the potential to truly disrupt multiple industries and make processes more democratic, secure, transparent, and efficient. Entrepreneurs, start-up companies, investors, global organisations and governments have all identified blockchain as a revolutionary technology.[2]

Bitcoin is a cryptocurrency which many believe can be traced backed to Satoshi Nakamoto in 2008. Bitcoin is just one of the examples of how blockchain technology has successfully used such technology. However, blockchain’s potential uses extend far beyond digital currencies. A number of analysts believe that blockchain technology has the potential to revolutionise most industries in the very near future.





There are three principal technologies that combine to create a blockchain. None of them are new. Rather, it is a combination of proven technologies applied in a new way. These technologies are:

[1] https://books.google.com.mt (Blockchain Basics: A Non-Technical Introduction in 25 Steps)
[2] https://blog.equinix.com/blog/2017/10/05/blockchain-a-new-type-of-internet/

(a) private key cryptography;

(b) a distributed network with a shared ledger; and

(c) an incentive to service the network's transactions, record-keeping and security.[3]

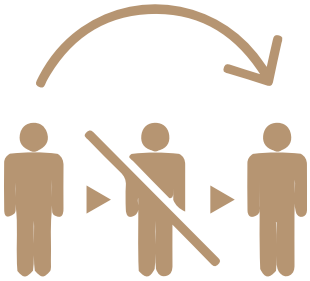
In basic terms, it is a combination of software and technology architecture capable of controlling the flow or transfer of assets to produce value. These assets can be tangible assets such as a car or house and intangible assets such as a loan, mortgage or insurance coverage.

Blockchains may either be:

(a) public or private - i.e. open to everyone or restricted to a defined group of users;[4]

(b) permissioned or "permissionless" – i.e. anyone can offer their services to add blocks to the chain or only a restricted group of users can do so.[5]

For example, Bitcoin functions on a public, permissionless model and hence experiences performance issues with new blocks taking a long time to be added to the chain.



Financial services applications of blockchain are based on a private, permissioned model which is less prone to performance issues, as the number of users can be controlled.[6]

Currently, investors and individuals use a trusted middleman such as a bank to make a transaction.[7] Blockchain allows consumers and suppliers to connect directly. The result is a system for digital interactions that does not need a trusted third-party. Blockchain makes use of shared ledgers to record transactions and to register and activate contracts. Thus, blockchain could also help to reduce fraud because every transaction would be recorded and distributed on a public ledger for anyone to see. The technology can work for almost every type of transaction involving value, including money, goods and property transfers.[8]

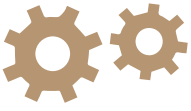
The following are just some of the benefits of blockchain:[9]

- **Immutability** - nothing on the blockchain can be altered save with the agreement of the network.

- **Permanence** - what occurs on the blockchain remains on the blockchain.

- **Removal of intermediaries** - the peer-to-peer nature of blockchain does away with the need of intermediaries and users interact directly with one another – i.e. reduced costs.

- **Automation** - with the elimination of intermediaries and the distributed ledger being updated in real-time by the miners, any data entered on the blockchain is transferred and stored automatically.



- **Decentralisation of consensus** - with no centralised authority acting as a clearing-house for

transaction authentication, the effort needed to reach agreement is shared between the miners. This results in a much faster process than a centrally-controlled ledger.

- **Near-impossible loss of data** - as every miner has a full copy of the ledger on their system, it is virtually impossible to lose the data stored on a blockchain.

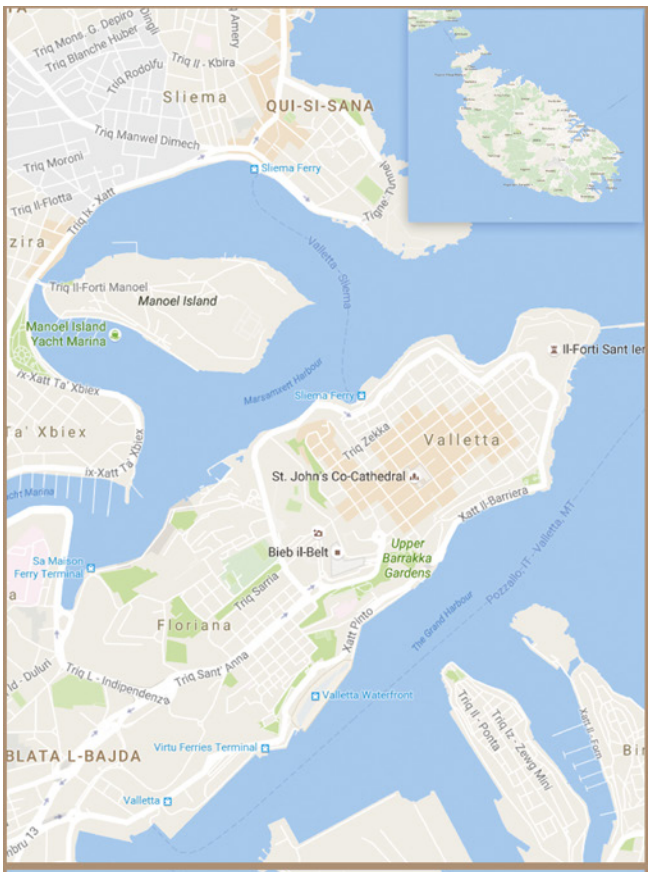
- **Transparency** - public blockchains can offer full transparency of the transactions carried out on the network while safeguarding the privacy of its users since only the transacting addresses are shown.

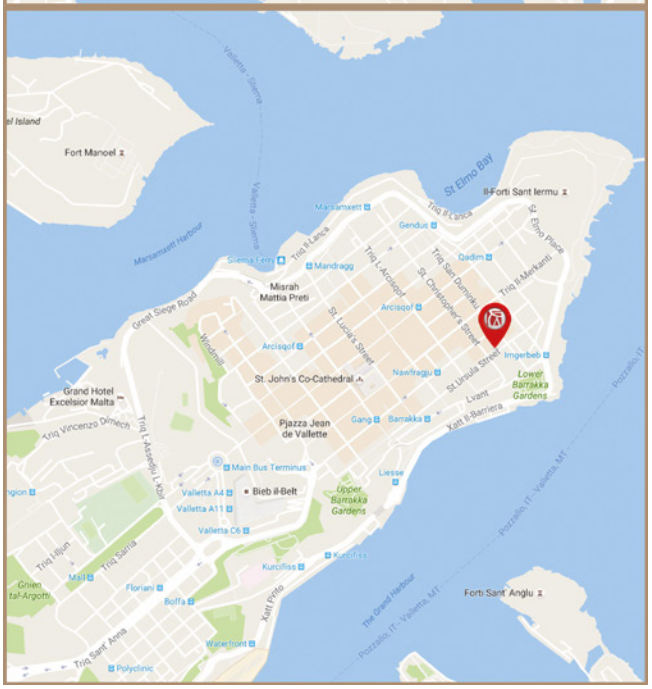
- **Solving the double-spend problem** - blockchain has solved a long-standing problem of virtual decentralised networks: how to ensure that a person cannot re-send the same data twice to different persons, also known as double-spending. Through peer-to-peer verification and the public ledger, double-spending is now a thing of the past.

- **Security (encryption through cryptography)** - neither the nodes nor anyone else in the chain (except for the sender and the recipient) can access the data sent through the blockchain.

Despite the benefits offered by blockchain, several challenges remain for the technology which will have to be resolved such as transaction speed, the verification process, and data limits which are crucial in making blockchain widely applicable. Also, while solutions for control, privacy and security exist, including private or permissioned blockchains and strong encryption, there are still cyber security concerns that need to be addressed before the general public will entrust their personal data to a blockchain solution. There are also integration concerns since blockchain applications offer solutions that require significant changes to, or complete replacement of, existing systems. Thus, in order to make the switch, companies must strategize the transition. Thus, while blockchain offers tremendous savings in transaction costs and time, however, the high initial capital costs could be a deterrent for companies to invest in.[10]

[3] https://www.coindesk.com/information/how-does-blockchain-technology-work/
[4] http://bitfury.com/content/5-white-papers-research/public-vs-private-pt1-1.pdf
[5] https://bornonjuly4.me/2017/01/10/blockchain-what-is-permissioned-vs-permissionless/
[6] https://www.aciworldwide.com/-/media/files/collateral/trends/unlocking-benefits-of-blockchain-tl-us.pdf
[7] https://www.weforum.org/agenda/2016/06/blockchain-explained-simply/
[8] http://www.microinsurancenetwork.org/civicrm/event/info?reset=1&id=132
[9] https://bitmalta.com/transactions/
[10] https://blog.deloitte.com.ng/blockchain-technology-benefits-challenges/





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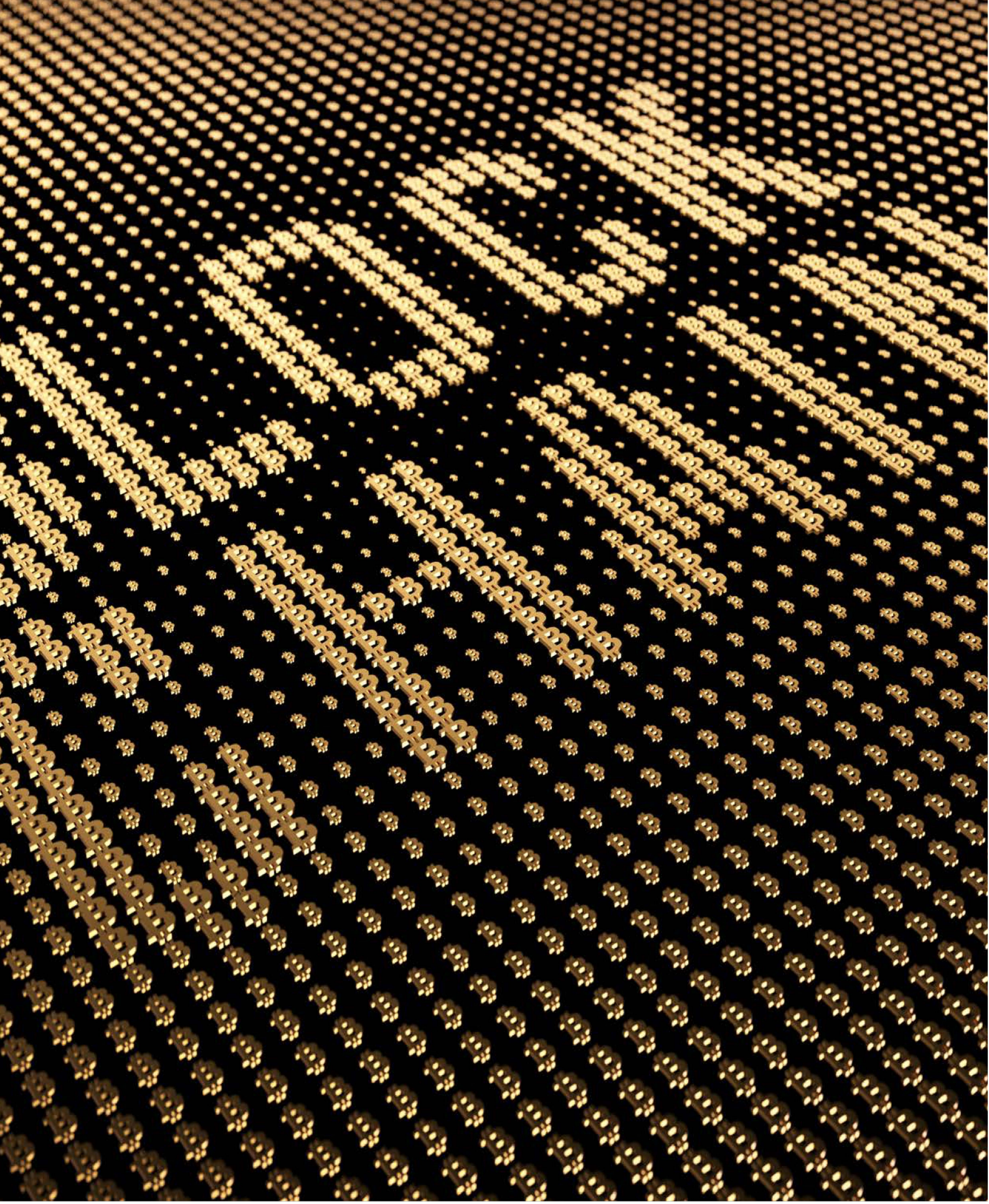

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