TECHNICAL REPORT

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Document management — Change management for successful electronic document management system (EDMS) implementation

Applications en gestion des documents — Changement de gestion associé aux technologies du système de gestion électronique des documents (SGED)

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Foreword

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In exceptional circumstances, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example), it may decide by a simple majority vote of its participating members to publish a Technical Report. A Technical Report is entirely informative in nature and does not have to be reviewed until the data it provides are considered to be no longer valid or useful.

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This second edition cancels and replaces the first edition (ISO/TR 14105:2001), which has been technically revised.

Introduction

Electronic document management systems (EDMS) have unequivocally contributed to the ability of organizations to automate portions, and at times all aspects, of a business process. These technologies are successful when organizations consider that a significant amount of change will occur and that end-users, information technology, management, records managers, and archivists are all affected. Planning and/or implementing these technologies without recognizing the amount of change management typically results in systems being implemented that do not meet the organization's needs, requirements, or expectations. It is commonly recognized that without adequate planning and execution of change management, the introduction and implementation of these technologies can actually place extra burden on the end-users and organizations, at times contributing to project failures.

EDMS technologies are tools that assist the organization to improve processes where appropriate. It is critical that the organization has the ability to separate non-technology-based change from technology-based change. Planning change management, beginning with the initial project phases, results in the organization understanding what needs to change, why, and what the desired result is, without adversely impacting the end-users or the organization. Change always results in some impact; the key to change management when implementing EDMS technologies is to minimize the adverse impacts and ensure that the organization has ample time to implement the desired change in order to achieve the desired results after the technology is implemented.

This Technical Report systematically identifies and reviews the ergonomic and organizational issues and considerations associated with the selection, implementation, and work practice criteria for EDMS systems.

Document management — Change management for successful electronic document management system (EDMS) implementation

1 Scope

This Technical Report defines the cognitive, physical, organizational, and human factors as they apply to usability criteria for electronic document management systems (EDMS) development, selection and implementation.

This Technical Report provides a framework for understanding the basic issues and concepts of organizational and human factors associated with implementing EDMS technologies. It describes the principles of human factors and ergonomics in their application to usability criteria for the planning and implementation of EDMS technologies, to environmental and implementation issues, and to training for long-term productivity benefits.

2 Terms and definitions

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

2.1
culture
pattern of beliefs and expectations shared by the organization's members

NOTE An organization's culture defines the way in which individuals and groups within the organization behave, as encouraged by the organization's values and beliefs.

2.2
ergonomics
human factors
applied science that studies, designs and adapts equipment, work and the environment to meet human capabilities and limitations and to enhance safety and comfort

2.3
EDMS
electronic document management systems
computer-based applications dealing with the management of documents throughout the document life cycle

[IEC 82045-1]

NOTE There is a difference between enterprise content management (ECM), and electronic document management systems. For purposes of discussion within this Technical Report, the acronyms EDMS and ECM are often used synonymously from the perspective that both require the use of core technologies along with policies, procedures, and methodologies to successfully design, implement, and manage electronically stored information. Also, both can include the use of records management applications that are sometimes referred to as either electronic records management (ERM) or electronic document/records management (EDRMS). These acronyms constantly change within the document and records management industry, therefore it is advisable to consider the technology being deployed and not only the current/updated acronym(s) being used by the product suppliers.

2.4
ECM
enterprise content management
set of tools and methods allowing an organization to obtain, organize, store and deliver information crucial to its operation

NOTE 1 ECM can be broken down into five major components:

a) capture;

b) manage;

c) store;

d) preserve;

e) deliver.

NOTE 2 Adapted from ISO 12651-1.

2.5
operations
business process used to carry out the objectives of an organization

2.6
readiness
willingness of employees to adapt to changes in their jobs and work environment

2.7
repetitive strain injury
class of medical condition of the joints caused by repetitive motion, which is often rapid, forceful, and/or extreme

EXAMPLE Repetitive strain injuries include tendonitis and carpal tunnel syndrome.

3 Recommendations for EDMS implementation success

3.1 General

Understanding that the issues described in this Technical Report exist and occur is not enough. Implementation success depends on how these issues associated with planning and implementing these technologies are anticipated, planned for, and creatively addressed. Unfortunately, too many line managers and technical project managers have tried to avoid the issues, only to experience disappointing results. The best way to resolve these issues and control the fate of an installation is to augment project plans with activities designed to focus on the human and organizational aspects of EDMS. This can be done by establishing a foundation of user participation that will be the methodology underlying strategic planning, organization assessment, and change management activities. To see how these activities fit into the project plan, see Table 1.

Table 1 — Success through project management

Phase 1: Planning	Phase 2: Design and preparation	Phase 3: Implementation	Phase 4: Evaluation
High-level process baseline	Anticipated process design	System installation	Post-implementation review
Detailed process baseline	Application development	Pilot system	Continuous improvement
Functional/technical requirements	Orientation/communication	System tuning	Fine-tune operations
Process analysis	Development of reward and recognition	Reorganization	External audit trial
Conduct organization assessment	Change management activities	Training	
Identify technology-based and non-technology-based change requirements	Validation meetings	Validation meetings	
Develop change management plan	Work/job redesign		

3.2 Participation and integration

3.2.1 The key to success in implementing EDMS lies in integrating the key elements mentioned:

— technology;

— readiness;

— operations;

— culture.

The best way to accomplish this integration is through the active participation and involvement of users.

3.2.2 One of the most commonly noted issues that may contribute to the failure of EDMS projects is that participants feel their views are only given nominal value and that many of the major decisions are already made and the process is being conducted to legitimize the outcome wanted by management. It is essential that people feel their views are considered and either adopted or that a reasonable and valid reason be given why their proposals cannot be applied.

3.2.3 Participation of all levels of employees in the implementation process is an underlying theme of the following recommendations. At a minimum, key users (also referred to as “champion users”) should be identified throughout the organization. These “champion users” are typically senior or lead users who can provide input and feedback via a bidirectional communication model enabling the EDMS team and the users throughout the organization to be involved in all appropriate aspects of the analysis, design, and implementation project phases. The benefits of employee participation are increased motivation, higher productivity, and improved quality. In one study in which resistance to work changes was lower in groups that participated in making those changes, researchers identified the following two key points.

a) Participation is a necessary but not sufficient means of reducing resistance.

b) Participation is “a feeling on the part of people, not just the mechanical act of taking part in discussions”.

3.2.4 Organizations that have left the “champion users” out of the planning, problem solving, analysis, and redesign or that have only marginally involved employees through random conversations and presentations have been unable to tie together the four key elements:

a) technology;

b) readiness;

c) operations;

d) culture.

3.2.5 One of the best ways to ensure participation is through a “design team”. Selected by senior management, this team should comprise representative individuals from all levels and all key job functions as well as members of the technical project staff. The goal of this group is to jointly design the new work processes and jobs to best utilize the EDMS and human resources. The formation of this team will alleviate many of the “us-versus-them” problems that arise when the technical staff, records management team, or end-user representatives work separately from the other portions of the business unit in designing a system. This design team should begin its work with a one-day or two-day training session that reviews the following topics:

— team charter, roles, and responsibilities;

— project objectives and goals;

— change parameters established by senior management;

— methodology for work redesign that looks at both the social aspects of work and the technical aspects of work;

— problem-solving techniques such as brainstorming, flow charting, using cause-and-effect diagrams, and the like;

— development of effective teams;

— effective team behaviours;

— use new technologies as support of the project.

3.2.6 The design team should continue to meet on a regular basis to accomplish the following tasks.

a) **User analysis:** identify users, determine the extent to which their needs are being met, and identify actions that can be taken to increase user satisfaction.

b) **Technical analysis:** document how work flows, where problems occur, and where these problems are first discovered. Also, determine how EDMS can impact the current business processes and the associated variances that will be affected.

c) **Business process redesign:** according to information already gathered, rethink new approaches to the business process designs.

d) **System design:** according to information already gathered, finalize system specifications.

e) **Organization design:** according to the new business processes and system capabilities, determine structural changes that need to be made in the organization, if any.

f) **Implementation plan:** identify the steps and resources required to move from the current organization to the selected EDMS technology(ies).

3.3 Strategic planning: organizational change strategy

The most important contribution senior executives can make early in the project life cycle is to participate in a strategic planning session. The purpose of this session is to clearly articulate desired project goals and objectives and the desired organizational change. Most organizations develop a “technology strategy” of which EDMS is a part. Usually this is tied to a “business strategy”. The third component of this “strategic triangle” is the “organizational change strategy”. In many cases, this third critical strategy is non-existent. Failure to articulate an organizational change strategy can lead to failure to manage the human and

organizational impact of EDMS. Trying to manage the human and organizational issues without a coherent strategy will result in an unfocused and ineffective change management effort.

The strategic planning session should focus on answering the following questions:

— What aspects of our culture are effective?

— What aspects of our culture are ineffective with regard to EDMS implementation?

— In what ways will EDMS impact our employees and key external organizations?

— What structural changes in the organization are likely to result from EDMS?

— How much change do we want in this organization? When examining the continuum of control versus commitment, where are we now with regard to management style? Where do we want to be?

— What technology based change is appropriate for the organization?

— How should the project be phased to allow adequate time for change management and organizational acceptance of the selected technologies?

— Do we simply want to automate existing processes or do we want to fundamentally change workflows?

The outcome of these meetings should be clearly stated objectives for change management and a set of guidelines for change that can be used by implementation teams. For example, are there any processes or procedures that cannot be changed due to regulatory requirements? Can certain positions be eliminated; alternatively, should all job titles remain in the organization? Can resources be redirected?

3.4 Organizational assessment

3.4.1 Data gathering models

While the development of an organizational change strategy will provide the foundation for a change management process, it is equally important to have a clear and accurate understanding of the specific issues that are important in each organization. No two organizations will have exactly the same reaction to EDMS. Therefore, another critical recommendation is to conduct an organizational assessment. Many organizations make the mistake of developing a change management program based on perceived, rather than known, concerns. This approach may have little impact and great cost.

An organizational assessment should obtain thorough qualitative and quantitative data about “readiness, operations, and culture”. The data gathered through an assessment will then be used to develop a targeted change management program. The organization should carefully consider the culture and organizational structure and utilize one or more of the following data gathering models:

— high-level and detailed process baselining;

— questionnaires;

— interviews;

— focus groups.

3.4.2 High-level and detailed process baselining

The creation of a high-level process baseline will enable the organization to identify those key areas of the business that need to be further examined along with identifying key users who are most knowledgeable about the detailed aspects of the process(es). The detailed process baselining enables the organization to gather information related to how the business is currently being conducted and also enables the key users to provide input and feedback on those areas that could be changed, updated, etc. This greatly improves the