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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 documents 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).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

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.

Introduction

This document provides a selection of use cases to illustrate a spectrum of applications of distributed ledger technologies including the blockchain (hereafter referred to as DLT). The use cases reflect various international domains, business and industry sectors and processes.

The use cases help to identify actual and potential applications of the technology in the given context, along with relevant requirements, options, benefits, and risk mitigation strategies.

The framework of this document enables this approach by providing a perspective of use cases that goes beyond the traditional vertical sectors or DLT attributes. This document provides assessment across five different categories to provide technology, market and social perspectives. The visualisation of user flows and architecture enables a broader perspective of the role of a DLT as part of on-ledger and off ledger ecosystems. By assessing current DLT implementations, these use cases provide learnings that apply to governance, compliance, interoperability, cross-border regulations, and scalability.

The open innovation approach to use cases can contribute to accelerating the implementation of these new technologies and help reduce the instance of duplication or repeated solution development. This bridge of new information and existing standards can also inform innovators and SMEs to adopt a standards-based approach to build the future of DLT, especially where new decentralised business models apply for example in areas such as financial technology (fintech) and the energy sector.

This document is arranged in three sections for easy reference and comparison.

[Clauses 4, 5, and 6](#) describe the approach, process and criteria of use case selection and study. This provides a guide to the template structure and five key categories that draw out the impact of DLT attributes across transversal (related technologies), horizontal (attributes), vertical (sector specific), United Nations Sustainable development goals (SDGs) and status (from pilot to implementation stages). The use cases each have a set of visualizations that provide further detail of DLT activity as well as the relationship to the user and technology ecosystem. The diagrams include data flow models, a reference architecture from a single node view, and behavioural UML. As such, the template and diagrams provide a detailed insight into the individual use case.

[Clause 7](#) provides commentary on the trends identified in the use case. This provides analysis of categories and DLT types in the use cases. Examples include the clusters of DLT the adoption of hybrid or new DLT and the use of open source^[1].

[Clauses 8, 9, 10, and 11](#) provide the detailed use cases reflecting the digital marketplace, arranging them in the template format for easy comparison. The combination of categories and commentary in this document is designed to help readers reference the relevant classification to their sector as well as discover transferable attributes from other categories that can be applied to their DLT requirements.

The work on this document started with identifying the key themes which have the most DLT activity and inviting use cases in these sectors. This resulted in a first set of sector clusters including Fintech, Supply Chains, Data Provenance and Energy.