



# Standard Practice for Information Modeling<sup>1</sup>

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## 1. Scope\*

1.1 Information models are increasingly important in the analysis, design, and sharing a common understanding in information engineering, in business process improvement, in building information systems, in developing informatics standards, and in many other uses.<sup>2</sup>

1.2 The purpose of this practice is to identify best practices for the creation, use, and assessment of various types of information models.

1.3 Included in this practice are recommended organizational policies and procedures, where modeling is best used and recommended modeling methods, best practices and evaluation criteria.

1.4 Excluded from this practice are detailed specifications of modeling techniques that are specified or described in other sources.

## 2. Referenced Documents

### 2.1 ANSI Standards:<sup>3</sup>

ANSI X3.172-1990 Dictionary for Information Systems  
IEEE 1320.1-1998 Standard for Functional Modeling Language—Syntax and Semantics for IDEF0  
IEEE 1320.2-1998 Standard for Functional Modeling Language—Syntax and Semantics for IDEF1X (Object 97)

### 2.2 ISO Standards:<sup>3</sup>

ISO 8601-88 Data Elements and Interchange Formats—Representation of Dates and Times  
ISO/IEC 1087 Terminology Work—Vocabulary-Part 1: Theory and Application  
ISO/IEC 11179 Information Technology—Specification and Standardization of Data Elements, Parts 1-6

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee E31 on Healthcare Informatics and is the direct responsibility of Subcommittee E31.25 on Healthcare Data Management, Security, Confidentiality, and Privacy.

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<sup>2</sup> An information model in the context of this standard is any representation of process, data, etc., used in any aspect of information technology or information management.

<sup>3</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

ISO/IEC 19501:2005 Information technology—Open Distributed Processing—Unified Modeling Language (UML) Version 1.4.2

ISO/IEC 2382 Information Processing Systems—Vocabulary

2.3 Other Documents and Standards:<sup>4</sup>

Unified Modeling Language Specification version 1.5, March 2003

## 3. Terminology

3.1 The following sections present terms, definitions, and acronyms found in this practice and in various modeling activities. These terms and definitions are referenced or derived from ANSI X3.172 or ISO/IEC 2382 unless otherwise cited.

### 3.2 Definitions:

3.2.1 *activity, n*—a group of logically related tasks performed for a purpose.

3.2.2 *alternate key attribute, n*—in a logical data model, any candidate key of an entity other than the primary key.

3.2.3 *application model, n*—a representation or description of the application software, programs, or components needed to support a business function.

3.2.4 *attribute, n*—a characteristic of an object or entity (see ISO/IEC 11179).

3.2.5 *attribute value, n*—a representation of an instance of an attribute (see ISO/IEC 11179).

3.2.6 *behavior, n*—in the object-oriented methodology, behavior constitutes the observable effects of an operation or event, including any results generated or obtained; and represented by operations, methods, and state machines (see UML 1.5).

3.2.7 *business model, n*—a representation of the strategy, situation, environment, objectives, direction, and similar characteristics of a business enterprise or business area.

3.2.8 *business process model, n*—a representation of business processes, often where these processes are successively decomposed to describe component activities, to identify the events to which the business shall respond, and to identify the results produced.

<sup>4</sup> Available from Object Management Group. OMG Headquarters, 250 First Avenue, Needham, MA 02494. <http://www.omg.org>.

\*A Summary of Changes section appears at the end of this standard