



# Factsheet: Digital, Blockchain

A technology field created by ip-search

## 1 Definition

Blockchain is a decentralized encryption technology, build by a growing list of linked blocks, requiring consensus of the network majority. Each block contains a cryptographic hash of the previous block, a time stamp and transaction data. The technology field also covers various applications such as cryptocurrencies, smart contracts, and decentralized finance.

## 2 CPC / IPC

### Cooperative Patent Classification (CPC) and International Patent Classification (IPC)

| CPC/IPC/FI Symbols  | Description   |
|---------------------|---|
| G                   | PHYSICS   |
| G06                 | COMPUTING; CALCULATING; COUNTING  |
| G06F                | ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)   |
| <u>G06F21/00</u>    | Security arrangements for protecting computers, components thereof, programs or data against unauthorised activity  |
| <u>G06F21/60</u>    | . Protecting data   |
| G06Q                | DATA PROCESSING SYSTEMS OR METHODS, SPECIALLY ADAPTED FOR ADMINISTRATIVE, COMMERCIAL, FINANCIAL, MANAGERIAL, SUPERVISORY OR FORECASTING PURPOSES; SYSTEMS OR METHODS SPECIALLY ADAPTED FOR ADMINISTRATIVE, COMMERCIAL, FINANCIAL, MANAGERIAL, SUPERVISORY OR FORECASTING PURPOSES, NOT OTHERWISE PROVIDED FOR |
| <u>G06Q20/00</u>    | Payment architectures, schemes or protocols (apparatus for performing or posting payment transactions G07F7/08, G07F19/00; electronic cash registers G07G1/12)  |
| G06Q20/30           | . characterised by the use of specific devices  |
| <u>G06Q20/36</u>    | .. using electronic wallets or electronic money safes   |
| <u>G06Q20/38</u>    | . Payment protocols; Details thereof  |
| G06Q20/382          | .. {insuring higher security of transaction}  |
| G06Q20/3821         | ... {Electronic credentials}  |
| <u>G06Q20/38215</u> | .... {Use of certificates or encrypted proofs of transaction rights}  |
| <u>G06Q20/3829</u>  | ... {involving key management}  |
| G06Q40/00           | Finance; Insurance; Tax strategies; Processing of corporate or income taxes   |
| <u>G06Q40/04</u>    | . Exchange, e.g. stocks, commodities, derivatives or currency exchange  |
| <u>G06Q2220/00</u>  | Business processing using cryptography (postage metering system using cryptography G06Q2250/05)   |
| <u>G06Q2220/10</u>  | . Usage protection of distributed data files  |
| H                   | ELECTRICITY   |
| H04                 | ELECTRIC COMMUNICATION TECHNIQUE  |
| H04L                | TRANSMISSION OF DIGITAL INFORMATION, e.g. TELEGRAPHIC COMMUNICATION (typewriters B41J; order telegraphs, fire or police telegraphs G08B; visual telegraphy G08B, G08C; teleautographic systems G08C; ciphering or deciphering apparatus per se G09C; coding, decoding or code conversion, in                  |



| CPC/IPC/FI Symbols | Description  |
|--------------------|--|
|                    | general H03M; arrangements common to telegraphic and telephonic communication H04M; selecting H04Q)  |
| <u>H04L9/00</u>    | {Cryptographic mechanisms or cryptographic} arrangements for secret or secure communication {(network architectures or network communication protocols for network security H04L63/00 or for wireless network security H04W12/00; security arrangements for protecting computers or computer systems against unauthorized activity G06F21/00)}   |
| <u>H04L9/06</u>    | . the encryption apparatus using shift registers or memories for block-wise {or stream} coding, e.g. DES systems {or RC4; Hash functions; Pseudorandom sequence generators}  |
| <u>H04L9/0643</u>  | .. {Hash functions, e.g. MD5, SHA, HMAC or f9 MAC}   |
| <u>H04L9/08</u>    | . Key distribution {or management, e.g. generation, sharing or updating, of cryptographic keys or passwords (network architectures or network communication protocols for supporting key management in a packet data network H04L63/06)}   |
| <u>H04L9/32</u>    | . including means for verifying the identity or authority of a user of the system {or for message authentication, e.g. authorization, entity authentication, data integrity or data verification, non-repudiation, key authentication or verification of credentials} {(network architectures or network communication protocols for supporting entities authentication in a packet data network H04L63/08; applying verification of the received information H04L63/12;)} computer systems G06F; coin-freed or like apparatus with coded identity card or credit card G07F7/08) |
| <u>H04L9/34</u>    | . Bits, or blocks of bits, of the telegraphic message being interchanged in time {(for speech signals H04K1/06)}   |
| H04L63/00          | {Network architectures or network communication protocols for network security (cryptographic mechanisms or cryptographic arrangements for secret or secure communication H04L9/00; network architectures or network communication protocols for wireless network security H04W12/00; security arrangements for protecting computers or computer systems against unauthorised activity G06F21/00)}   |
| <u>H04L63/08</u>   | . {for supporting authentication of entities communicating through a packet data network (cryptographic mechanisms or cryptographic arrangements for entity authentication H04L9/32)}  |
| H04L2209/00        | Additional information or applications relating to cryptographic mechanisms or cryptographic arrangements for secret or secure communication H04L9/00  |
| <u>H04L2209/30</u> | . Compression, e.g. Merkle-Damgard construction  |
| <u>H04L2209/38</u> | . Chaining, e.g. hash chain or certificate chain   |
| <u>H04L2209/56</u> | . Financial cryptography, e.g. electronic payment or e-cash  |

The complete description of the CPC classes with IPC- and FI-concordances can be found in the Internet at <https://www.wipo.int/classifications/ipc/ipcpub/?notion=scheme&fipcp=yes>.

### 3 Keywords

The following keyword concepts were used:

- **Blockchain**, cryptotech, smart contract, smart asset, Bitcoin, cryptocurrency, cryptoasset, virtual currency, hashchain, distributed ledger, decentralized ledger, decentralized finance, proof of work

### 4 Confidence Interval for Precision

Precision is expressed in percent of relevant counts. The 95 % confidence interval for the precision of a technology field is assessed on a mix of 100 randomly selected patent families based on a binomial distribution.

Precision Confidence Interval: 95 – 99 %



## 5 History

| Version | Latest update | Comment   |
|---------|---------------|---|
| _05_19  | 24.05.2019    | Keywords refined;<br>combination modified                     |
| _09_19  | 22.08.2019    | No change   |
| _12_19  | 17.11.2019    | Adding patent classes<br>and topic “decentralized<br>finance” |
| _03_20  | 09.03.2020    | Update – no change  |
| _09_20  | 19.08.2020    | Adding patent classes<br>und modifying keywords               |
| _03_21  | 10.3.2021     | Adding keywords   |
| _09_21  | 13.08.2021    | Update – no change  |

## 6 Contact

For specific information regarding the technology field please contact [info@ip-search.swiss](mailto:info@ip-search.swiss)