American National Standard for Financial Services

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Distributed Ledger Technologies (DLT) Terminology

Developed by
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Financial Industry Standards

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Contents

Page

Foreword

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Introduction

Business practice has changed with the introduction of computer-based technologies. The substitution of electronic transactions for their paper-based predecessors has reduced costs and improved efficiency. Trillions of dollars in funds and securities are transferred daily by telephone, wire services, and other electronic communication mechanisms. The high value or sheer volume of such transactions within an open environment exposes the financial community and its customers to potentially severe risks from accidental or deliberate alteration, substitution or destruction of data. Interconnected networks, and the increased number and sophistication of malicious adversaries compound this risk.

The inevitable advent of electronic communications across uncontrolled public networks and the advent of using blockchain and distributed ledger technologies over the Internet, are also increasing risk to the financial industry. The necessity to expand business operations onto these environments has elevated the need to develop a common understanding of these new technologies, and to create shared, standardized definitions that can be used to describe and manage their risks. The financial community is responding to these needs.

Suggestions for the improvement or revision of this Standard are welcome. They should be sent to the X9 Committee Secretariat, Accredited Standards Committee X9, Inc., Financial Industry Standards, 275 West Street, Suite 107 Annapolis, MD 21401 USA.

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X9A1 – Distributed Ledger Terminology working group had the following members

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Amy Kim, Chamber of Digital Commerce, Vice Chair
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Distributed Ledger Technologies Terminology

1 Scope

This standard defines terminology for blockchain, digital currency, and distributed ledger technologies (DLT) for use in the financial services industry. These defined terms are intended to assist regulators, inform future legislation, and provide consistency in the development of future X9 financial services standards. A standardized vocabulary will help remove barriers to the adoption of new technologies that can improve operating efficiency in financial services, reduce cost for banks and their customers, and lead to greater understanding in our legal and regulatory community. The scope of this standard includes terms used to describe blockchain, digital currency, and DLT. These include terms related to business, legal, legislation, and technology.

2 Normative References

There are no referenced documents indispensable for the application of this document.

3 Terms and definitions

The defining standard is listed in parentheses after each term. The first listing is the current defining standard and the second listing, if present, is the past or future defining standard. If a definition starts with the words, “As used in this standard…” it indicates the definition is altered to meet the needs of this standard and differs from the definition in the referenced defining standard.

Explanatory Note: the term participant within this standard means “one that participates.”
Source: https://www.merriam-webster.com/dictionary/participant?src=search-dict-hed

3.1 Block

a set of data representing a confirmed batch of transactions with an associated header containing a timestamp *hash-linked* to the previously confirmed set of data which ensures the continuity of a ledger

3.2 Blockchain

a type of *distributed ledger technology* that (i) groups data into *blocks* that are *hash-linked* chronologically and confirmed by a consensus mechanism over a shared distributed network of participants to validate the creation of transactions or events being posted to the ledger and (ii) is tamper-resistant and intended to serve as an immutable record of all such transactions and events

3.3 Block Explorer

a search tool that locates *blockchain* data using a *hash*, or other means, and enables analysis of the data

3.4 Block Height

the number of *blocks* on a *blockchain**
*Note: The *genesis block* is considered block zero.

3.5 Central Bank Digital Currency

a *government backed digital currency* that is issued by a central bank

3.6 Chaincode

a computer software representation of business logic and programming language instructions used to register and manage the state of transactions on a ledger

3.7 Consensus Protocol

a system of agreement that allows a collection of distributed participants to affirm transactions that can be recorded to the shared ledger

3.8 Cryptoasset

any *digital asset* that relies on aspects of *cryptography* and *distributed ledger technology* for its issuance, storage, exchange, or transaction validation, including, but not limited to, *cryptocurrencies*, cryptosecurities, and *utility tokens*

3.9 Cryptocurrency

a *digital currency* that (i) does not have legal tender status, (ii) is or is intended to be used as a medium of exchange, (iii) is not a security under the appropriate government authority, and (iv) relies on aspects of cryptography and distributed ledger technology to be issued, transferred, stored or traded electronically

3.10 Cryptographic

pertaining to, or concerned with, *cryptography*

[SOURCE: CNSSI-4009]

3.11 Cryptographic Key

value used to control *cryptographic* operations, such as decryption, encryption, signature generation, or signature verification

[SOURCE: SP 800-63]

3.12 Cryptography

discipline which embodies principles, means and methods for the transformation of data in order to hide its information content, prevent its undetected modification, prevent its unauthorized use or a combination thereof

[SOURCE: ANSI X9.95:2016, 3.16]

3.13 Decentralized Autonomous Organization

an organization represented by rules encoded as a self-sustaining computer program with a protocol and consensus mechanism that enforces the agreed to rules without the intervention of a central authority or single entity

3.14 Digital

data expressed as series of the digits 0 and 1

3.15 Digital Asset

an electronic representation of value

3.16 Digital Currency

a *digital asset* used as a medium of exchange

3.17 Digital Token

a *digital* representation of any asset, object, or data value

3.18 Distributed Ledger Technology

A *digital* recordkeeping system, governed by rules and/or a *consensus mechanism*, where information is replicated across multiple sites or entities

3.19 Fork

two or more *blocks hash-linked* to the same preceding *block*

3.20 Genesis Block

initial *block* in a *blockchain*

3.21 Government Backed Digital Currency

a *digital currency* that is a medium of exchange of value defined by reference to the geographical location of the monetary authorities responsible for it

3.22 Hard Fork

a change that results in two ledgers operating independently

3.23 Hash Link

a pointer comprised of the address of the previous logical *block* and the *hash* of the data contained within that *block*

3.24 Hash Value

a string of bits resulting from application of a *cryptographic* algorithm to data, typically represented in an alphanumeric form

3.25 Oracle

the source of external data written to a ledger used to inform a decision or an action on that ledger

3.26 Orphan Block

a valid *block* that has not been added to a *blockchain* due to lack of consensus

3.27 Paper Wallet

a printed piece of paper containing the *cryptographic* keys associated with a ledger entry

3.28 Peer-to-Peer (P2P)

a distributed architecture that partitions tasks or workloads between peers, which are equally privileged, equipotent participants in the application

[Source: Wikipedia]

3.29 Permissioned

restrictions on a participant's ability to read or write data*

*Note: restrictions may include the use of authentication, authorization, or *cryptography*.

3.30 Permissionless

a participant's ability to read or write data is not restricted

3.31 Private

access requires consent

3.32 Public

access does not require consent

3.33 Sidechain

a series of *blocks* in a *blockchain* that are associated with another *blockchain*, neither *blockchain* effecting the operation of the other

3.34 Soft Fork

a change that maintains the operation of the current ledger

3.35 Taint

virtual currency identified as potentially being implicated in illicit activity

3.36 Tokenless Ledger

a type of *distributed ledger technology* that does not utilize a *digital token* to operate

3.37 Utility Token

a *digital token* that can be used to purchase or access a product or service

3.38 Virtual Currency

a *digital currency* that (i) does not have legal tender status, (ii) is or is intended to be used as a medium of exchange, and (iii) is not a security under the appropriate government authority