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Knowledge management systems — Requirements

Systèmes de management des connaissances — Exigences

ICS: 03.100.30

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Introduction

Purpose of standard

The purpose of this ISO MSS standard for knowledge management is to support organizations to develop a management system that effectively promotes and enables value-creation through knowledge.

Knowledge management (KM) is a discipline focused on ways that organizations create and use knowledge. Knowledge management has no single accepted definition and no global standards predate this MSS. There are many well-known barriers to successful Knowledge Management which still need to be overcome, many confusions with other disciplines such as information management, and many common misconceptions about how to do knowledge management, for example the view that simply buying a technology system will be enough for knowledge management to add value.

Each organization will craft its own knowledge management solution, reflecting their specific needs and situation.

The intent of this standard is to set sound knowledge management principles

a) As guidance for organizations that aim to be competent in optimizing the value of organizational knowledge

b) As basis for evaluating and recognizing such competent organizations by recognized audit bodies

Knowledge management is important for the following reasons:

— The aim of work is to produce valuable results. Valuable results are derived from applied knowledge. Organizational knowledge is becoming a key differentiator for effectiveness, increased collaboration and competition.

— Knowledge work is taking an increasingly significant role in many societies. Many economies aspire to become knowledge economies, where the main source of wealth is not manual labour but intellectual labour. In this context, knowledge becomes a core asset for organizations. Knowledge enables them to make effective decisions and take effective action, and may even become a marketable product in its own right.

— An increased access to knowledge will support the development of people in the organization, through giving them easy access to the knowledge of others.

— Organizations can no longer rely on the natural diffusion of knowledge to keep up with the pace of change. Instead knowledge must be deliberately created, applied, and re-used faster than the rate of change. Agility and speed of learning are becoming a source of increased value and competitive advantage.

— Dispersed organizations, conducting the same processes and delivering the same services in multiple locations can gain tremendous advantage through sharing practices and lessons across organizational boundaries.

— The attrition of staff in today's mobile society has implications for knowledge management. In many organizations, critical knowledge is held in the heads of experts, at risk of loss when they leave, while other organizations contain many new employees who may be very smart, but lack the knowledge which experienced employees have built up over time.

Many organizations are therefore beginning to realise that knowledge is an organizational asset that needs to be managed like any other asset (bearing in mind the intangible nature of knowledge); it needs to be developed, retained, shared, adapted and applied so that staff in all locations, and of all ages, can make effective decisions and take aligned actions based on the experience of the past and new insights into the future. Knowledge management is a holistic approach to improving learning and effectiveness through optimization of the use of knowledge, in order to create value for the organization. Knowledge Management also needs to be integrated with other organizational functions, in ensuring that staff also contribute to Knowledge Management as the creators, as well as consumers, of knowledge.

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Guiding Principles

a. NATURE OF KNOWLEDGE: Knowledge is intangible and complex. Knowledge primarily originates from human experience and insights.

b. VALUE: knowledge is a key source of value for organizations to meet their objectives.the determinable value of knowledge is in its impact on organisational purpose, objectives, policies, processes and performance. Knowledge management is a means of unlocking the potential value of knowledge.

c. FOCUS: Knowledge management serves the organizational objectives, strategies and needs.

d. ADAPTIVE: There is no one knowledge management solution that fits all organizations within all contexts. Organizations may develop their own approach to the scope of knowledge and Knowledge Management and how to implement these efforts, based on the needs and context.

e. SHARED UNDERSTANDING: People create their own knowledge by their own understanding of the input they receive. For shared understanding, Knowledge Management should include interactions between people, using content, processes, and technologies where appropriate.

f. ENVIRONMENT: Knowledge is not managed directly; Knowledge Management focuses on managing the working environment thus nurturing the knowledge lifecycle.

g. CULTURE: culture is critical to the effectiveness of Knowledge Management.

h. ITERATIVE: implementation of Knowledge Management should be phased, incorporating learning and feedback cycles.

Boundaries of knowledge management

The boundaries of knowledge management vary in different organizations as to the specific business needs, and as to interfacing existing activities held in the organizations.

Appendix A defines the inner boundaries, viewing the various states of knowledge as a continuum.

Appendix B defines the outer boundaries, comparing knowledge management to adjacent disciplines.

The purpose of this standard is to define requirements, that knowledge management systems in organizations must align with, promising successful implementation of knowledge management. The standard, however, maintains flexibility within the context of the requirements, that allows compliance of each organization and alignment with its characteristics and needs.

The standard is based on annex SL (normative)- proposals for management system standards

Appendix 2, on the Israeli standard 25006- November 2011 and on BSIPD7500 series.

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Knowledge management systems — Requirements

1 Scope

This international standard sets requirements and provide guidelines for establishing, implementing, maintaining, reviewing and improving an effective management system for knowledge management in organizations. All the requirements of this international standard are applicable to any organization, regardless of its type or size, or the products and services it provides.

2 Normative references

Quality management system 9001:2015.

3 Terms and definitions

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

3.1
Organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its *objectives* (3.8)

Note 1 to entry: The concept of organization includes, but is not limited to sole-trader, company, corporation, firm, enterprise, authority, partnership, charity or institution, or part or combination thereof, whether incorporated or not, public or private.

3.2
Interested party (preferred term), stakeholder (admitted term)
person or *organization* (3.1) that can affect, be affected by, or perceive itself to be affected by a decision or activity.

Note 1 to entry: Everyone is potentially an interested partiy in knowledge management. Specific knowledge management initiatives will involve specific interested parties. For example, knowledge workers, top management, Managers of project / departments / work streams, external customers and clients, investors, partners and suppliers

3.3
Requirement
need or expectation that is stated, generally implied or obligatory.

Note 1 to entry: “Generally implied” means that it is custom or common practice for the organization and interested parties that the need or expectation under consideration is implied.

Note 2 to entry: A specified requirement is one that is stated, for example in *documented information* ().

3.4
Management system
set of interrelated or interacting elements of an *organization* (3.1) to establish *policies* (3.7), *objectives* (3.8) and *processes* (3.12) to achieve those *objectives*

Note 1 to entry: A management system can address a single discipline or several disciplines.

Note 2 to entry: The system elements include the organization’s structure, roles and responsibilities, planning and operation.

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Note 3 to entry: The scope of a management system may include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations.

3.5
Top management
person or group of people who directs and controls an *organization* (3.1) at the highest level

Note 1 to entry: Top management has the power to delegate authority and provide resources within the *organization*.

Note 2 to entry: If the scope of the *management system* (3.4) covers only part of an *organization*, then top management refers to those who direct and control that part of the *organization*.

3.6
Effectiveness
extent to which planned activities are realized and planned results achieved

3.7
Policy
intentions and direction of an *organization* (3.1), as formally expressed by its *top management* (3.5)

3.8
Objective
result to be achieved

Note 1 to entry: An objective can be strategic, tactical, or operational.

Note 2 to entry: Objectives can relate to different disciplines (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product and *process* (3.11)).

Note 3 to entry: An objective can be expressed in other ways, e.g. as an intended outcome, a purpose, an operational criterion, a *knowledge management* (3.19) objective, or by the use of other words with similar meaning (e.g. aim, goal, or target).

Note 4 to entry: In the context of *knowledge management systems*, objectives are set by the *organization*, consistent with a *policy*, to achieve specific results.

3.9
Risk
effect of uncertainty

Note 1 to entry: An effect is a deviation from the expected — positive or negative.

Note 2 to entry: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of an event, its consequence, or likelihood.

Note 3 to entry: Risk is often characterized by reference to potential events (ISO Guide 73, 3.5.1.3) and consequences (ISO Guide 73, 3.6.1.3) , or a combination of these.

Note 4 to entry: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood (ISO Guide 73, 3.6.1.1) of occurrence.

3.10
Competence
ability to apply *knowledge* and skills to achieve intended results

3.11
Documented information
Information required to be controlled and maintained by an *organization* (3.1) and the medium on which it is contained.

Note 1 to entry: Documented information can be in any format and media, and from any source.

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Note 2 to entry: Documented information can refer to:

— the *management system* (3.4), including related *processes* (3.11);

— information created in order for the organization to operate (documentation);

— evidence of results achieved (records).

3.12
Process
set of interrelated or interacting activities which transforms inputs into results

3.13
Performance
measurable result

Note 1 to entry: Performance can relate either to quantitative or qualitative findings.

Note 2 to entry: Performance can relate to the management of activities, *processes* (3.11), products (including services), systems or *organizations* (3.1).

3.14
Monitoring
determining the status of a system, a *process* (3.11) or an activity

Note 1 to entry: To determine the status, there may be a need to check, supervise or critically observe.

3.15
Outsource (verb)
make an arrangement where an external *organization* (3.1) performs part of an organization's function or *process* (3.12)

Note 1 to entry: An external *organization* is outside the scope of the management system (3.04), although the outsourced function or process is within the scope.

3.16
Measurement
process (3.11) to determine a value

3.17
Continual improvement
recurring activity to enhance *performance* (3.11)

3.18
Conformity
fulfilment of a *requirement* (3.3)

3.19
Non-Conformity
Non-fulfilment of a *requirement* (3.3)

3.20
Corrective Action
action to eliminate the cause of a *nonconformity* (3.19) and to prevent recurrence

3.21
Collaboration
A deliberate approach to working together on an agreed common purpose across boundaries.

Note 1 to entry: Boundaries may be functional, organizational, or geographic, or between *organizations* (3.1). Collaboration often depends on a healthy *knowledge management culture* (3.25) to facilitate the exchange and co-creation of *knowledge* (3.1) between the parties engaging in collaboration.

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3.22
Information
Meaningful data.

3.23
Knowledge
A human or organizational asset enabling good decisions and effective action in context.

Note 1 to entry: Note to entry 1: There are diverse views on the scope covered within knowledge, based on context and purpose. The definition above is general as to the various perspectives. Examples of knowledge: insights, know-hows, etc.

Note 2 to entry: Note to entry 2: Knowledge is acquired through learning or experience.

3.24
Knowledge management
Management with regard to knowledge.

Note 1 to entry: Note to entry 1: it uses a systemic and holistic approach to improve results and learning.

Note 2 to entry: Note to entry 2: it includes optimizing the identification, creation, analysis, representation, distribution and application of knowledge to create organizational value.

3.25
Knowledge management culture
Elements of the *organizational culture,* supportive of the values, behaviors and activities associated with *knowledge management system .*

3.26
Knowledge management system
part of a *Management system* (3.4) with regard to *knowledge*

Note 1 to entry: The system elements include the organization's *knowledge management culture ()*, structure, governance and *leadership*; roles and responsibilities; planning, technology, processes and operation, etc.

3.27
Knowledge worker
A person for whom *knowledge* is significant to their success on the job and who uses *knowledge* in order to take effective actions or make effective decisions.

Note 1 to entry: to entry : Nowadays, the mass of the organizational employees are usually knowledge workers.

3.28
Learning organization
An organization that steadily improves its capability and performance of the people and processes through learning activities.

3.29
Organizational Culture
Values, beliefs and practices that influence the conduct and behaviour of people and organizations [SOURCE: ISO 30400:2016].

3.30
Skill
A learned capacity to perform a task to a specified standard..

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4 Context of the organization

4.1 Understanding the organization and its context

The organization shall define the intended results of the knowledge management system, supporting and shaping the organizational strategy and objectives.

The organization shall determine external and internal gaps, issues, risks and opportunities that are relevant to its purpose and that affect its ability to achieve the intended results of its knowledge management system.

Intended results, both tangible and intangible, may refer to results of different types, including:

a. Business resultse

b. Organizational results

c. Customer related results

d. Social and environmental results

Knowledge management is a means to achieve these intended results, and not a objective by itself.

4.2 Understanding the needs and expectations of interested parties (stakeholders)

The organization shall determine:

— the interested parties that are relevant to the knowledge management system;

— the relevant requirements of these interested parties. These requirements shall be analyzed, prioritizing the main areas and contexts in which the organization should ensure that its knowledge is managed.

NOTE 1 The defined needs and expectations will be structured in terms of business and organizational performance, rather than knowledge management needs. For example a need may refer to reduce duration of product development , and not to fast document retrieval.

NOTE 2 The requirements of the interested parties need to be assessed in the organizational context (culture, environment, infrastructure, etc.).".

4.3 Determining the scope of the knowledge management system

The organization shall determine the boundaries and applicability of the Knowledge Management system to establish its scope.

When determining this scope, the organization shall consider:

— the external and internal context referred to in 4.1;

— the requirements referred to in 4.2.

The scope shall be available as documented information.

The organization shall have a list of the areas of knowledge which will have greatest value to the organization and interested parties, and which therefore should be prioritized during application of the knowledge management system.

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4.4 Knowledge management system

The organization shall establish, implement, maintain and continually improve a knowledge management system, including the strategy, processes needed and their interactions, in accordance with the requirements of this international standard.

The sections 4.5-4.8 include requirements, each representing a dimension of knowledge management, interdependent on one another. Acknowledging and incorporating these dimensions within the Knowledge Management system and putting them in place through a managed change process will facilitate the implementation of an effective and holistic Knowledge Management system within the organization.

4.5 Knowledge life cycle

The organizational knowledge management system shall include and demonstrate means of effectively managing knowledge through its lifecycle.

The four stages below comprise the essence of such lifecycle of the knowledge within the organization and all shall be covered to the extent of relevance for business purposes, including at least the following activities:

a. **Aquiring New knowledge**: Means to provide the organization with knowledge that was previously unknown within the organization.

   NOTE 1 example activities- Knowledge Creation; knowledge development; knowledge acquisition; adaptation of existing knowledge to new applications.

b. **Applying current knowledge**: Means to leverage the current relevant knowledge of the organization in order to enable better actions and decisions making.

   NOTE 1 example activities- Knowledge transfer; knowledge sharing; knowledge capturing and codifying; knowledge reuse.

c. **Retaining current knowledge**: Means to safeguard the organization from the consenquences of knowledge loss.

   NOTE 1 example activities- system documenting ; transferring retiring experts' knowledge; system backup; documenting agreements

d. **Managing invalid knowledge**: Means to protect the organization from making mistakes or working inefficiently, as result of usage of knowledge irrelevant within the organizational context.

NOTE 1 example activities- Knowledge deletion; curation; archiving; knowledge updating; re-training according to knowledge changes.

4.6 Knowledge transformations

The organizational Knowledge Management system shall include means, activities and behaviors, supporting and enabling all different listed knowledge transformation types, as to the extent relevant for the business purposes:

a. **Human Interaction**: The exchange of knowledge through conversations and interactions between interested parties.

   NOTE 1 example activities- Community of practice; brainstorming sessions; collaborative teams; knowledge cafes; shadowing; shift handover; succession planning; mentoring.

b. **Externalization**: Making knowledge available through recording, documenting and/or codifying.

   NOTE 1 example activities- Writing procedures and guidelines; capturing lessons; recorded job handover.

c. **Curation & Combination**: Synthesis, formalizing, structuring or classifying of codified knowledge.

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NOTE 1 example activities- Classification and taxonomy; tagging; summarizing and structuring content; refreshing captured knowledge.

d. **Accessibility & Internalization:** Making the knowledge accessible and easy to understand and learn from.

NOTE 1 example activities- Search and retrieval; "push" notifications; newsletters; employee on-boarding; elearning.

4.7 Knowledge management enablers

The organizational knowledge management system shall include elements of all the four enablers promoting an effective Knowledge Management system:

a. **Responsibilites**: Roles and accountabilities, including for users of the system, and people with defined accountabilities.

NOTE 1 example enablers- Chief knowledge officer; Community of practice facilitator; knowledge workers.

b. **Processes**: Defined business and knowledge activities, procedures, instructions, methods and measurement KPI's that an organization applies and embeds.

NOTE 1 example enablers- Knowledge discovery and detection; Lessons Learned from failures and success.

c. **Technology** & **infrastructure**: digital channels, virtual and physical workspace and other tools.

NOTE 1 example enablers- mobile applications; portals; search engines; cloud computing; big data platforms; collaboritve workspaces; "coffee corners".

d. **Governance**: Strategy, expectations and means of ensuring the knowledge management system is working in alignment (covered in detail in chapters 5-10)

NOTE 1 example enablers- knowledge management asset strategy; policies; service level agreement (SLA); code of conduct (ethics).

4.8 Knowledge Management culture

Embedding a knowledge management culture across the organization is critical for sustained application of knowledge management. A culture where knowledge is treated as a valued asset supports the establishment and application of the knowledge management system within the organization.

The organization shall demonstrate that organizational culture has been addressed as a means to support the knowledge management system. Some options for addressing the culture are discussed in Appendix C.

5 Leadership

5.1 Leadership and commitment

Top management shall demonstrate leadership and commitment with respect to the knowledge management system by:

— Fostering organizational values which enhance trust that enhances knowledge management

— ensuring that the knowledge policy and knowledge objectives are established and are compatible with the strategic direction of the organization;

— ensuring the integration of the knowledge management system requirements into the organizations' business and project processes;

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— ensuring that the resources needed for the knowledge management system are available;

— communicating the importance of effective knowledge management and of conforming to, or exceeding, the knowledge management system requirements;

— managing the process of change towards adoption and application of the knowledge management system, and towards the cultivation of a culture that values, supports and enables knowledge management;

— ensuring that the knowledge management system achieves its intended outcome(s);

— directing and supporting people to contribute to the effectiveness of the knowledge management system;

— promoting continual improvement of the knowledge management system;

— supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.

NOTE Reference to "business" in this international standard can be interpreted broadly to mean those activities that are core to the purposes of the organization's existence.

5.2 Policy

Top management shall establish a knowledge policy that:

a) is appropriate to the purpose of the organization;

b) provides a framework and guiding principles for setting, reviewing and achieving knowledge objectives;

c) includes a commitment to satisfy applicable requirements;

d) sets expectations for all staff with regard to use of the knowledge management system and the cultivation of a culture that values knowledge;

e) includes a commitment to continual improvement of the knowledge management system;

f) manages the balance between knowledge sharing and knowledge protection;

g) refers to this standard.

The knowledge management policy shall:

— be available as documented information;

— be communicated within the organization;

— be available to interested parties, as appropriate.

5.3 Organizational roles, responsibilities and authorities

Top management shall ensure that the responsibilities and authorities for relevant roles within the knowledge management system are assigned and communicated within the organization.

Top management shall assign the responsibility and authority for:

a) ensuring that the knowledge management system conforms to the requirements of this international standard;

b) ensuring the engagement of people and the effective application of the knowledge management system within the organization;

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c) reporting on the performance of the knowledge management system to top management.

6 Planning

6.1 Actions to address risks and opportunities

When planning for the knowledge management system, the organization shall consider the issues referred to in 4.1 and the requirements referred to in 4.2 and determine the risks and opportunities that need to be addressed to:

— give assurance that the knowledge management system can achieve its intended outcome(s);

— prevent, or reduce, undesired effects;

— achieve continual improvement.

The organization shall plan:

a) actions to address these risks and opportunities;

b) how to:

— integrate and implement the actions into its knowledge management system processes;

— evaluate the effectiveness of these actions.

6.2 Knowledge objectives and planning to achieve them

The organization shall establish knowledge objectives at relevant functions and levels.

The knowledge objectives shall:

a) serve business needs and align to business objectives;

b) be consistent with the knowledge policy and strategy;

c) be measurable (if practicable);

d) take into account applicable requirements;

e) be monitored;

f) be communicated;

g) be updated as appropriate.

The organization shall retain documented information on the knowledge objectives.

When planning how to achieve its knowledge objectives, the organization shall determine:

— what will be done;

— what resources will be required;

— who will be responsible;

— when it will be completed;

— how the results will be evaluated.

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7 Support

7.1 Resources

The organization shall determine and provide the resources (e.g. funding, staffing, technology, management commitment) needed for the establishment, implementation, maintenance, measurement, reporting and continual improvement of the knowledge management system.

7.2 Competence

The organization shall:

— determine the necessary competence of person(s) doing work under its control that affects its knowledge performance;

— consider the competence of three types of knowledge workers, where appropriate:

  — Participants that engage with and use the knowledge management system, as part of completing their tasks and work;

  — Those with accountable roles within the knowledge management system. Accountable roles might include positions or roles such as knowledge management champions, community of practice leaders, or content owners;

  — Those accountable for the design, delivery and continual improvement of the knowledge management system and the associated supporting culture change.

— ensure that these persons are competent on the basis of appropriate education, training, or experience;

— where applicable, take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken;

— retain appropriate documented information as evidence of competence.

NOTE 1 Applicable actions can include, for example, the provision of training to, the mentoring of, or the re-assignment of currently employed persons; the hiring or contracting of competent persons.

7.3 Awareness

Persons doing work under the organization's control shall be aware of:

— the knowledge policy;

— their contribution to the effectiveness of the knowledge management system, including the benefits of improved knowledge performance;

— the implications of not conforming with the knowledge management system requirements.

7.4 Communication

The organization shall determine the internal and external communications relevant to the knowledge management system, including:

— on what it will communicate;

— when to communicate;

— with whom to communicate;

— how to communicate.

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Communication will serve all stages including: bulding the KMS; managing the change to embed it; and nurturing sharing and usage.

NOTE 1 Communication should be considered as a complete cycle, including transmission, reception, understanding, reflection and feedback.

NOTE 2 Effective communication includes constructive dialog, both verbally and non-verbally.

7.5 Documented information

7.5.1 Required documentation

The organization's knowledge management system shall include:

a) documented information required by this international standard;

b) documented information determined by the organization as being necessary for the effectiveness of the knowledge management system.

NOTE 1 The extent of documented information for a knowledge management system can differ from one organization to another due to:

— the size of organization and its type of activities, processes, products and services;

— the complexity of processes and their interactions;

— the competence of persons.

7.5.2 Creating and updating

When creating and updating documented information the organization shall ensure appropriate:

— identification and description (e.g. a title, date, author, or reference number);

— format (e.g. language, software version, graphics) and media (e.g. paper, electronic);

— review and approval for suitability and adequacy.

7.5.3 Control of documented information

Documented information required by the knowledge management system and by this international standard shall be controlled to ensure:

a) it is available and suitable for use, where and when it is needed;

b) it is adequately protected (e.g. from loss of confidentiality, improper use, loss of integrity, steeling information, spamming and other internal or external threats).

For the control of documented information, the organization shall address the following activities, as applicable:

— distribution, access, retrieval and use;

— storage and preservation, including preservation of legibility;

— control of changes (e.g. version control);

— retention and disposition.

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Documented information of external origin determined by the organization to be necessary for the planning and operation of the knowledge management system shall be identified, as appropriate, and controlled.

NOTE Access can imply a decision regarding the permission to view the documented information only, or the permission and authority to view and change the documented information.

8 Operation

8.1 Operational planning and control

The organization shall plan, implement and control the processes needed to meet requirements, and to implement the actions determined in 6.1, by:

— establishing criteria for the processes;

— implementing control of the processes in accordance with the criteria;

— keeping documented information to the extent necessary to have confidence that the processes have been carried out as planned.

The organization shall control planned changes and review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary.

The organization shall ensure that outsourced processes are controlled.

9 Performance evaluation

9.1 Monitoring, measurement, analysis and evaluation

The organization shall determine:

— what needs to be monitored and measured. This shall include measurement of conformity with the requirements of this standard, and evidence of added value to the relevant stakeholders;

— the methods for monitoring, measurement, analysis and evaluation, as applicable, to ensure valid results;

— when the monitoring and measuring shall be performed;

— when the results from monitoring and measurement shall be analysed and evaluated.

The organization shall retain appropriate documented information as evidence of the results.

The organization shall evaluate the knowledge performance and the effectiveness of the knowledge management system.

9.2 Internal audit

The organization shall conduct internal audits at planned intervals to provide information on whether the knowledge management system:

a) conforms to:

— the organization's own requirements for its knowledge management system;

— the requirements of this international standard;

b) is effectively implemented and maintained.

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The organization shall:

c) plan, establish, implement and maintain an audit programme(s) including the frequency, methods, responsibilities, planning requirements and reporting, which shall take into consideration the importance of the processes concerned and the results of previous audits;

d) define the audit criteria and scope for each audit;

e) select auditors and conduct audits to ensure objectivity and the impartiality of the audit process;

f) ensure that the results of the audits are reported to relevant management;

g) retain documented information as evidence of the implementation of the audit programme and the audit results.

The auditors should be trained as to knowledge management systems, and can come from within the organization or externally.

9.3 Management review

Top management shall review the organization's knowledge management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness.

The management review shall include consideration of:

a) the status of actions from previous management reviews;

b) changes in external and internal issues that are relevant to the knowledge management system;

c) information on the knowledge performance, including trends in:

— nonconformities and corrective actions

— monitoring and measurement results;

— audit results;

d) opportunities for continual improvement.

The outputs of the management review shall include decisions related to continual improvement opportunities and any need for changes to the knowledge management system.

The organization shall retain documented information as evidence of the results of management reviews.

10 Improvement

10.1 Nonconformity and corrective action

When a nonconformity occurs, the organization shall:

a) react to the nonconformity and, as applicable:

b) take action to control and correct it and learn from it;

deal with the consequences;

evaluate the need for action to eliminate the causes of the nonconformity, in order that it does not recur or occur elsewhere, by:

— reviewing the nonconformity;

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— determining the causes of the nonconformity;

— determining if similar nonconformities exist, or could potentially occur;

— identifying any opportunity that may arise from the nonconformity;

c) implement any action needed;

d) review the effectiveness of any corrective action taken;

e) make changes to the knowledge management system, if necessary.

Corrective actions shall be appropriate to the effects of the nonconformities encountered.

The organization shall retain documented information as evidence of:

— the nature of the nonconformities and any subsequent actions taken;

— the results of any corrective action.

10.2 Continual improvement

The organization shall continually improve the suitability, adequacy and effectiveness of the knowledge management system.

The organization shall plan, implement and control processes needed to ensure continual improvement, in two aspects:

— benefits derived from the knowledge management solutions implemented;

— new additional solutions, for existing and developing needs of the organization.

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Annex A

The Knowledge Spectrum- Knowledge inner boundaries

Knowledge includes many types and formats of items. It exists on a continuum from codified knowledge to completely un-codified. It is important to acknowledge the diversity of the forms of knowledge and the fact that knowledge can be transformed from one form to another depending on the context and the value it carries. It is one of the objectives of knowledge management to make sure that the forms and the transformations are consistent with the business organizational needs and deliver the right value.

For instance, the spectrum can start with knowledge that the individual is not even aware off, through knowledge they are aware but cannot express in words or symbols (i.e. judgment call or intuition), through knowledge they have and find it difficult to explain. It finishes, on the other end of the spectrum, with documented or recorded knowledge (such as textbooks, document files or MOOC content) and even knowledge that has been codified and structured into well defined rules (musical scores, manuals, diagrams, programming algorithms, etc.).

Knowledge Management deals with activities associated with all types of knowledge within these boundaries: Leveraging existing knowledge; creating new knowledge (initially un-codified); and transformation of knowledge along this continuum. Knowledge Management, among other activities, aims at deciding, where on this spectrum different areas of knowledge are best positioned; what activities should be taken in order to optimally understand the knowledge, apply it and/or possibly transfer it among stakeholders. This of course will vary depending on the context and purpose to which knowledge applies and how it is interpreted and adapted by those it is transferred to.

Understanding Knowledge as a continuum within these boundaries, it gives a deeper appreciation of the essence of Knowledge Management and it matters less what terms are used to define it.

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Annex B

Boundaries between knowledge management and adjacent disciplines

Boundaries of knowledge management may be explained by comparing it with related disciplines, as following:

a. Information management

Knowledge management is not the same as information management, although the two are often confused.

Knowledge management includes the codification of knowledge and therefore involves the creation of information. Once knowledge is codified (e.g. in a document), it is subject to information management processes such as storage and retrieval. It is also part of knowledge management, where knowledge management is concerned with the content of codified knowledge and ensuring that it supports good decisions and effective action, tailored to the user's context and understanding.

A lot of knowledge available to an organisation is not codified and therefore not subject to information management processes. Even when knowledge is codified, it can never be captured completely, whatever resources are invested. Experience and insights, for example, are covered by knowledge management, and not by information management. So although elements of information management are used in knowledge management, information management alone cannot meet the requirements for a knowledge management system.

b. Data management

Knowledge management and data management are generally considered separate topics. However, aspects of data management that may be referred to as knowledge management include the combination of data through linked data, and the use of algorithms to mine and analyze data and provide new insights.

c. Business Intelligence

Business Intelligence is closely related to Knowledge Management as it deals mainly with learning and creating new knowledge by understanding manipulated and aggregated data and information.

d. Customer relationship management

Where data management and information management tools and techniques are applied to customer data or market information, we find the complementary discipline of customer Relationship management, which often supports knowledge management in the areas of organizational learning and decision-making. However for the purposes of this MSS it is considered as a separate discipline.

e. Training / learning & development

Both knowledge management and training & development disciplines enable organizations and individuals to understand the gaps between the present and the future in terms of knowledge needs. While training uses learning programs to bridge the gap at the individual level, knowledge management facilitates knowledge acquisition.

Learning services for non-formal education and training are already covered by ISO 29990:2010.

f. Organizational learning

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Knowledge management and organizational learning are closely related. They differ mainly in their starting point: the starting point for knowledge management is that knowledge is valuable and should be managed; the starting point for organizational learning is that learning is valuable and can be managed at the individual, group and whole organization level. The remit of organizational learning also involves organizational culture and climate that cultivates trust amongst staff for knowledge sharing and diffusion to take place. As learning is one of the results of knowledge management, there is often little difference between knowledge management and organizational learning. knowledge management can be thought of as a management system through which organizational Learning can be attained.

g. Innovation management

Innovation management is often considered either to be closely linked to knowledge management, or to be a component of management. Innovation management is concerned with the collection, creation and testing of new ideas, processes, products, services, models, methods etc that realize value. Innovation Management is already covered by ISO Management system Standard [ISO 50501], therefore for the purposes of this document we address only the management system from the point at which the innovative idea, process, product, service, model or method has generated knowledge through knowledge management initiatives.

h. Management systems

Knowledge management and many other management systems, especially Quality management ISO 9001:2015, are related in that they are all supporting disciplines designed to enhance the performance of organizations. These disciplines include interdependent elements to support action on diverse aspects of organizational management. organizations seeking to implement such disciplines together with knowledge management should ensure that the processes are aligned for consistency. Explicitly connecting these management systems with knowledge management can often generate synergies and some common processes.

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Annex C

Knowledge Management Culture

Knowledge management culture is a supportive element of the organizational culture. A culture where the behaviours of seeking, sharing, developing and applying knowledge are encouraged and expected, supports the establishment and application of the knowledge management system within the organization. There is also a personal dimension to a Knowledge Management culture, ultimately each individual has responsibility to demonstrate commitment through their own behaviour and interactions. A Knowledge Management culture acknowledges the value of individual and shared knowledge, as it benefits the organization.

A knowledge management culture reflects the extent to which people:

— feel comfortable openly discussing issues and offering advice

— share knowledge and information openly and honestly to enhance socialization and flow of knowledge through the organization

— feel empowered to autonomously act on knowledge

— demonstrate accountability for their own learning and results

— offer their knowledge to others rather than keeping it to themselves

— collaborate with, rather than compete with, their colleagues

— protect the organizational knowledge

— invest time in reflecting and learning

— place value on acquiring new knowledge through their own experiences (success or failure)

Many of these elements are interdependent and it is possible that they are evident in various parts of the organization. In such cases, the application of the knowledge management system may be inconsistent. The development of a knowledge management culture does not happen by default, nor in a short time, but requires a deliberate and active programme of interventions to steward it towards the desired state. When these elements are managed in harmony it results in positive outcomes, including the ability of the organizational to adapt to changing situations.

A common approach to analyzing and promoting a Knowledge Management culture is as follows:

1. Define the desired attitudes and behaviors which represent a knowledge management culture appropriate to the size and scale of the organization. One example of how this action may be conducted is by using a visioning or future-focused process to help define and describe the desired knowledge management culture of the organization “should be”.

2. Document the existing and present state of the values, behaviors and actions related to a knowledge management culture within the organization. This document should include the differences between the desired state and the present state of the knowledge management culture in the organization (e.g. by gap analysis).

3. Analyze and identify the factors which influence the cultural gaps, and which may need to be addressed. Possible factors that may result in a gap between existing and desired behaviors include the extent to which the following factors affect the desired behaviours and attitudes:

— Policies and procedures

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— Customs and norms

— Leadership behavior and attitudes

— Training

— Rewards and recognition

— Physical environment

— Technology

— Organizational structure

4. Create a plan of action for addressing specific factors that result in “gaps” between the desired state and the current state of the knowledge management culture within the organization. Elements of appropriate change management processes should be used as part of the action planning process.

5. At planned intervals, review knowledge management culture in the organization and update the desired state as well as the gaps, the factors and the action plan.

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