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Guidelines for knowledge libraries and object libraries

Lignes directrices pour les bibliothèques de connaissance et les bibliothèques d'objets

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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
3.1 Terms and definitions for concepts ... 1
3.2 Terms and definitions for kinds of relations ... 7
4 Symbols and abbreviations ... **16**
5 Objectives ... **17**
5.1 Introduction ... 17
5.2 Scope, conditions and target users ... 17
5.3 Problem definition ... 18
5.4 Objective of this standard ... 18
5.5 Guidelines as instrument ... 20
6 Types of knowledge libraries ... **23**
6.1 Introduction ... 23
6.2 Definitions and types of knowledge libraries ... 24
6.3 Added value of knowledge libraries ... 27
7 Functional framework for knowledge libraries ... **30**
7.1 Introduction ... 30
7.2 Functional unit: vocabulary or list of terms ... 31
7.3 Functional unit: Dictionary ... 31
7.4 Functional unit: Taxonomy ... 31
7.5 Functional unit: Aspect Models ... 33
7.6 Functional unit: Composition Models ... 33
7.7 Functional unit: Collections ... 34
7.8 Relations between functional units ... 35
8 Guidelines for functional units ... **36**
8.1 Guidelines for Vocabularies or List of Terms ... 36
8.2 Guidelines for Dictionaries ... 39
8.3 Guidelines for Taxonomies ... 40
8.4 Guidelines for Aspect Models ... 46
8.5 Guidelines for Composition Models ... 47
8.6 Guidelines for Collections ... 49
8.7 Guidelines for Cross Functional Units ... 50
Annex A (informative) **Quality labels** ... **53**
Annex B (normative) **Reference model** ... **60**
Annex C (informative) **Guidelines under scrutiny** ... **66**
Annex D (informative) **Index** ... **70**
Bibliography ... **72**

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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 electro technical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16354 was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 13, *Organization of information about construction works*.

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Introduction

Knowledge libraries are databases that contain modelled knowledge about kinds of things.

Knowledge libraries are intended to support business processes concerning any kind of products during their lifetime, for example to support their design, procurement, construction, operation or maintenance. There is an increasing awareness of the high potential value of knowledge libraries and of the drawbacks of the inconsistencies and lack of interoperability between different knowledge libraries.

This standard is based on Netherlands Technical Agreement NTA 8611:2008 (en), *Guidelines for Knowledge Libraries and Object Libraries, Version 3.0*.

On both a national and international level knowledge libraries exist or are being developed, such as the Gellish English Dictionary-Taxonomy (previously called STEPlib), UNETO-VNI ETIM system, LexiCon and the GWW Objectenbibliotheek [Civil Object Library] and International Framework for Dictionaries (IFD) developed by the Building Smart consortium. International efforts include IEC 61360, ISO 13584, ISO/TS 15926-4, and ISO 12006-3.

Historically, most libraries have had their own unique structure and methodology for defining their objects and they use their own naming conventions. For instance, the structure of the article classes laid down in ISO 13584-42 notably differs from that of the UNETO-VNI component classes (publication 8) or LexiCon, based on ISO 12006-3. In most cases the intrinsic definition of objects will also be different.

The major ICT developments with regard to the Internet and XML technology have increased the possibility for uniformity. From a technical point of view, it has become much easier to exchange data, which increases the need and support for this within the industry. Organizations launching new initiatives for the creation of knowledge libraries may also greatly benefit from enhanced uniformity. They may come up with questions such as: “Which existing libraries should be used?”, “Will these libraries receive sufficient support?”, “Do they fulfil my information needs?” and “Is there international support for such libraries?”

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Guidelines for knowledge libraries and object libraries

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1 Scope

The aim of this standard is to distinguish categories of knowledge libraries and to lay the foundation for uniform structures and content of such knowledge libraries and for commonality in their usage. By drawing up a number of guidelines, a guiding principle is provided for new libraries as well as for upgrading existing libraries. Without these guidelines there is an undesirable amount of freedom, so that the various libraries may become too heterogeneous. This would render the comparison, linking and integrated usage of these libraries very complex, if not impossible.

— The objective of the standard is to categorize knowledge libraries and object libraries and to provide recommendations for the creation of such libraries. Libraries that are compliant with the guidelines of this standard may be more easily linked to, or integrated with other libraries.

— The target audience of the standard consists of developers of knowledge libraries, builders of translation software or interfaces between knowledge libraries, certifying bodies and builders of applications who must base their work on the knowledge libraries laid down.

NOTE 1 Knowledge libraries are databases or files that contain modelled knowledge about kinds of things. They are intended to support business processes concerning any kind of products during their lifetime, for example to support their design, procurement, construction, operation or maintenance. There is an increasing awareness of the high potential value of knowledge libraries and of the drawbacks of the inconsistencies and lack of interoperability between different knowledge libraries.

NOTE 2 This standard does not aim to standardize terminology, but to harmonize and standardize concepts. Thus the use of synonyms and synonymous phrases and one-to-one translations are allowed or even recommended, provided that alternative terms denote the same concepts and reference is made to the corresponding synonymous terms in this standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

None.

3 Terms and definitions

3.1 Terms and definitions for concepts

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

NOTE The guidelines in this standard are expressed by using two kinds of building blocks: concepts and relation types (which are a special kind of concepts). In this clause, the definitions of those building blocks are provided. The overall description method of the building blocks bears great resemblance to the description method used in several other ISO standards, e.g. the ISO 10303 series.

For each concept a number, a term (which may be a multi-word term or phrase) and a definition is given, usually followed by an explanation in a Note and one or more examples. Each term denotes a concept in English in the context (language community) of this standard.

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