

Document management

Part 1: Principles and methods

The European Standard EN 82045-1:2001 has the status of a British Standard

ICS 01.110

National foreword

This British Standard is the official English language version of EN 82045-1:2001. It is identical with IEC 82045-1:2001.

The UK participation in its preparation was entrusted to Technical Committee GEL/3, Documentation and Graphical symbols, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 20 December 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 34, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

© BSI 20 December 2001

ISBN 0 580 38793 3

EUROPEAN STANDARD

EN 82045-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2001

ICS 01.110;35.240.01

English version

Document management
Part 1: Principles and methods
(IEC 82045-1:2001)

Gestion de documents
Partie 1: Principes et méthodes
(CEI 82045-1:2001)

Dokumentenmanagement
Teil 1: Prinzipien und Methoden
(IEC 82045-1:2001)

This European Standard was approved by CENELEC on 2001-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

© 2001 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Ref. No. EN 82045-1:2001 E



Documents
Document Sharing Hub

Foreword

The text of document 3B/327/FDIS, future edition 1 of IEC 82045-1, prepared by SC 3B, Documentation, of IEC TC 3, Documentation and graphical symbols, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 82045-1 on 2001-11-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2002-08-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2004-11-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annex ZA is normative and annexes A and B are informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 82045-1:2001 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61082-1 + A1 + A2	NOTE	Harmonized as EN 61082-1:1993 + A1:1995 + A2:1996 (not modified).
IEC 61346-2	NOTE	Harmonized as EN 61346-2:2000 (not modified).
IEC 61175	NOTE	Harmonized as EN 61175:1993 (not modified).
IEC 61666	NOTE	Harmonized as EN 61666:1997 (not modified).
IEC 81714-2	NOTE	Harmonized as EN 81714-2:1998 (not modified).

CONTENTS

INTRODUCTION	4
1 Scope.....	6
2 Normative references	6
3 definitions.....	7
3.1 General.....	7
3.2 Documents related issues	8
3.3 Product related issues.....	9
3.4 Workflow related issues.....	9
4 Principles of document management	10
4.1 General.....	10
4.2 Processes supported by metadata.....	10
4.3 Document concepts.....	10
4.4 Linked documents	13
4.5 Document versions.....	13
5 Metadata for documents with relation to their environment.....	16
5.1 General.....	16
5.2 Metadata associated with the considered object(s)	17
6 Metadata associated with activities within the life cycle of a document.....	17
6.1 General.....	17
6.2 Initiation phase	19
6.3 Preparation phase	21
6.4 Establishment phase	21
6.5 Using phase.....	23
6.6 Revision phase	24
6.7 Archiving phase	25
6.8 Deletion phase.....	26
7 Conformance requirements	27
Annex A (informative) Environment of a document management system	28
Annex B (informative) List of used abbreviations	32
Annex ZA (normative) Normative references to international publications with their corresponding European publications	34
Bibliography	33
Figure 1 — Document with associated metadata	11
Figure 2 — Concept of the compound document	12
Figure 3 — Concept of the document aggregation	12
Figure 4 — Concept of the document set	13
Figure 5 — Sequentially effective versus concurrently effective document versions	15
Figure 6 — Maturity concept	16
Figure 7 — Activities along the life cycle of a document.....	18
Figure A.1 — Environment of document management systems	28

INTRODUCTION

During the last decades, industry has undergone a thorough transition from manual practice to computer support for the creation and exchange of information. However, the manual practices and standards for handling documentation have not undergone a corresponding process. The situation is that the well-documented manual methods for design co-operation and co-ordination – a system for process quality assurance common to the industry – is being replaced by procedures specific to projects and companies. The result is that, although every single actor strives to assure the quality of his own products and services, the process may fail in achieving overall product and process quality. The information, interfaces and networking become industry key factors.

On the other hand, electronic document management technologies are well-suited to handle large amounts of documents occurring in engineering, manufacturing, operation and maintenance processes, together with the connected metadata. Cost reductions and quality improvements are immediate incentives.

The potential benefits include

- efficient search and retrieval of specific documents;
- quick and direct propagation of changes;
- automatic workflow procedures;
- providing document collections about related information;
- reduced administration through integration of document production and management;
- retrieval of knowledge from previous projects and common industry sources;
- supporting the exchange and sharing of data;
- supporting collaborative engineering.

As document management by nature is an instrument for the exchange of information, the need for standardisation is evident.

ISO TC 10 and IEC SC 3B have identified metadata for technical documents as being a field where all industry disciplines immediately will benefit from standardisation, and where no standards are available.

The Technical Management Board of ISO and the Committee of Action of IEC have decided that, for each part of this series, one organization shall be responsible. The technical committees involved have agreed not to change any part of International Standard 82045 without mutual agreement.

This standard defines the document concept covering not only traditional ***paper-based*** documents, but also, more generally, ***computer-based*** information that is identified, structured, processed, controlled and interchanged/communicated *as a unit* (a closed container of information). It deals with fixed sets of information with associated metadata and with multiple presentations of these sets of information.

It introduces the concept of maturity in document management systems, allowing a purpose-driven approach for concurrent and collaborative engineering. This standard covers also the document management systems using sequential engineering.

Management data are data about the content of a document, necessary to manage it in an Electronic Document Management System (EDMS) or Product Data Management System (PDMS) or any other relevant system.

DOCUMENT MANAGEMENT –

Part 1: Principles and methods

1 Scope

This part of International Standard 82045 specifies principles and methods to define metadata for the management of documents associated with objects throughout their life cycle; This cycle generally covers a range from the conceptual idea of a document to its deletion. The established principles and methods are basic for all document management systems.

This part is intended as a general basic standard in all application fields and provides the framework applicable for part 2.

International Standard 82045 is primarily intended as a resource for the use in computerised systems such as Electronic Document Management Systems (EDMS) or Product Data Management Systems (PDMS) for the management, retrieval, storage and selection and archiving of documents, and as a basis for the exchange of documents.

NOTE – Part 2 of International Standard 82045 provides the collection of data element types associated with an information reference model, which may be used in conjunction with the presentation of metadata on documents.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 61346-1:1996, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 1: Basic rules*

IEC 61355:1997, *Classification and designation of documents for plants, systems and equipment*

IEC 62023:2000, *Structuring of technical information and documentation*

ISO/IEC 2382-1:1993, *Information technology – Vocabulary – Part 1: Fundamental terms*

ISO/IEC 8613-1:1994, *Information technology – Office Document Architecture (ODA) and interchange format: Introduction and general principles*

ISO 9000:2000, *Quality management systems – Fundamentals and vocabulary*

ISO 10007:1995, *Quality management – Guidelines for configuration management*

ISO 15226:1999, *Technical product documentation – Life cycle model and allocation of documents*

ISO 16016:2000, *Technical product documentation – Protection notices for restricting the use of documents and products*

3 Definitions

For the purpose of this part of International Standard 82045, the following terms and definitions apply.

3.1 General

3.1.1 object

entity treated in the process of design, engineering, realisation, operation, maintenance and demolition

NOTE 1 The entity may refer to something, which is either physical or non-physical or to a set of information associated with it.

NOTE 2 Depending on its purpose, an object may be viewed in different ways called “aspects”.

[IEC 61346-1, modified]

3.1.2 aspect

specific way of selecting information on, or describing, a system or an object of a system

NOTE Such ways may be

- what the system or object is doing (function viewpoint);
- how the system or object is constructed (product viewpoint);
- where the system or object is located (location viewpoint).

[IEC 61346-1]

3.1.3 data medium

material on which data can be recorded and from which they can be retrieved

[IEC 61355, 3.1]

3.1.4 data

reinterpretable presentation of information in a formalised manner suitable for communication, interpretation or processing

NOTE Data can be processed by human or by automatic means.

[ISO/IEC 2382-1:1993]

3.1.5 database

collection of data organized according to a conceptual structure describing the characteristics of these data and the relationships among their corresponding entities, supporting one or more application areas

3.1.6

information model; conceptual schema

implementation-independent specification of information structures

3.1.7

electronic document management system (abbr. EDMS)

computer-based application dealing with the management of documents throughout the document life cycle

3.2 Document related issues

3.2.1

metadata for documents

data for the description of documents and their management

3.2.2

content

subject information of a document

3.2.3

document

fixed and structured amount of information that can be managed and interchanged as a unit between users and systems

[ISO/IEC 8613-1, modified]

NOTE This unit may not necessarily be human perceptible. Information is usually stored on a data medium.

3.2.4

documentation

collection of documents related to a given subject

NOTE This may include technical, commercial and/or other documents.

[IEC 62023]

3.2.5

document part

part of a document having a function of its own

[IEC 62023]

3.2.6

aggregated document

document containing separately identified documents (parts) that are logically dependent but can be physically independently managed

NOTE An aggregated document has its own metadata.

3.2.7

compound document

document consisting of several embedded files in a specified file structure

3.2.8

document set

collection of documents that are managed together as a unit for a specific purpose

NOTE The metadata of the document set describes which documents it consists of. The set has its own metadata, but not its own content.

3.2.9

document life cycle

period from the conceptual idea to the logical and physical deletion of a document

3.2.10

document version

identified state of a document in its life cycle, recorded so that it can be retrieved as a record or for distribution purposes

3.2.11

document revision

formally approved document version

3.3 Product related issues

3.3.1

product

intended or accomplished result of labour, or of a natural or artificial process

NOTE 1 A product usually has a part number, order number, type designation, and/or a name.

NOTE 2 A technical system, plant, or services can be considered as a product.

[IEC 61346-1]

3.3.2

product life cycle

period from the conceptual idea to the ultimate disposal of a product

[ISO 15226, modified]

3.4 Workflow related issues

3.4.1

maturity level

purpose-oriented degree of completeness of information with regard to the intended final object which is reflected in documents

3.4.2

effectivity

identification of the valid use of a document version tracked by date or event

3.4.3

approval

confirmation by an authority that something conforms to previously defined requirements

3.4.4

release

formal activity of an authority declaring the document effective for a declared purpose in the process cycle

3.4.5

configuration

arrangement of the elements of a system

[ISO 9000:2000]

NOTE Further definitions and guidance on principles and practice related to configuration are available in ISO 10007.

3.4.6

configuration control

activities comprising the control of changes to a configuration item after formal establishment of its configuration documents

[ISO 10007]

4 Principles of document management

4.1 General

For the management of documents within their life cycle and for their exchange between partners, documents shall be associated with a set of metadata, i.e. data identifying and/or describing the document.

Such metadata may appear

- as visible part of a document presentation;
- in a document file transferred between document management systems;
- be associated to a document in a document management system;
- as a separate set of data managed independently from the document for search and retrieval purposes.

NOTE In a paper-based environment there is no clear distinction between metadata and content because both appear in the same object. By introducing an EDMS both aspects should be clearly separated.

4.2 Processes supported by metadata

Metadata provide a separate added value to the document, as they allow to manage, search, retrieve, etc. within a repository of metadata.

Part 2 of International Standard 82045 provides a list of predefined data element types supporting a semantically correct description of documents for the purpose of document exchange and sharing.

Metadata support the following subjects:

- viewing and reproduction process of documents (the presentation aspect);
- identification of documents (the organization aspect);
- workflow and version management of the document (the life cycle aspect) and,
- relations between documents and associated products (the product aspect).

4.3 Document concepts

The document concept covers not only traditional **paper-based** documents, but also **computer-based** information that is handled *as a unit* (a closed container of information). This unit is identified, structured, processed, controlled, interchanged and communicated.

Documents in this standard can be a single document, a compound document, an aggregated document or a document set.