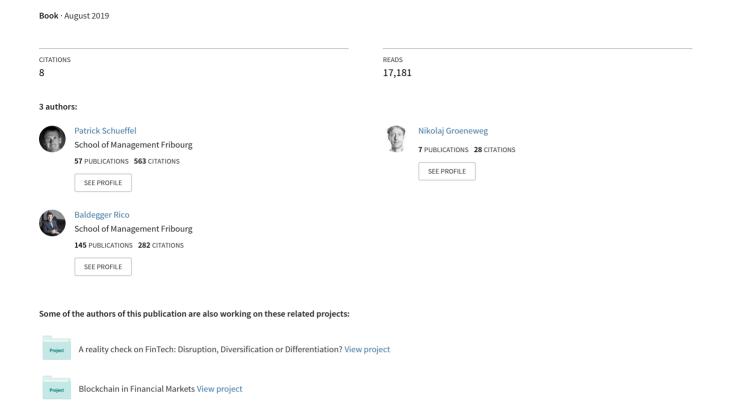
The Crypto Encyclopedia: Coins, Tokens and Digital Assets from A to Z





PATRICK SCHUEFFEL NIKOLAJ GROENEWEG RICO BALDEGGER



CRYPTO ENCYCLOPEDIA

2000 BBs

COINS, TOKENS AND DIGITAL ASSETS FROM A TO Z



GROWTH-PUBLISHER BERN





This page intentionally left blank

THE CRYPTO ENCYCLOPEDIA

Coins, Tokens and Digital Assets from A to Z

Patrick Schueffel Nikolaj Groeneweg Rico Baldegger



GROWTH

Copying and reprinting. This book contains proprietary information, which is protected by copyright. All rights are reserved. However, material in this booklet may be reproduced by any means for educational and scientific purposes without fee or permission with the exception of reproduction by services that collect fees for delivery of documents. This permission is subject to the following conditions: (i) the customary acknowledgment of the source is given; (ii) the material may not be used for any commercial purposes without the author's prior written consent; (iii) the copies must retain any copyrights or other intellectual property notices contained in the original material. This consent does not extend to other kinds of copying for advertising or promotional purposes, or for resale. Requests for permission for commercial use of material should be addressed to the Professor Patrick Schueffel, School of Management Fribourg (HEG-FR), Institute of Finance, Chemin du Musée 4, 1700 Fribourg, Switzerland. Requests can also be made by e-mail to: patrick.schueffel@hefr.ch

© 2019 by Patrick Schueffel. All rights reserved.

In cooperation with
School of Management Fribourg (HEG-FR)
HES-SO // University of Applied Sciences and Arts Western Switzerland
Visit the School of Management Fribourg home page at
http://www.heg-fr.ch/EN

Published in Switzerland

ISBN 978-2-940384-47-1

PREFACE

The subject of cryptocurrencies, tokens and digital assets is an emerging field. It attracts an increasing amount of attentention in the world of business as well as academia.

When a new subject is developing, it is important to use one common language, otherwise unavoidably misunderstandings emerge, and communication would become error prone and thus inefficient. Under those circumstances progress would hardly be possible, and the advancement of the field would seriously be hampered.

Throughout many talks at conferences, in sessions with investors, throughout lectures at university, and in futher education courses for practitioners, we came across many occasions of misunderstandings. These misunderstandings gave rise to the thought of sharing our point of view when discussing crypto.

In order to help creating a shared terminology we wrote this book. Drawing on a wealth of experience in the field of cryptocurrencies as founders, entrepreneurs, educators, and researchers we intended this book as a single, consolidated and authoritative source on that subject. We hope it will serve this purpose

Patrick Schueffel Nikolaj Groeneweg Rico Baldegger

This page intentionally left blank

2FA (two factor authentication, TFA, two step verification)

A two factor authentication is a process of confirming a user's alleged identity by using a combination of two different components, for instance a password and a physical token (e.g. > PIN and credit card).

51% attack (fiftyone percent attack)

51% attack is the name for a concerted attack on a > distributed ledger system where > miners controlling more than 50% of the system's > hashing power can manipulate transactions.

accelerator (startup accelerator, seed accelerators)

An accelerator is a time-limited, cohort-based program, supporting > startup companies in their business endeavors. the program typically includes mentorship and educational components and is generally concluded by a public > pitch event or > demo day for potential investors.

accidental fork

An accidental fork is a specific form of a > fork which occurs if due to coding errors newer versions of generated > blocks are not truly compatible with older ones.

address

The address is a unique identifier which is created by > hashing a > public key and describes the digital address where > coins or > tokens can be transferred to or where coins, tokens or > smart contracts can be stored.

Airdrop An airdrop is an allocation process for

distributing > *tokens* to a group of token holders after an > *ICO* has been completed

or a > fork has gone live.

algo trading see > algorithmic trading

algorithm An algorithm is a set of rules or a

procedure to be followed for solving a

mathematical problem.

algorithmic Algorithmic trading is a trading method **trading** which makes use of automated

> algorithms and pre-programmed trading instructions, such as time, price, and volume to execute tranches of a larger

order over time.

Alt see > Altcoin

Altcoin An Altcoin (umbrella term encompassing

"alt" for "alternative" and "coin") is a labelling for a cryptocurreny that is

alternative to Bitcoin.

alternative coin see > Altcoin

Altfi (alternative finance)

Altfi is a term describing financial channels, processes and instruments that have developed outside of the conventional finance system comprising regulated banks and capital markets.

AML (anti-money laundering)

AML is a set of measures, laws and/or regulations designed to prohibit the practice of > *money laundering*.

angel investor (business angel)

An angel investor is an affluent or high net worth individual who provides early capital for a business > *startup*, usually in exchange for convertible debt or ownership equity. Oftentimes this idivdual also provided knowledge and contacts for the start-up.

anonymization (data anonymization)

Anonymization is the process changing data in such a way that identifiers are being encrypted, removed, substituted, distorted, generalised or aggregated so that data privacy is ensured.

API (application programming interface)

An API is a set of functions and protocols for building application software. It defines methods of communication between various software components and provides access to data of an operating system, application, or other service. It facilitates developing computer programs by providing building blocks which can then be assembled by the developer.

ASIC (Applicationspecific integrated circuit)

An ASIC is an integrated circuit designed for a specific application, rather than one produced for genera purpose.

ASIC Miner

ASIC mining is the process of > mining > cryptocurrencies using > ASIC equipment allowing for a significantly faster production speed than with an ordinary desktop or laptop as these systems are specifically manufactured for this purpose.

bagholder

A bag holder is a term describing an investor who holds a position in an asset that decreases in value, until virtually worthless with only small chances of regaining value, e.g. holding a crptocurrency beyond a pump and dump

crash.

bank book

see > *ledger*

BCH

see > Bitcoin Cash

bid-ask spread

see > spread

Bitcoin

Bitcoin is a > blockchain based > cryptocurrency and a > digital payment system invented by an unknown with the alias > Satoshi Nakamoto in 2008.

Bitcoin cash (BCH)

Bitcoin Cash is a cryptocurrency resulting from a > hard fork of > Bitcoin which took effect on 1 August 2017 in order to increase Bitcoin's block sizes.

Bitcoin halving s

see > halving

Bitcoin mining

Bitcoin mining is the process of creating and releasing new > Bitcoin currency. This

is done by verifying and adding

transactions to the > blockchain as rewards

for doing computational work.

block A block is an unalterable set of data

making up a pivotal component of the > blockchain by recording the most recent transactions that have not yet been

recorded by any previous block.

block height The block height is a metric used to

describe the number of sequentially added blocks in the > blockchain between any given block and the > genesis block

block reward The block reward is the compensation that

a miner can claim for creating a > block on

the > blockchain.

block size Block size is a value providing the amount

of data that is stored in any given > block

on the > blockchain.

blockchain

The blockchain is a publicly accessible > distributed ledger that was initially designed and implemented to enable > Bitcoin transactions. It is a piece of IT infrastructure that serves as a database which is used to keep a continuously growing list of records, so called > blocks.

bonus

A bonus is reward for a > cryptocurrency investor, typically granted throughout the > pre-sales or early > ICO stages of a cryptocurrency project and thus awarding early investments.

BTC

see > Bitcoin

burn

see > *coin burn*

burn reserve

A burn reserve describes the lot of tokens that are not distributed during > ICO and which will be burned in order to avoid dilution.

buy wall

A buy wall is an expression describing a situation when the amount/size of buy orders for a particular > *coin* or > *token* is significantly larger than the number of sell orders.

Byzantine fault (error avalanche)

The Byzantine fault is a condition of a distributed computing system where components may fail, yet imperfect information exists on whether a component has failed and if so which one(s)

Byzantine fault tolerance

Byzantine fault tolerance is the ability of a computing system to cope with the questionable reliability of data caused by the > Byzantine fault.

CCI30 Crypto Currencies Index

The CCI30 Crypto Currencies Index is an index tracking the 30 largest > cryptocurrencies by > market capitalization.

central ledger (centralized ledger, general ledger)

A central ledger is a single principal repository that keeps records of transactions of an entity and is typically controlled by a single person or a narrowly defined group of individuals.

circulating supply

The circulating supply is the amount of coins that are circulating in the market, i.e. which are in the general public's hand; if tokens are > pre-mined the circulating supply will equal to the hard cap after > *ICO*.

coin

Coin is commonly used alternative expression for > *cryptocurrencies*.

coin burn

A coin burn describes the irreversable process of sending > tokens of > cryptocurrency to a > public address from they can never be retrieved as the > private keys of such the public address is unobtainable.

cold storage

A cold storage is an electronic device that can store > cryptocurrencies independent of having an online connection to the Internet and thus reduces the likelihood of unauthorized access, hacking attacks, and other vulnerabilities that an online system is otherwise susceptible to.

cold wallet

A cold wallet is a > digital wallet employing > cold storage technology.

collectables (collectable tokens)

see > NFT

Colored Coin

A Colored Coin is an expression describing a set of methods for representing and managing real world assets using the > Bitcoin > blockchain infrastructure.

commit

A commit is a command used in > *Github* to save changes in a code or project to a local repository.

comparison site

A comparison site is a Website that compares the scope and price of a particular product or service across different providers.

complementary currency

A complementary currency is a currency which is not a legal tender, but complementing national currencies, i.e. > Fiat money.

computationally universal

see > *Turing complete*

consensus mechanism

A consensus mechanism describes the actions necessary to achieve agreement on

data in distributed systems.

consensus process

see > consensus mechanism

Cosmos Network

The Cosmos Network is a decentralized network of independent, scalable, and

interoperable > blockchains.

crowd sale

see > ICO

crowdfunding

Crowdfunding is one specific form of > crowdsourcing where funding for a project or business is raised from a number of people, oftentimes via campaigns

launched via the Internet.

crypto exchange

see > *cryptocurrency exchange*

crypto index (CRIX)

Cryptocurrency Index (CRIX) is an index comprising 20 constituents from the crypto

currency markets.

crypto protocol

A crypto protocol is the underlying set of rules upon which > Dapps are built; prominent crypto protocols are > Ethereum, NEO, Stellar, Lisk, QTUM

etc.

cryptocurrency (math based currency)

A cryptocurrency is a > digital currency in which > *encryption* techniques are used to control the generation of units of currency and verify the transfer of funds, operating independently of one single central unit. Cryptocurrency businesses oftentimes raise money through > ICOs.

cryptocurrency exchange (crypto exchange, digital currency exchange)

A cryptocurrency exchange is a platform that provides users with the possibility to trade > cryptocurrencies for other cryptocurrencies and/or > Fiat money.

cryptographic nonce

see > nonce

Custodian

A custodian is a person or entity who has responsibility for taking care of assets.

cybersecurity

Cybersecurity are the measures, technologies, processes, and practices taken to protect a computer or computer system against unauthorized access or attack or damage.

Cypherpunk

A cypherpunk is a person that actively advocates the widespread usage of cryptography and privacy-enhancing technologies as a means to social and political change.

DAG (directed acyclic graph)

A DAG is a > directed graph such that staring at any node and following the vertices along their direction, there is no way to return to the original starting node; DAGs are being used as an alternative > DLT to > blockchain technology.

DAICO (Decentralized Autonomous Initial Coin Offering)

The DAICO (umbrella term encompassing "> DAO" and "> ICO") is a process of decentralized capital investment: investors retain the control of the capital requested by the project team by approaving certain milestones, so called > TAPs

DAO

The DAO (Decentralized Autonomous Organization) was an organization setup to pool funds to develop technologies supporting new decentralized business models; after being hacked in June 2016 it ceased to exist in late 2016.

DAPP (decentralized application)

A dapp is an application that runs on a decentralized > P2P network, such as > Ethereum.

data anonymization see > anonymization

database shard

see > sharding

deanonymization

Deanonymization is the process of changing data in such a way that it becomes identifiable; it is the reverse process of > anonymization.

decryption

Decryption is the process of decoding an incomprehensible message or information into another form which can be easily understood by third parties; it is the reverse process of > encryption.

demo day

A demo day is a day on which > startup companies present their businesses to potential investors and other partners. Oftentimes it is seen as the "graduation" date for a cohort of firms participating in a > incubator or > accelerator program.

democratization of

Democratization of finance is a term describing the process by which financial services and products become more accessible to more people.

DEX (distributed exchange)

A DEX is a > cryptocurrency exchange that operates on a > P2P principle, i.e. in a decentralized fashion, permitting users to retain their > cryptocurrencies in their > digital wallet instead of handing them over to a central authority.

DG (Directed Graph)

A directed graph is a graph made up of a set of vertices (or > nodes) connected by edges (or lines) that have a direction associated with them, such that one can only transition between vertices along the direction of the edge connecting them.

diaas (digital identity as a service)

Diaas is a service which provides an entity with a > digital identity.

digest

see > hash

digital asset

A digital asset is an asset securitized in a digital manner, e.g. by a > token.

digital asset array (DAA)

A digital asset array is a bundle of > digital assets, such as > token baskets.

digital currency (electronic money, digital money)

A digital currency is a type of currency that is non-physical (i.e. no banknotes and coins exist thereof) and which can only be transmitted via electronic means, typically allowing for instantaneous transactions and borderless transfer of ownership.

digital currency exchanges

see > *cryptocurrency exchange*

digital identity

A digital identity is a set of information representing an external entity on a computer system.

digital money

see > digital currency

digital payment

A digital payment is a computer-based transaction of money authorized electronically on an electronic device.

digital security

A digital security is a digital representation of a security for which ownership is verified and recorded using > *DLT*.

digital security offering

see > DSO

digital signature

see > signature

digital token

see > token

digital wallet (mobile wallet, mWallet)

A digital wallet is an electronic device that stores payment and authentication information and thus permits an individual to make > electronic payments and/or > mobile payments. By using digital wallets users can purchase items on-line with a computer or use smartphones to purchase something at a store. Some digital wallets also permit money transfers among users.

distributed ledger

A distributed ledger is a digital system recording and storing data and which is consensually shared and synchronized across a geographically spread network across multiple sites, institutions and/or geographies.

DLT (distributed ledger technology)

DLT is a technology based on the principle > distributed ledgers.

double spending

Double spending is a process that exploits a flaw in a > *cryptocurrency* system which allows a user to spend a single > *coin* twice.

double-spending attack

A double-spending attack is an attack on a cryptocurrency system aiming to conduct > double-spending e.g. by conducting a > 51% attack.

DSO (digital security offering)

A DSO is a security offering executed, recorded and verified using > *DLT*; DSOs are used to issue > *digital securities*.

ecosystem (business ecosystem)

An ecosystem is a network of interacting individuals and organizations such as suppliers, producers, competitors, and other stakeholders that produces goods and services of value to customers, who are themselves members of the ecosystem.

EEA (Enterprise Ethereum Alliance)

The EEA is a alliance of organizations developing standards allowing for harmonization and standardization of > *Ethereum* applications.

electronic money

see > digital currency

electronic payment (e-payment, Epayment, electronic funds transfer) An electronic payment is a payment made from one party to another via electronic means without the direct intervention of human staff and instead of using cash or check, in person or by mail.

EMV (Europay, Mastercard and Visa)

EMV is a global technical standard set forth by Europay, MasterCard, and Visa for credit and debit cards as well as for payment terminals and automated teller machines that can accept them.

encryption

Encryption is the process of encoding a message or information into another form which cannot be easily understood by anyone except authorized parties.

Enterprise Ethereum Alliance

see > EEA

ERC

ERC is an abbreviation for Ethereum Request for Comment; answers proposed to ERCs can serve as new > token standards

ERC-1400

ERC-1400 is a suggested standard for > security tokens so that issuers, investors, > KYC providers, > digital wallets, > cryptocurrency exchanges, regulators and developers can work togEther using the identical framework.

ERC-20

ERC-20 is a quasi standard comprising a list of rules set forth for all > *Ethereum* > *tokens*, so that developers can accurately predict how new tokens will function within the Ethereum system.

ERC-721

ERC-721 is a quasi standard for non-fungible tokens comprising a list of rules set forth for > non-fungible > Ethereum > tokens, so that developers can accurately predict how tokens will function within the > Ethereum system that bear unique information.

error avalanche

see > Byzantine fault

Ether Ether is a > *cryptocurrency* > *token* which

can be transferred between accounts and used to compensate > Ethereum > nodes

for computations performed.

Ethereum Ethereum is a public > blockchain based

decentralized computing platform for applications that run > *smart contracts*.

Ethereum Classic Ethereum Classic is a decentralized

computing platform that runs

> *smart contracts*; it came into existence as a > *hard fork* from > *Ethereum* in 2017 but

is not backwards compatible with

> Ethereum.

exchange $see > crypto \ exchange$

Fabric see > Hyperledger Fabric

Fiat money Fiat money is unredeemable money that

has no intrinsic value and which is made a currency by a resolution (from Latin, "fiat"

meaning "let it be done").

Fiat ramp

A Fiat ramp is a > payment gateway that permits the user to send > fiat money to an account and use these funds to purchase > cryptocurrencies.

fiftyone percent attack

see > 51% attack

financial inclusion

Financial inclusion is the process of making financial products and services - transactions, payments, savings, credit, investments and insurance - affordable to disadvantaged and low-income segments of society in a fair and transparent fashion. The objective of financial inclusion is to decrease those segments of society which are > underbanked or even entirely > unbanked

Finney

Finney is a denomination of > Ether and a popular measurement unit of > Gas. 1 Ether = 1'000'000'000'000'000 Finney

first-mover advantage (FMA)

A first-mover advantage is the advantage a business gains by being the first significant player to enter a new market or market segment, leading to higher revenues and profits over time.

Flappening

The Flappening is the name of a potential future event when Litecoin reclaims its leadership of > *Bitcoin Cash* in terms of > market capitalization.

Flippening

The Flippening is the name of a potential future event when > *Bitcoin* is overtaken by another > *cryptocurrency* in terms of > market capitalization.

FOMO

FOMO is an accronym for "Fear Of Missing Out" and describes the anxiety that a value creating event may currently be happening and that one misses out on it; it regulary describes the buying behaviour when cryptocurrencies are suddenly gaining in value and more buyers appear to enter the market all of a sudden.

foreign exchange

Foreign exchange is the process by which one national currency (> *Fiat money*) is exchanged for another national currency.

Forex (foreign exchange market, FX, currency market) Forex is the market where > foreign exchange takes place.

fork

A fork is a split in a > blockchain resulting in two individual blockchains; forks can be caused by > 51% attack, errors in the program code, or a new set of rules for the > consensus process.

forking

Forking is the process of creating two alternative pieces of code, resulting in a > fork.

FPGA (Field Programmable Gate Array) A FPGA is an integrated circuit that can be configured after manufacturing, allowing it to be adapted to a variety of tasks; FPGAs were used in > cryptocurrency > mining in the early 2010s, before the more price-competitive > ASICS came to the market; compared to CPUs, FPGAs offer higher > hashrates at a fraction of the electricity expenditure. FPGAs offer greater flexibility than > ASICS, as they can be reconfigured to mine for any > coin.

fraud

see > scam

Frontier, Homestead, Metropolis, Serenity Frontier, Homestead, Metropolis, Serenity are the names of the four planned stages of the *> Ethereum* development roadmap.

FUD

FUD is an acronym for Fear, Uncertainty, and Doubt, describing the negative sentiment ofentimes intentionally induced by someone or of a group of individuals who want the price of coin or token to drop.

FUDster

A FUDster is an individual who spreads > *FUD*.

full node

A full node is a component of a network built on > *DLT* that fully validates every transaction and > *block* presented to it through the network by verifying them against the network's > *consensus mechanisms*.

fungible

fungible is a quality of an asset denoting that the asset can be exchanged for another asset of a similar or identical type without any significant loss occuring to the holder; to be fungible > tokens must not bear any unique information.

Gas

Gas is a measurement of how much processing is required by the > *Ethereum* network to process a transaction; transactions with higher Gas prices are prioritized by the network.

Gas limit The Gas limit is the maximum amount of

> Gas a user is willing to spend for a particular transaction on the > Ethereum

network.

Gas price Gas price is the price of a Gas unit

denominated in > Ether.

general ledger see > central ledger

genesis block The genesis block is the very first > block

of any > blockchain.

Git is an > *open source* version control

system that was developed by Linus Torvalds; it chronologically records changes to a file or set of files so that developers can recall any earlier versions

of the code at a later point in time.

Git commit see > *commit*

Github

GitHub is an online hosting service for version control using > *Git*; GitHub is Web-ased and offers distributed version control and source code management functionality.

Gwei

Gwei is a denomination of > *Ether* and a popular measurement unit of > *Gas*. 1 Ether = 1000000000 Gwei.

halving

Halving is the process of reducing the rewards per mined block in order to maintain the total supply of a coin or token; it was first applied to > *Bitcoin* where the reward is halved after the first 210,000 > *blocks* are mined and then every 210,000 thereafter.

hard cap

The hard cap is the maximum number of coins that will ever be created (e.g. 21mn. for Bitcoin); not all cryptocurrencies have a hard cap (e.g. > Ether).

hard fork

A hard fork is a specific form of a > forkwhich occurs when the developers of a > blockchain decide that changes must be made to the code so that it will create lasting incompatibilities between the older and newer version; contrary to a > soft fork a hard fork requires that all > nodes upgrade to the new version of the code; as all nodes will only recognize the new blocks as valid, a softfork is backwardcompatible.

hardware wallet

see > cold wallet

hash

A hash is the result of executing a > hash

function.

hash code

see > hash

hash function

A hash function is a one-way > algorithm used to map data of arbitrary size onto data of a fixed size.

hash value

see > hash

hashed Hashed is an attribute of a data set which

has been transformed using a > hash

function.

Hashgraph Hashgraph is a > DLT and alternative to

> blockchain which achieves superior

performance by using a

> consensus mechanism based on a virtual voting > algorithm combined with the

gossip protocol.

hashing Hashing decribes the process of executing

a > hash function.

hashrate The Hashrate denotes the speed at which

> hash functions are executed.

HFT (high frequency trading)

HFT is a form of trading using

sophisticated systems to transact a large number of orders at extremely high speeds.

HODL HODL is slang term used in the

cryptocurrency community for holding a cryptocurrency rather than selling it; it can also be intpreted as an acronym for "Hold

On for Dear Life".

hot storage

A hot storage is an electronic device that stores > cryptocurrencies and which is connected to the Internet; it is typically easier to setup, access, scale than > cold storage but more susceptible to unauthorized access, hacking attacks, and other yulnerabilities.

hot wallet

A hot wallet is a > digital wallet *employing* > hot storage technology

Hyperledger

see > *Hyperledger Fabric*

Hyperledger Fabric Hyperledger Fabric is an > open source modular platform based on > blockchain technology designed for enterprise contexts.

IaaS (ICO as a Service)

see > IEO

ICO Advisor

An ICO Advisor is a person who advises a project on the various facets of an > ICO, such as legal, business modeling, > tokenomics, technology, marketing and industry.

ICO Rating

see > rating

IEO (initial exchange offering, ICO as a service)

An initial exchange offering (IEO) - or ICO as a service (IaaS) - is a process in which > cryptocurrencies are sold via a > crypto exchange: The exchange takes the position of the issuing project in the offering process and after the project has provided the newly mined cryptocurrencies to the exchange, the exchange collects funds (e.g. > Ether , > Bitcoin, > Fiat money etc.) from contributors and allots the newly mined > coins or > tokens to the contributors.

immutability

Immutaibility is a feature of data stored on the > blockchain. Hence, the blockchain contains a history of transactions which is typically permanent, unerasable, and unalterable history of transactions. Immutability can be threatened by extraordinary events, such as > 51% attacks.

Incubator

An incubator is an organization that accelerates the development of new and > startup companies by providing entrepreneurs with an array of targeted resources and services such as office infrastructure and management training. Through their network of contacts incubators often provide new paths to funding from > Angel Investors, > venture capital firms and other investors. The services provided by incubators are usually developed and orchestrated by the incubator management.

initial coin offering (ICO)

An initial coin offering is an unregulated means of > crowdfunding applied by > cryptocurrency businesses as an alternative to the rigorous and regulated capital-raising process required by venture capitalists, banks, or stock exchanges. In an ICO a percentage of the newly issued > cryptocurrency is sold to investors in exchange for legal tender or other cryptocurrencies such as Bitcoin.

Initial Token Offering (ITO)

An Initial Token Offering is largely identical to an > *Initial Coin Offering*, yet it typically pertains to projects built on the > *Ethereum* > *blockchain*.

IPO (initial public offering)

An initial public offering is the process by which a private company is offered for the first time to the general public on a securities exchange. IPOs are typically conducted by small and young firms seeking capital to expand, but they can also be done by large privately-owned companies looking to become publicly traded.

know your customer (KYC)

KYC is a set of principles for identifying and verifying the identity of banking clients to adhere to anti-money laundering regulations, but also to ensures that the bank has detailed information on the clients' risk tolerance, investment knowledge and financial standing.

lambo

lambo is an abbreviation for Lamborghini; owning one appears to be the objective of many participants in the crypto > ecosystem.

ledger

A ledger is record-keeping system for recording and totaling economic transactions; in banking the ledger was the principle book or "bank book", containing all debit and credit account records of the bank.

Ledger Nano

Ledger Nano is a popular USB

 $> cold\ wallet\ {\it to\ store} > cryptocurrencies.$

Lightning Network

The Lightning Network is a payment protocol that was created on top of > blockchain-based > cryptocurrencies such as example > Bitcoin. It reduces the number of interactions on the blockchain and thus enables faster transactions and thus higher levels of scalability.

Lightweight Node

A Lightweight Node is a component of a network built on > *DLT* that performs basic and limited functions contributing to authenticating and validating the transactions on the network.

Litecoin

Litecoin is a > blockchain based > cryptocurrency following the > P2P principle and resulting from an open-source software project that was published on Gibthub in 2011. The intervals between > mining > blocks isshorter than with > Bitcoin and due to the usage of different > algorithms > FPGA and > ASIC devices are harder to deploy for Litecoin mining than for Bitcoin mining.

majority attack

see > 51% attack

maker fee

Maker fees are charges due when a market participant places a limit buy order below market price or a limit sell order above market price; as this action adds liquidity to the market, the maker fee is on crypto currency exchanges oftentimes lower than the opposite, the > taker fee.

market capitalization (market cap.)

Market capitalization traditionally refers to the total market value of a company's outstanding shares; in the context of cryptocurrencies it denotes the total value of a project's > tokens or > coins in circulation.

Master Node

A master nodes is a > full node in a network built on > DLT which keeps the complete copy of the > distributed ledger in real-time and is online 24/7; master nodes may also support the network by governing voting events, executing protocol operations, enforcing the laws of the corresponding network etc.

math based currency

see > cryptocurrency

maximum supply see > hard cap

Meta Mask MetaMask is a browser extension for

accessing > dapps; as such it can also

serve as a > digital wallet.

MEW (My Ether

Wallet)

MEW is a free, > open source > software wallet for usage in the

> Ethereum network.

Miner A miner is a person that engages in >

mining.

Minimum viable

product (MVP)

A minimum viable product is an early version of a product with just sufficient features to satisfy early adopters, and to collect feedback for future product

development.

Mining (to mine)

Mining describes the process of creating new block on a > DLT system such as the > blockchain by validating transactions and demonstrating > PoW and as a result being rewarded with newly created > coins

> tokens as a result.

mining rig A mining rig is a computer system

especially designed for carrying out > mining tasks and is thus typically using >

ASIC technology.

mobile payment

A mobile payment is a > digital payment via a mobile device so that the transaction can be conducted independently of the geographic location of the person conducting the transaction.

mobile wallet

see > digital wallet

money laundering

Money laundering is the process of transforming monetary proceeds of crimes into apparently "legitimate" assets.

mooning

Mooning is the process of a > token or > coin undergoing an extreme price hike, it's "going to the moon". The price goes up to astronomical levels. It may be the the first phase of a > pump and dump scheme.

mPOS

Describes a mobile > *POS*. It is the place where sales are made in case mobile business is conducted.

multichain

A multichain is a platform that bridges different > *blockchain* technologies. As such it makes different > *DLTs* compatible.

multisig (multisignature)

Multisig is a process that requires more than one signature to approve a transaction before it can be transmitted to the > blockchain and thus increases security for > cryptocurrency transactions.

mWallet

see > digital wallet

NFT (non-fungible token)

An NFT is a > non-fungible > token, i.e. a token that bears some unique information; NFTs are therefore oftentimes considered collectable tokens

node

A node is device on a network that represents a piece of a > DLT and carries out certain tasks such as maintaining a copy of a > ledger or parts thereof, processing transactions etc.

nonce

A nonce is an arbitrary number or string that can be used only once in a cryptographic communication.

non-fungible

non-fungible is a quality of an asset denoting that the asset cannot be exchanged for another asset of a similar or identical type without any significant loss occuring to the holder; to be non-fungible > tokens must bear some unique information.

off chain

Off chain is a property of a transaction denoting that it does not occurs on a > distributed ledger such as the > blockchain. An off chain transaction does not have to validated it is typically faster than an > on chain transaction.

on chain

On chain is a property of a transaction denoting that it occurs on a > distributed ledger such as the > blockchain, and thus that it is reflected there as soon as its state has been validated. An on-chain transaction is therefore regularly slower than an > off chain transaction.

Onboarding (client onboarding)

Onboarding is the process of adding a new client to the existing group of clients or members of an organization and familiarizing the client or member with services, products, and processes. In the case of financial services, onboarding regularly involves > AML as well as > KYC procedures.

Online Wallet

see > digital wallet

open API

An open API is a publicly available > API that provides third-party developers with the necessary information to access a proprietary system in order to build applications communicating with this system.

open source

Open source is a principle according to which the source code of software is made available to anyone and for any purpose, such as inspection, modifying, and distribution by the copyright holder.

P2P (peer to peer)

P2P is a quality of decentralised system describing the fact that all participants (peers) are equally privileged and equipotent participants; in the context of the > blockchain, P2P describes a network of equally privileged and equally potent > nodes.

paper wallet

A paper wallet is a printout of the wallet > address and > private key and thus a specific form of > cold storage.

Parachain (parallelizable chain)

A parachain is a simpler form of > blockchain, which builds on the security features provided by a > relay chain rather than providing its own. One key feature of a parachain is that the computations it performs is inherently independent of the relay chain.

payment gateway

A payment gateway is a merchant service that authorizes payment processing (credit card, debit card, Paypal, > cryptocurrencies etc.) for retailers of any kind, e.g. online businesses, physical stores, restaurants etc.

PayTech

PayTech is a subset of > Fintech and a new domain within the financial industry that applies technology to improve payments. It builds on technologies such as the > digital wallet ,> DLT and > NFC and strives to advance > electronic payments and/or > mobile payments, both at > POS and > mPOS.

PIN

A PIN is a numeric or alphanumeric password or code used in many electronic financial transactions for authenticating or identifying a user to a system and/or a system to a user.

Pitch A pitch is a business plan delivered

verbally by an entrepreneur to potentials

investors or other parties.

plasma Plasma is a combination of different

methods to make the > blockchain more

scalable.

platform see > crypto protocol

POC (proof of concept), also PoC (proof of concept)

In project management a PoC is a significant accomplishment which demonstrates that the realization of a certain method, concept or idea is feasible.

POP (proof of principle)

see > PoC (Proof of Concept)

PoS (Proof of Stake)

Proof-of-stake is a > consensus process that requires network participants to 'lock up', resp. 'stake', specific quantities of > tokens used in the network for a short amount of time in order to 'vote' and generate network consensus; the participant can > mine or validate > block transactions corresponding to the quantity of > coins or > tokens he or she holds: the more coins or tokens are held by the miner, the more

mining power he or she has.

PoW (proof of work)

Proof of work is a > concensus process that requires a datum that is very costly to produce in terms of time and/or resources, yet which can be very simply verified by another party; PoW for > Bitcoin is referred to as a > nonce.

pre-mined

Pre-mined is an attribute describing the process througout which > *coins* or > *tokens* are being put in circulation: if pre-mined all tokens will be put in circulation upon > *ICO*.

pre-sale

A pre-sape is a phase that can occur during an > ICO and which is held in advance of the regular sale; select investors can then typically buy > coins or > tokens at a significant discount.

private key

A private key is a confidentially kept string of code that - when paired with a > public key - sets off > decryption > algorithms, for instance permitting users to access their > cryptocurrencies.

private sale

Private sale is a sales process where tokens or > cryptocurrenices are tendered to a clearly defined group of investors, rather than being sold to the broader public.

proof of work

see > PoW

Proof of address

A proof of address serves as evidence for the registered domicile of a user and is typically obtained during a > KYC process (e.g. a bank statement mentioning the address of a client, a utility bill etc.)

Proof of burn

Proof of burn is a method used in the contect of > coin burn to proof that a specific number of coins or tokens were irrevocably burnt by sending them to an address from which they cannot be retrieved.

Proof of identity

A proof of identity serves as evidence for the true identity of a user and is typically obtained during a > KYC process (e.g. a copy of a passport, official ID etc.).

proof-of-keys

The proof of keys is a movement, rallying for investors to remove all their > coins and > tokens from third-party > crypto exchanges and other third-party service providers on a specific date. The event compels the service providers to evidence that they hold the crypto funds they claim to store for the client and that they are thus in possession of the users' > private keys.

protocol

see > *crypto protocol*

PSD2 (Payment Services Directive 2)

PSD2 is the second Payment Services Directive, set forth by the European Union which aims at improving consumer protection with regards to online payments, promoting the development and use of innovative online and > mobile payments, and making European cross-border payments more secure.

PSP (payment service provider)

A PSP is a firm that offers other business services for accepting

> electronic payments and thus establishes a connection between shops and financial institutions such as banks and credit card firms, but also > cryptocurrency

> payment gateways.

public address

A public address is a > hashed version of the > public key.

public key

A public key is a publicly known string of code that is related to a > private key and used in algorithms to encrypt data, for instance to send > cryptocurrencies to a user's > address.

 $\begin{array}{c} pump \ and \ dump \\ (P\&D) \end{array}$

Pump and dump is a type of > scam in which the fraudster buys a > coin or > token and then artificially inflates its price using false and misleading positive statements in order to sell it thereafter at a higher price.

pumping

see > shilling

race attack

A race attack is a specific type of a > double-spending attack exploiting information asymmetries: the attacker (payer) supplies a payment transaction to the victim (vendor) as well as to the network. If the victim sees the unconfirmed transaction first, before the network rejects the transaction as a > double spending, there is a large likehood that the victim will never get paid.

Raiden Network

The Raiden Network is a complementary extension to the > *Ethereum* network intended to allow for near-instant, low-fee and scalable transactions with any > *ERC20* compatible token.

rating

A rating is a relative estimate or evaluation; > *ICO* ratings are regularly used to advertise the alleged quality of an ICOs.

reddit

Reddit is a US-American social news aggregation, web content > *rating*, and discussion website; the user community can submit as well as vote on content as diverse as links, text posts, images etc.

RegTech

RegTech is a new domain within the financial industry that applies technology to improve regulatory processes, especially with regards to > KYC and > AML.

regulatory sandbox

A regulatory sandbox is a supervised space, open to both authorized and unauthorized firms, that provides a set of rules that allows innovators to test their products and services in a live environment without following some or all legal requirements, subject to predefined restrictions.

relay chain

The relay chain is a > blockchain that lends security to attached > parachains and ensures secure message-passing between them.

restricted countries

Restricted countries is a list of countries in which specific > *coins* and > *tokens* are not offered for sale throughout an > *ICO* process.

ROI (Return on Investment)

The ROI is a performance measure used to evaluate the efficiency of an investment in terms of the amount of return an investment yields relative to the investment's costs; ROI = (Investment Payoff - Investment Cost) / Investment Cost.

SAFT (Simple Agreement for Future Tokens)

The SAFT is an agreement conveying rights in > tokens prior to the development of the tokens' functionality; it ensurs the delivery of > tokens to the investors once a functioning application has been developed for that token.

Sandbox

see > regulatory sandbox

Satoshi Nakamoto (SATS)

Satoshi Nakamoto is a pseudonym used by an individual or a group of individuals who developed > *Bitcoin*, devised the Bitcoin > *white paper*, and developed the first > *blockchain*.

SATS

see > Satoshi Nakamoto

scam (fraud)

A scam is an intentional deception to deprive another person of his or her right and to secure an anlawful gain and thus a dishonest scheme, resp. fraud; in the world of > cryptocurrencies various types of scam exist, varying from deceptive > ICOs where the company has little more to offer than a > white paper, to unjustified fees and costs charged by unregulated > crypto exchanges and malware using devices to > mine > Bitcoin without the user's consent

secret key

see > private key

security token

A security token is an investment vehicle which has the character of a security, i.e. it is bought in anticipation of future profits in form of dividends, revenue share, or price appreciation.

Segregated Witness (Segwit)

SegWit is the label used for a > soft fork implemented on some > blockchain protocols, such as > Bitcoin, which changes the transaction format so that it transfers parts of the transaction data out of the main > block, thus reducing the effective size of transaction and thus allowing more transactions to fit into into a single block without increasing the > block size.

sell wall

A sell wall is an expression describing a situation when the amount/size of sell orders for a particular > *coin* or > *token* is significantly larger than the number of sell orders.

shard

see > sharding

sharding

Sharding is a specifing type of database partitioning: it divides large databases, such as the *> blockchain* the into smaller, faster, more easily managable parts called database shards or shards.

Shilling (pumping)

Shilling is the process of someone heavily advertising a > *cryptocurrency*; it is the first part of > *pump and dump* schemes.

Shitcoin

A shitcoin is a > *token* or > *coin* which has no value or utility (anylonger).

side chains

A sidechain is a separate > blockchain that is attached to its parent blockchain (mainchain) using a two-way peg.

Signature

A signature is the mathematical operation for verifying the authenticity of a transaction or a document and can for instance be used to prove someone's ownership over his/her > digital wallet, > coins or data.

smart contract

A smart contract is an online contractual agreement based on the > *Ethereum* > *blockchain* that runs exactly as programmed without any possibility of downtime, censorship, fraud or third-party interference.

soft cap

In the context of an > ICO or an > ITO, a soft cap is the minimum amount of money a project intends to raise. If this minimum amount is reached, the ICO or ITO is considered a success; although normally the project is expected to return the funds if the soft cap is not reached, there have been cases of projects keeping the funds despite the > ICO or > ITO not being successful which may be considered a > scam.

soft fork

A soft fork is a specific form of a > fork which occurs when the developers of a > blockchain decide that changes must be made to the code so that previously valid blocks are made invalid; contrary to a > hard fork a soft fork requires that only a majority of > nodes upgrade to the new version of the code; as old nodes will continue to recognize the new blocks as valid, a soft fork is backward-compatible.

software wallet

A software wallet is a > digital wallet existing as an application on a computer and typically employs > hot storage technology.

Solidity

Solidity is an object-oriented programming language that smart contracts can be written in; it can be used on various > DLT platforms.

spoofing

Spoofing is a form of market manipulation, resp. > scam, in which a market participant places a large buy or sell order with no intention of executing it. By doing so he or she creates an artificial impression of high or low demand for a traded asset and thus oftentimes induces price changes.

spread

A spread is the difference between the highest bid and the lowest ask price of an asset. Low spreads are a sign of a liquid markets.

stable coin

Stable coins are > coins that correlate relatively little with overall cryptocurrency markets. Oftentimes stablecoins are pegged to single > fiat monies or to exchange traded commodities.

staking

Staking is part of the > proof of stake > consensus process which requires network participants to 'lock up', specific quantities of tokens used in the network for a short amount of time in order to 'vote' and generate network consensus; typically staking is rewarded depending on the size of the stake provided.

startup (start-up, startup company)

 A startup is a business that is in the process of being setup or one that has just recently begun operation.

state channels

State channels are secure transactions among > *DLT* users that occur off the blockchain and thus minimize the use of on-chain operations; they are used, for instance, in the > *Raiden Network* or > *Lightning Network*.

STO (security token offering)

An STO is an event at which a > security token is offered at a set price before being offered on an exchange, similarly to an > IPO in traditional finance; discounts may apply at this time; STOs are subject to country-specific regulations.

Szabo

Szabo is a denomination of > Ether and a popular measurement unit of > Gas. 1 Ether = 1000000000000 Szabo.

taker fee

Taker fees are charges due when a market participant places a market or limit order that executes immediately against a limit order already on the orderbook; as this action removes liquidity from the market, the taker fee is on > cryptocurrency exchanges oftentimes higher than the opposite, the > maker fee.

Tangle

Tangle is a > *DLT* that requires the user to approve of two previous transactions if he/she wants to carry out a new one; by doing so the initiator of a new transaction indirectly confirms that a subsection of the Tangle is valid and that it conforms to the protocol rules; it thus represents Tangle's > *proof of work*; Tangle therefore merges the transaction making process with the > *consensus mechanism*.

tap

A tap is a poll among the investors in the > *DAICO* process aimed at securing capital for certain tasks in the course of the project.

Telegram

Telegram is a cloud-bases instant messaging application, similar to WhatsApp, Line and Facebook Messenger. One of Telegram's defining features are its "supergroups", that can group up to 100.000 users in a single group-chat. This feature makes Telegram the platform of choice for mass-communication. The application has become very popular in the crypto world, where it is routinely used by companies, investors and other parties to communicate investing opportunities.

TFA (two factor authentication)

see > 2FA

This is it, gentlemen

"This is it, gentlemen" is used in the crypto community to point out positive things that are currently happening.

timestamp

A timestamp is a set of information identifying the time at which an event is recorded by a computer; on the > blockchain timestamps show the chronological order of the > blocks and marks the exact time of each transaction; timestamps prove what has happened when on the blockchain.

timestamping

Timestamping is the process of proving that a certain event occured priori to a certain point in time; timestamping based on > blockchain > timestamps is particularly trustworthy, since timestamps on the blockchain are subject to > immutability.

Token

Tokens are > cryptocurrencies that are created and accounted for in > DLT systems and represent an asset, a usage right or a unit of value issued by a organization and are typically emitted throughout an > ICO, > ITOs, or > private sale; oftentimes, > tokens do not run on proprietory DLT systems, but use other > cryptocurrencies' > blockchains, most typically > Ethereum.

token basket (token set)

A token basket is a composite collection of > tokens that has been created using an > Ethereum > smart contract; token baskets allow for investing in a collection of > digital assets rather than investing in each of those assets individually.

token contract

A token contract is a > *smart contract* on the > *Ethereum* network.

token contract address

A token contract address is the location of the actual > *token contract* that manages the logic for tokens.

token gravity

Token gravity is a concept describing how > tokens are expected to move within a digital ecosystem

token sales

Token sales is the process of tendering newly mined > *tokens* or > *coins*, oftentimes in the context of an > *ICO* or > *STO*.

token set

see > token basket

tokenization

Tokenization is a method of protecting sensitive information by substituting a critical data element with a non-sensitive unique alphanumeric identifier, referred to as a token, that has no exploitable meaning or value to third parties. E.g. tokenization can be used to create a representation of a real-world asset by a digital token.

Tokenomics

Tokenomics (umbrella term that encompasses > token and economics) is the economics underlying a token: it sets forth when, which quantity of tokens are issued and burned and for which purposes they can be used and when; it thus determines the framework for supply and demand.

total supply

The total supply is the total amount of > tokens or > coins in existence at the present; it is equal to the total amount of coins/tokens mined minus any that have been verifiably > burned.

TPS (transactions per second)

TPS is the rate at which a system can process transactions, i.e. at which rate blocks can be created on the > blockchain.

trading bot

A trading bot is an application that is directly linked to > crypto exchanges oftentimes via an > API and, programmed to trade > crypto currencies following predefined > algorithms.

trading bot

see > bot

transaction fee

A per transaction fee is an expense a user must pay to an intermediary for conduction a transaction on a specific system. On > cryptocurrency exchanges fees are typically calculated based on a percentage of the notional order value for a matched trade; the fees typically differ between > maker fee and > taker fee.

transactions per second

see > TPS

Trezor

Trezor is a popular USB > *cold wallet* to store > *cryptocurrencies*.

Turing complete

Turing complete is a term given to a system that is able to recognize or decide specific other data-manipulation rule sets (the ones used by Turing Machines); Turing complete is a label used to express the power of such a data-manipulation rule set; the large majority of modern programming languages are Turing complete.

unbanked

Unbanked is a characteristic describing people who do not use banks or financial institutions oftentimes because they do not have access to banking services or because they prefer cash transactions outside the banking system.

underbanked

Underbanked is a characteristic describing people who do not have sufficient access to mainstream financial services and products typically offered by retail banks and thus regularly rely on cash and checks as a mean of funding rather than bank related methods such as credit cards or loans.

utility token

A utility token is > token issued issued in order to fund the development of an IT systems and/or business model and can typically be used to later on purchase goods or services created by the issuer of that token and can thus oftentimes be seen as usage rights.

vesting

Vesting is a term characterising the fact that an asset is wholly owned by an investor; crypto projects oftentimes implement long-lasting token release vesting schedules for their token sale investors, locking them into those tokens for a considerable periode of time.

virtual currency

 ${\it see} > digital \ currency$

Vitalik Buterin

Vitalik Buterin is a Russian-Canadian developer best known as a co-founder of > *Ethereum*.

wallet

 $see > digital \ wallet$

Wash Trade

A wash trade is a trade on an exchange used to manipulate the market: An investor simultaneously sells and buys the identical financial instruments in order to create exaggerated and potentially misleading activity in the marketplace. Wash trades are often used by > cryptocurrency exchanges to inflate trading volumes.

Weak Hands

Weak hands is a term used to describe investors selling their assets during a negative market sentiment, similar to a card players who folds their cards at the first sign that they are going to lose; typically weak hands will sell during lows.

Wei

Wei is the smallest denomination of > *Ether* and a measurement unit of > *Gas*. 1 Ether = 1'000'000'000'000'000'000 Wei

Whale

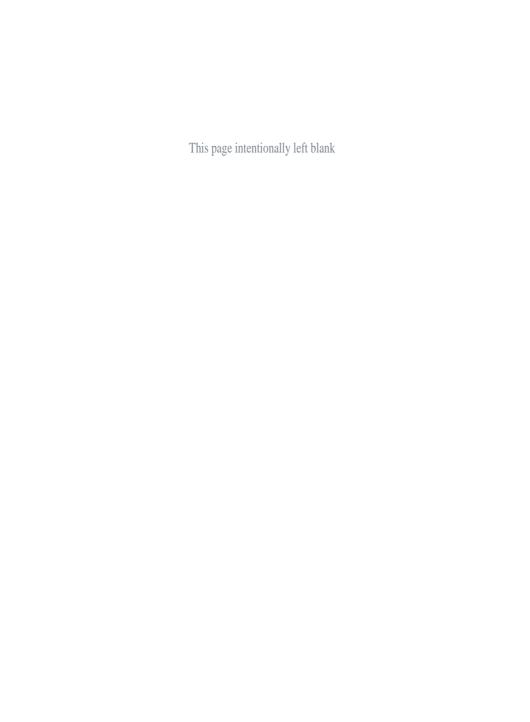
Whale is a term used to describe participants in the cryptocurrency market that are large enough to influence it; in this context the ocean serves as a metaphor for the entire market as it is home to large and small fish and waves can be understood as market movements.

White Paper

A white paper is an in-depth report that aims to educate the reader on a particular issue, or explain a particular methodology or solution; in the crypto-world white paper often refers to the document issued by companies priori to their > ICO or > STO informing the reader of the purpose of the > ICO or > STO and the technology behind it, in which case the white paper could be argued to be a tool to help the company sell the > cryptocurrenies.

whitelisting

Whitelisting is the process of explicitly allowing specifily identified investors to participate in a token sale.



POSTFACE

This book is far from being complete. As an emerging field the topic of cryptocurrecncies, tokens and digitalassests is constantly evolving. Hence, should you be missing one particular term or expression which you believe ought to be included in this booklet, do send us an e-mail: patrick.schueffel@hefr.ch

We look forward to hearing from you!

Patrick Schueffel Nikolaj Groeneweg Rico Baldegger

About the authors



Patrick Schueffel is professor at the School of Management Fribourg, Switzerland, and the institution's Liaison Officer in Singapore. His research focus is on Banking, Finance and Entrepreneurship. After a long-time banking career in Zurich, he is now also active as a founder, investor and advisor in the Singaporean and Swiss Crypto scene alike and enthusiastically connecting the dots between Europe and Asia.



Nikolaj Groeneweg is an entrepreneur and A.I. engineer with a decade of experience on the intersection of business and technology - growing startups and helping corporates bring to market new initiatives. He is currently based in Singapore, where he is a founder in the Crypto scene and an advisor to companies looking to do business in Asia Pacific.



Rico Baldegger is the Rector of the School of Management Fribourg, Switzerland, and teaches and researches at this institution as a professor. His research focus is on Business Administration, Innovation, Entrepreneurial Economics and International Economics. As a serial entrepreneur he has helped creating numerous companies active in Switzerland and abroad.

What is the blockchain? What is a distributed ledger? What do people mean when they talk about ERC-20? What is the difference between a hard and soft fork? And between hot and cold storage?

Containing over 300 entries on all aspects of crypto, tokens and digital assets, this encyclopedia incorporates the latest information available from academia and practice on these topics. Loaded with clear, concise, and authoritative information, it is the most comprehensive single-volume A-Z reference work of its kind.

Our aim in preparing this dictionary is to share the vocabulary of a newly emerging field of business and research endeavour. We are convinced that this will make a major contribution to our mutual understanding. It thus is essential for all practitioners, students and educators in the field of crypto who want to ensure that we use a common language throughout the ecosystem.

GROWTH-PUBLISHER BERN

