INTERNATIONAL STANDARD

ISO/IEC 19763-1

Third edition
2023-07

Information technology — Metamodel framework for interoperability (MFI) —

Part 1: **Framework**

Technologies de l'information — Cadre du métamodèle pour l'interopérabilité (MFI) —

Partie 1: Structure

Reference number
ISO/IEC 19763-1:2023(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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 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 or www.iec.ch/members_experts/refdocs).

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

This third edition cancels and replaces the second edition (ISO/IEC 19763-1:2015), which has been technically revised.

The main changes are as follows:

— The document has been revised to take account of the changes caused by the modularization and technical revision of ISO/IEC 11179-3. The fourth edition of ISO/IEC 11179-3, published in 2023, is now *Information technology — Metadata registries (MDR) — Part 3: Metamodel for registry common facilities*;

— Annex B has been removed.

A list of all parts in the ISO/IEC 19763 series can be found on the ISO website.

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 and www.iec.ch/national-committees.

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Introduction

Due to the proliferation of internet-enabled communication aided by mobile devices, social network systems and cloud computing, both the efficient and effective sharing of information and the handling of business transactions across countries and cultures has become easier.

In the private sector, the handling of these business transactions using Electronic Data Interchange (EDI) has been common for a long time. Companies hold large quantities of structured, semi-structured and unstructured data – the "Big Data" explosion. It is in their interest to make effective use of this data to extract business intelligence and knowledge.

In the public sector, governments in many countries and territories are working on the establishment of new schemes that enable interoperation and collaboration among different departments or agencies, materialising the semantic interoperability of data and surmounting border or language differences. At the same time, many governments and agencies are attempting to make their data available to their citizens over the internet, the "Open Data" initiatives. These "Open Data" initiatives can be the driver for similar innovations in the private sector. One of the issues for users is to access the various sets of open data easily and integrate them for analysis to create new value through added information or knowledge.

These trends have produced new needs for standards that enable effective information sharing in both private and public sectors.

One of the key enablers of this sharing of the information that is used by different communities through the interoperability of systems is a registry, or a network of inter-connected registries, that provides for the discovery and sharing of meta-information, such as metadata or models. The metamodel framework for interoperability (MFI) provides the specifications for such registries.

The metamodels specified in the ISO/IEC 19763 series each provides an extension for a metadata registry (MDR) as defined in the ISO/IEC 11179 series. ISO/IEC 11179-3[2] specifies the common facilities for a registry. These common facilities allow for items in the registry to be identified (assigned a unique identifier), designated (or named), defined and classified along with the recording of information about the provenance of the registered items. ISO/IEC 11179-6[3] specifies the registration procedures to be used with a registry.

This revised document provides a clear overview of the ISO/IEC 19763 series and illustrates the overall architecture of the metamodel framework for interoperability.

Each part of the ISO/IEC 19763 series is described in more detail in Annex A.

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Information technology — Metamodel framework for interoperability (MFI) —

Part 1: Framework

1 Scope

This document provides an overview of the whole ISO/IEC 19763 series. This overview includes the purpose, the underlying concepts, the overall architecture and the requirements for the development of other standards within the 19763 series.

Collectively, the other parts of the ISO/IEC 19763 series provide a set of normative metamodels to enable the registration of many different types of model. Each of these metamodels is expressed both as a UML class diagram and, more formally, in text. The metamodels, along with the specification in ISO/IEC 11179-3, define the information about the models that is to be registered. The models themselves can be stored in a model repository or can just exist as paper documents.

The ISO/IEC 19763 series does not specify any physical structure of a registry where model information is to be recorded.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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
model
representation of some aspect of a domain of interest using a normative *modelling language* (3.3) and *model constructs* (3.4)

Note 1 to entry: Models can be used to express a set of information requirements, processes, services, roles, goals or some other aspect of a domain of interest

3.2
model element
element or component in a *model* (3.1)

Note 1 to entry: Examples of model elements are a representation of an entity type in an *information model* (3.17), a representation of an event in a *process model* (3.21), a representation of a service operation in a *service model* (3.23), or a representation of an actor in a *role and goal model* (3.26).

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