

FINAL  
DRAFT

INTERNATIONAL  
STANDARD

ISO/FDIS  
22739

ISO/TC 307

Secretariat: SA

Voting begins on:  
2023-09-29

Voting terminates on:  
2023-11-24

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## Blockchain and distributed ledger technologies — Vocabulary

*Chaîne de blocs et technologies de registres distribués — Vocabulaire*

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Reference number  
ISO/FDIS 22739:2023(E)

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Published in Switzerland

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## Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 307, *Blockchain and distributed ledger technologies*.

This second edition cancels and replaces the first edition (ISO 22739:2020), which has been technically revised.

The main changes are as follows:

- inclusion of new terms and definitions.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

This document defines terms relating to blockchain and distributed ledger technologies (DLTs) to clarify the meaning of terms and concepts used in other documents within the domain of ISO/TC 307.

Clear, consistent and coherent standards require clear, consistent and coherent terminology. This document follows the rules and guidelines set by ISO/TC 37, *Language and terminology*, for terminology standards.

This document applies to all types of organizations (e.g. commercial enterprises, government agencies and non-profits). The target audience includes but is not limited to academics, solution architects, customers, users, tool developers, regulators, auditors and standards development organizations.

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# Blockchain and distributed ledger technologies — Vocabulary

## 1 Scope

This document defines fundamental terminology for blockchain and distributed ledger technologies.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1

#### asset

anything that has value to a stakeholder

[SOURCE: ISO 19299:2020, 3.1, modified — The Note to entry has been removed.]

### 3.2

#### block

structured data comprising a *block header* (3.4) and *block data* (3.3)

### 3.3

#### block data

structured data comprising zero or more *transaction records* (3.95) or references to transaction records

### 3.4

#### block header

structured data that includes a *hash link* (3.47) to the previous *block* (3.2), if present

Note 1 to entry: A block header can also contain a *timestamp* (3.91), a *nonce* (3.62), and other *distributed ledger technology (DLT) platform* (3.33) specific data, including a *hash value* (3.48) of corresponding *transaction records* (3.95).

### 3.5

#### block reward

reward given to *miners* (3.59) or *validators* (3.99) after a *block* (3.2) is *confirmed* (3.9) in a *blockchain system* (3.7)

Note 1 to entry: A reward can be in the form of a *cryptoasset* (3.14).

### 3.6

#### blockchain

*distributed ledger* (3.23) with *confirmed blocks* (3.10) organized in an append-only, sequential chain using *hash links* (3.47)

**3.7  
blockchain system**

system that implements a *blockchain* (3.6)

Note 1 to entry: A blockchain system is a type of *distributed ledger technology (DLT) system* (3.35).

**3.8  
blockchain technology**

technology that enables the operation and use of *blockchains* (3.6)

**3.9  
confirmed**

accepted by *consensus* (3.12) to be recorded in a *distributed ledger* (3.23)

**3.10  
confirmed block**

*block* (3.2) that has been *confirmed* (3.9)

**3.11  
confirmed transaction**

*transaction* (3.93) that has been *confirmed* (3.9)

**3.12  
consensus**

agreement among *distributed ledger technology (DLT) nodes* (3.31) that: a) a *transaction* (3.93) is *validated* (3.97), and b) the *distributed ledger* (3.23) contains a consistent set and ordering of records of validated transactions

Note 1 to entry: Consensus does not necessarily mean that all DLT nodes agree.

Note 2 to entry: The details regarding consensus differ among *DLT systems* (3.35) and this can be a distinguishing characteristic between one DLT system and another.

**3.13  
consensus mechanism**

set of rules and procedures by which *consensus* (3.12) is reached

Note 1 to entry: These rules and procedures are interrelated.

**3.14  
cryptoasset**

crypto-asset  
*digital asset* (3.21) implemented using cryptographic techniques

Note 1 to entry: *distributed ledger technology (DLT) systems* (3.35) can be used to manage or transfer cryptoassets.

**3.15  
cryptocurrency**

*cryptoasset* (3.14) designed to work as a medium of payment or value exchange

Note 1 to entry: Cryptocurrency involves the use of decentralized control and *cryptography* (3.16) to secure *transactions* (3.93), control the creation of additional *assets* (3.1), and verify the transfer of assets in a *distributed ledger technology (DLT) system* (3.35).

**3.16  
cryptography**

discipline that embodies the principles, means and methods for the transformation of data in order to hide their semantic content, prevent their unauthorized use, or prevent their undetected modifications

[SOURCE: ISO 7498-2:1989, 3.3.20, modified — The Note to entry has been removed.]



**3.17****decentralized application****Dapp**

application that runs on a *decentralized system* (3.20)

**3.18****decentralized identifier****DID**

*identifier* (3.49) that is issued or managed in a *decentralized system* (3.20) and designed to be unique within a context

Note 1 to entry: Decentralized identifiers are used in systems that do not rely on central registration authorities.

**3.19****decentralized identity**

*identity* (3.50) that is managed in a *decentralized system* (3.20)

**3.20****decentralized system**

*distributed system* (3.24) wherein control is distributed among the persons or organizations participating in the operation of the system

Note 1 to entry: In a decentralized system, the distribution of control among persons or organizations participating in the system is determined by the system's design.

**3.21****digital asset**

*asset* (3.1) that exists only in digital form or that is the digital representation of another asset

**3.22****digital signature**

data which, when appended to data to be signed, enable the user of the data to authenticate their origin and integrity

[SOURCE: ISO 14641:2018, 3.17, modified — “digital document” has been replaced with “data to be signed”.]

**3.23****distributed ledger**

*ledger* (3.54) that is shared across a set of *distributed ledger technology (DLT) nodes* (3.31) and synchronized between the DLT nodes using a *consensus mechanism* (3.13)

Note 1 to entry: A distributed ledger is designed to be *immutable* (3.51), tamper-resistant, tamper-evident and append-only, containing final and definitive *ledger records* (3.55) of *confirmed* (3.9) and *validated* (3.97) *transactions* (3.93).

**3.24****distributed system**

system in which components located on networked computers communicate and coordinate their actions by interacting with each other

**3.25****DLT****distributed ledger technology**

technology that enables the operation and use of *distributed ledgers* (3.23)

**3.26****DLT account****distributed ledger technology account**

representation of an *entity* (3.38) participating in a *transaction* (3.93) in a *DLT system* (3.35)

3.27

**DLT address**

**distributed ledger technology address**

data element designating the originating source or destination of a *transaction* (3.93)

3.28

**DLT bridge**

**distributed ledger technology bridge**

*DLT oracle* (3.32) that enables *interoperability* (3.52) between a *DLT system* (3.35) and other systems that implement *ledgers* (3.54)

Note 1 to entry: The other systems can also be *DLT systems* (3.35).

3.29

**DLT governance**

**distributed ledger technology governance**

system for directing and controlling a *DLT system* (3.35) including the distribution of *on-ledger* (3.68) and *off-ledger* (3.66) decision rights, incentives, responsibilities and accountabilities

3.30

**DLT network**

**distributed ledger technology network**

network of *DLT nodes* (3.31) which make up a *DLT system* (3.35)

3.31

**DLT node**

**distributed ledger technology node**

device or process that participates in a network and stores a complete or partial replica of the *ledger records* (3.55)

3.32

**DLT oracle**

**distributed ledger technology oracle**

service that updates a *distributed ledger* (3.23) using data from outside of a *DLT system* (3.35)

Note 1 to entry: DLT oracles can be used by *smart contracts* (3.88) to access data from sources external to the *DLT system* (3.35).

3.33

**DLT platform**

**distributed ledger technology platform**

set of processing, storage and communication *entities* (3.38) that together provide the capabilities of the *DLT system* (3.35) on each *DLT node* (3.31)

3.34

**DLT solution**

**distributed ledger technology solution**

solution built using a *DLT system* (3.35) to accomplish some business objectives common to a group of *DLT users* (3.36)

Note 1 to entry: A DLT solution consists of the *DLT system* (3.35) with its *DLT nodes* (3.31) and communication networks plus all the *decentralized applications* (3.17) connected to each of the DLT nodes, along with any associated non-DLT systems connected to the DLT system.

3.35

**DLT system**

**distributed ledger system**

**distributed ledger technology system**

system that implements a *distributed ledger* (3.23)

**3.36****DLT user****distributed ledger technology user**

entity (3.38) that uses services provided by a *DLT system* (3.35)

**3.37****double spending**

*failure* (3.39) of a *distributed ledger technology (DLT) platform* (3.33) where the control of a *cryptoasset* (3.14) is incorrectly transferred more than once

Note 1 to entry: Double-spending is most often associated with *cryptocurrency* (3.15).

**3.38****entity**

person, organization or thing that can be distinguished within a context

Note 1 to entry: An entity can be a person, an organization, a device, a subsystem, a process, or a group of such items.

**3.39****failure**

loss of ability to perform as required

[SOURCE: IEC 60050-192:2015, 192-03-01, modified — The Notes to entry have been removed.]

**3.40****fault tolerance**

ability of a functional unit to continue to perform a required function in the presence of faults or errors

[SOURCE: ISO/IEC 2382:2015, 2123055, modified — The admitted term "resilience" has been removed; the Notes to entry have been removed.]

**3.41****finality**

state of a *ledger record* (3.55) wherein it has become irreversible and cannot be modified or removed

Note 1 to entry: Finality can be probabilistic.

**3.42****fungible**

capable of mutual substitution among individual units

Note 1 to entry: The individual units can be *digital assets* (3.21), e.g. *tokens* (3.92).

**3.43****fungible token**

*token* (3.92) that is *fungible* (3.42)

**3.44****genesis block**

first *block* (3.2) in a *blockchain* (3.6)

Note 1 to entry: A genesis block has no previous *block* (3.2) and serves to initialize the *blockchain* (3.6).

**3.45****hard fork**

*distributed ledger technology (DLT) platform* (3.33) in which new *ledger records* (3.55) or *blocks* (3.2) created by the *DLT nodes* (3.31) using the new version of the DLT platform are not accepted as valid by DLT nodes using old versions of the DLT platform

Note 1 to entry: If not adopted by all DLT nodes, a hard fork can result in a *ledger split* (3.56).