

Logaras & Associates

Information Technology
Blockchain basics

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What is blockchain?

Blockchain is, in essence, a new architecture of building data bases, where data is stored in blocks in a way that a continuous and interconnected chain of data is created. Even the slightest change in data stored in previous blocks cannot be made without changing data in following blocks. This immutable architecture combined with the cryptographic methods increases both the security and efficiency in data storing.

Typically, the ledger of a blockchain is kept in more copies by different and independent registrars, the so called “nodes” who are also entitled to add data in the blockchain. Every time a block of data is added in the blockchain, all nodes update simultaneously the ledger through a consensus mechanism so that they all have the exact same copy of the ledger at any given time. A decentralized and distributed method of keeping data bases, such as blockchain, is called Distributed Ledger Technology or DLT¹.

Blockchains can be:

- Private i.e. kept and accessible only internally (equivalent to intranet);
- Public, i.e. accessible by third parties. Public blockchains may be further distinguished to i) permissioned, where the role of nodes is assigned only to specific parties and ii) where anyone can take the role of the nodes, i.e. keep a full copy of the ledger and add data (see Bitcoin or Ethereum blockchain technology).

There are currently hundreds different kinds of blockchains in terms of block size, cryptographic methods used, consensus mechanisms etc. and their number keeps growing.

¹ DLT is a generic term: it encompasses all distributed ledger technologies and not only blockchain.

Why all this hype about blockchain?

Increased security and efficiency in storing data and processing transactions through the use of blockchain technology in real life applications has been proven to significantly cut costs and reduce logistics' burden across a wide spectrum of industries, in comparison to existing solutions.

In addition, blockchain technology, especially public permissionless, may have wider disruptive implications, due to the swift in the trust and responsibility of keeping data ledger (including transactions' history) from central authorities and organizations to decentralized users. In theory, this will increase trust between the network of users and eliminate the need for intermediaries.

What are the applications of blockchain technology?

The first applications of blockchain technology were the so-called cryptocurrencies, like Bitcoin. Currently, there are applications proposed for virtually all sectors and industries. The most common and promising involve registries of any kind (from land registries to ultimate beneficiary owners' registries), supply chain solutions, digital identity, KYC applications and financial instruments. It is very likely that those applications will be widely adopted in the near future, most probably in the form of private or public permissioned blockchains.

What about legal implications?

Being a database, the most obvious implication of blockchain technology is the compliance with data protection legislation. The immutable nature of data registered on blockchains and their decentralized character makes the fulfilment of certain legal requirements as well as the attribution of roles and accountability problematic.

Further regulatory concerns arise in connection with certain applications such as cryptocurrencies, digital assets and their public offering, ranging from securities to AML

legislation. Also, due to the decentralized nature of blockchain, jurisdictional and applicable law questions come into play, especially in public permissionless blockchains.

Is blockchain regulation regulated?

Increasingly jurisdictions introduce, mostly at national level, blockchain or DLT specific legislation to address the above issues and attract relevant activity in their territory. As applications become more mainstream and legal issues more pertinent, legislators are expected to follow. Greece has not introduced any relevant legislation so far and most likely will transpose EU legislation when this will be introduced in the future.

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