TECHNICAL REPORT

ISO/TR 22957

Second edition
2018-12

Document management — Analysis, selection and implementation of of enterprise content management (ECM) systems

Reference number
ISO/TR 22957:2018(E)

© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ..... **v**
Introduction ..... **vi**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 ECM technology **3**
4.1 General 3
4.2 Functional view of ECM systems 3
4.3 Technical view of ECM systems 4
4.3.1 Overview 4
4.3.2 Database services 5
4.3.3 Storage device drivers 5
4.3.4 ECM application services 5
4.4 Core technologies and application-specific modules 6
4.4.1 Overview 6
4.4.2 Document/library services technologies 6
4.4.3 Document imaging technologies 7
4.4.4 Intelligent document recognition 8
4.4.5 Workflow technologies 9
4.4.6 Records management modules 9
4.4.7 Enterprise report management technologies 10
4.4.8 Forms processing 11
4.4.9 Optical, mark and intelligent character recognition 11
5 ECM guidelines and standards **12**
5.1 General 12
5.2 Selecting the appropriate guideline or standard 13
5.2.1 General 13
5.2.2 Industry guidelines 13
5.2.3 Trusted system and legal considerations 13
5.2.4 Technology standards 15
5.2.5 Implementation considerations 15
5.3 Document imaging 17
5.3.1 User guidelines 17
5.3.2 Implementation considerations 20
5.4 Document/library services 23
5.4.1 Technology standards 23
5.4.2 Implementation considerations 23
5.5 Workflow 24
5.5.1 Technology standards 24
5.5.2 Implementation considerations 25
5.6 Records management 27
5.6.1 Overview 27
5.6.2 Records capture 27
5.6.3 Maintenance/use 28
5.6.4 Final disposition of records 30
6 Considerations for hosted solutions — Trusted third-party repository requirements **30**
6.1 General 30
6.2 Trusted third-party repository services 31
6.3 Requirements of trusted third-party repositories 32
7 Good practices associated with ECM project phases/activities **33**
7.1 Assessing the existing records environment 33
7.2 Change management 33

© ISO 2018 – All rights reserved

7.2.1 Overview ... 33
7.2.2 Champion user participation ... 33
7.2.3 Change management programme ... 35
7.2.4 Communication ... 35
7.2.5 Project phases and activities ... 36
7.3 Process/procedure baselining ... 42
7.3.1 Overview ... 42
7.3.2 High-level baseline ... 42
7.3.3 Detailed process baselining ... 43
7.3.4 Processing metrics ... 43
7.4 Anticipated processes/procedures ... 44
7.5 Technology requirements definition ... 45
7.6 Document classification and indexing model ... 45
7.7 Business objectives and requirements ... 45
7.8 Technology evaluation guidelines ... 46
7.9 Forms review and design considerations ... 47
7.10 Legacy data/document conversion methodology considerations ... 48
7.10.1 General ... 48
7.10.2 Full back file conversion ... 48
7.10.3 Partial back file conversion ... 48
7.10.4 As-needed conversion ... 48
7.11 Procurement document preparation ... 49
7.12 Solution/product evaluation guidelines ... 49
7.13 Project planning and execution ... 51
7.14 System, unit testing and project monitoring ... 51
7.15 Acceptance testing criteria ... 52
7.16 Rollout planning ... 53
7.17 Business practices documentation ... 53

Annex A (informative) **Recommended standards and guidelines** ... **55**

Bibliography ... **59**

© ISO 2018 – All rights reserved

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 electrotechnical standardization.

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 ISO documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 2, *Document file formats, EDMS systems and authenticity of information*.

This second edition cancels and replaces the first edition (ISO/TR 22957:2009), which has been technically revised. The main changes compared with the previous edition are as follows:

— updates have been made to bring the document in line with current generation technologies;

— the references have been revised and updated throughout;

— terms and definitions have been added and the acronyms section has been removed;

— "electronic document management system (EDMS)" has been changed to "enterprise content management (ECM)" throughout;

— the wording has been improved throughout and the contents have been reorganized to provide clarifications.

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.

© ISO 2018 – All rights reserved

Introduction

This document provides detailed information associated with the analysis, selection and implementation procedures associated with enterprise content management (ECM) systems. The development of this document is a result of organizational requests to receive vendor-neutral industry information associated with technology standards, technical reports and industry best practices for ECM projects.

Terms and acronyms associated with various aspects of ECM technologies commonly change over time, as technology developers and vendors update product lines and solutions to address customer requirements. In most cases, the new terms and acronyms reflect updates and changes to how these technologies are used, typically by incorporating additional levels of functionality and very rarely resulting in an entirely new core technology. This is important to note as the core ECM technologies are constantly maturing, and solution providers are identifying not only new approaches to addressing organizational issues and requirements, but also expanding the use of these technologies into areas previously unconsidered. As such, organizations are constantly challenged to keep pace with how an updated technology is currently being referenced, especially when the same core technology is referenced differently between vendors and, at times, various groups of suppliers.

For the purposes of this document, the terms “document management” and “content management” can be considered to be synonymous. As the ECM industry (previously referred to as the “document management” or “electronic content management” industry) has matured over the years the ability to store electronic information has greatly expanded from hard copy document scanning into digital images in the early 1980s to the management of any digital or electronic document that today is referred to as “electronically stored information (ESI)”.

Clause 4 provides detailed information describing each of these technologies, and how they operate and inter-operate.

Clause 5 provides detailed information associated with currently available industry standards and technical reports.

Clause 7 provides detailed information related to industry best practices associated with all the customary project phases for ECM technology analysis, selection and implementation. These project activities are considered to be industry best practices. It has been demonstrated over the past 10 years that organizations following all the recommended steps and activities have a much greater level of project success while greatly decreasing, and in most cases eliminating, unnecessary technologies, user licences, etc. This is very important, especially with most organizations carefully examining all expenditures related to all aspects of technology procurements.

This document provides detailed guidance to organizations considering the use of any of those technologies that comprise ECM [document imaging, document/library services, routing/business process management (BPM)/workflow, records management applications (RMAs), forms management, enterprise report management (ERM), etc.]. It should be noted and acknowledged that a complete records management programme set up against ISO 15489-1 is critical to any organization and is integral to any complete and thorough management plan associated with electronic information regardless of whether it is referred to as a “document”, “record”, “audio”, “video”, etc., internally by the organization.

© ISO 2018 – All rights reserved

Document management — Analysis, selection and implementation of of enterprise content management (ECM) systems

1 Scope

This document gives guidelines for a set of procedures and activities to be considered and/or performed by organizations when planning, designing and implementing various enterprise content management (ECM) technologies. The aspects or project phases range from initial business analysis through to vendor/integrator selection and technology implementation. The implementation of processes to manage electronically stored information (ESI) requires significant participation from the affected business units, if the content is stored and managed when created/received and controlled through the information life cycle following organizational policies and/or records retention and control policies are applied. As these efforts require multiple people with different disciplines, including technical teams, records managers and organizational management, this document has been prepared taking those perspectives into account.

This document is applicable to both in-house and outsourced systems, including cloud solutions. It can also be useful when dealing with specialized business systems. The term "enterprise content management (ECM)" (or "document management") used throughout this document is intended as an all-encompassing term referring to capture technologies [scanning, indexing, optical character recognition (OCR), forms, digital creation, etc.], management technologies (document services, workflow and other work management tools), and storage [primarily non-alterable or write once read many (WORM) technologies]. This document provides information to users related to the technical reports, guidelines and standards that have been developed for technologies commonly available in ECM systems.

This document is not intended to be an all-inclusive paper on electronic document or content management and does not attempt to influence any single technology or provide legal guidance or legal opinions. While there are storage technologies other than optical/magnetic currently available (i.e. microfilm, microfiche and hybrid storage systems) that are not included in this document, those technologies can be reviewed if determined to be appropriate by the end-user organization.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12651-1, *Electronic document management — Vocabulary — Part 1: Electronic document imaging*

ISO 12651-2, *Electronic document management — Vocabulary — Part 2: Workflow management*

ISO 15489-1, *Information and documentation — Records management — Part 1: Concepts and principles*

ISO/TR 15801, *Document management — Electronically stored information — Recommendations for trustworthiness and reliability*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12651-1, ISO 12651-2, ISO 15489-1 and ISO/TR 15801 and the following apply.

© ISO 2018 – All rights reserved

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
library services
administrative components of the ECM system that handle access to information

3.2
expungement
process of removing a document from a system and leaving no evidence of the document ever having appeared on the system

3.3
semi-structured document
document that contains both some level of structure and organization along with completely unformatted text or text without any structure

EXAMPLE Letters, emails, forms with free-form text components, forms.

3.4
structured document
document that follows a strict structure or format

EXAMPLE Table, database record.

3.5
unstructured document
document that has no pre-defined structure or format and contains free-form text, which may or may not be similar to other documents of the same type, and varies greatly in structure, content, terminology and format

3.6
intelligent document recognition
IDR
technology that incorporates various methods of capturing and extracting information (or data) used to identify a specific type of document and data extraction with minimal (or no) user intervention required

Note 1 to entry: The most basic or traditional method of IDR has been in use since the late 1990s and incorporates the processing of barcodes, patch codes and other manual indexing methodologies. The current generations of this technology can also incorporate more advanced technology, techniques and algorithms to self-teach, i.e. to update the processing rules to classify or to extract data without user intervention, while others require linguistic algorithms, referred to natural language processing (NLP), to process unstructured content. IDR is a common marketing term used to describe the process of capturing content (scanned documents and digital born) and extracting content from the document within the limits of the technology being used.

3.7
natural language processing
NLP
technology used to determine and identify key words and phrases within processing audio data (e.g. call centres) and free-form text (e.g. the body of an email)

Note 1 to entry: This technology is able to reduce words to their base constructs and perform other actions, such as stemming, along with locating similar words or phrases without user intervention. This technology also varies greatly from standard IDR technology due to the ability to automatically update rules as determined by the users without the need for technical intervention. This technology is best suited for unstructured documents.

© ISO 2018 – All rights reserved