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Part 12: Metamodel for information model registration

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

Partie 12: Métamodèle pour l'enregistrement du modèle d'information

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, SC 32, *Data management and interchange*.

ISO/IEC 19763 consists of the following parts, under the general title *Information technology — Metamodel framework for interoperability (MFI)*:

— *Part 1: Framework*

— *Part 3: Metamodel for ontology registration*

— *Part 5: Metamodel for process model registration*

— *Part 6: Registry Summary*

— *Part 10: MFI Core model and basic mapping*

— *Part 12: Metamodel for information model registration*

The following parts are under preparation:

— *Part 7: Metamodel for service registration*

— *Part 8: Metamodel for role and goal registration*

— *Part 9: On demand model selection*

— *Part 13: Metamodel for forms registration*

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Introduction

There is an increasing demand for systems to interoperate by exchanging data. For these data exchanges to be meaningful, it is essential that the business information requirements that are met by the data stored in these systems are understood so that suitable data exchange mechanisms can be developed.

Business information requirements, including the semantic meaning of the information, are often represented by information models before the databases that are an integral part of the systems are designed. These models are often called logical models. The subsequent design of the database structure can also be considered to be another form of information model.

Where there is an overlap of the universe of discourse of two systems, the information models for these two systems can be registered using the facilities specified by this part of ISO/IEC 19763. The mappings between these two models can then be registered using the facilities specified by ISO/IEC 19763-10. An interface between the two systems can then be designed, enabling the two systems to interoperate by exchanging information.

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Information technology — Metamodel framework for interoperability (MFI) —

Part 12: Metamodel for information model registration

1 Scope

The primary purpose of the multipart standard ISO/IEC 19763 is to specify a metamodel framework for interoperability. This part of ISO/IEC 19763 specifies a metamodel for registering information models. This metamodel was developed taking into account two distinct types of information models such as

— those that are used to document the information requirements of a particular area of interest, and

— those that represent the structure of a database which are often expressed using a Database Definition Language (DDL).

Information models that represent information requirements can be developed using a number of different common diagramming techniques and notations. The metamodel specified in this part of ISO/IEC 19763 was developed to cover the registration of models expressed using the following techniques and notations:

— Express-G, an ISO standard entity-relationship modelling notation, as described in Reference [8];

— IDEF1X, a US Federal standard entity-relationship modelling notation, as described in References [6] and [12];

— the entity-relationship modelling notation first developed by Harry Ellis and Richard Barker and later adopted by Oracle for its CASE*Method and by the UK's CCTA for SSADM (Structured Systems Analysis and Design Method), as described in Reference [2];

— the UML Class Diagram notation, as described in References [13] and [14];

— the original entity-relationship modelling notation proposed by Peter Chen, as described in Reference [4];

— the Information Engineering entity-relationship modelling notation, as described in Reference [11].

It is understood that these selected techniques represent all of the essential features of all information modelling techniques used to represent information requirements.

The registration of information models that represent the structure of a database is limited in the metamodel specified in this part of ISO/IEC 19763 to those database structures that conform to the Core SQL specification. Core SQL is the set of features defined in the conformance requirements specified in ISO/IEC 9075-2 and ISO/IEC 9075-11.

The registration of information models that are expressed using notations such as Object Role Modeling (ORM) and "Natural language Information Analysis Method" (NIAM), collectively known as fact-based models, is out of scope for this part of ISO/IEC 19763.

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