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DO YOU DETERMINE THE KNOWLEDGE NECESSARY FOR BUSINESS PERFORMANCE?

White paper on how to manage ISO 9001:2015 7.1.6 requirements

SAFER, SMARTER, GREENER

Section 7.1.6 of ISO 9001:2015 addresses the need to determine and manage the knowledge maintained by the organisation, to ensure the operation of its processes and that it can achieve conformity of products and services.

This whitepaper explores how organisational knowledge can be managed according to the ISO 9001: 2015 requirements.

WHAT IS MEANT BY 'ORGANISATIONAL KNOWLEDGE'?

The ISO 9001:2015 section focuses on knowledge that is necessary for an organisation to fulfill its most important workflows/processes in the best possible way and to meet the organisational goals.
In other words:

What do people in our organisation need to know, how do we maintain that knowledge and make it available to the right people at the right time in order to achieve our organisational goals?

Thus, it is not about all of the knowledge available in the organisation but only about the critical knowledge. The knowledge necessary for the most important workflows, products, processes and services, etc. If this knowledge disappears, is difficult to find or is not used to its full extent, the quality of products and services are likely to diminish and can damage the reputation of the organization and impact its overall results and performance.

The new ISO 9001 standard requires organisations to show that they have determined the knowledge necessary for performance.

For example, in a typical asset rich organization, the following knowledge areas could be critical for front line staff:

- Knowledge of asset inspection, testing and maintenance management.
- Knowledge about asset risk exposure.
- Knowledge in how to use asset integrity management system review and development.
- Knowledge of asset life management.
- Knowledge related to governing documents for maintenance strategies.

However, for the environmental management team, different knowledge areas would be critical. For example, although not exclusive:

- Knowledge of how to conduct an environmental impact assessment.
- Knowledge about air modeling.
- Knowledge about implementing an integrated pollution prevention and control system.
- Knowledge about the organisation's environmental management systems and related ISO standards.

The identification of that critical knowledge, the quality of the knowledge available, how well it is documented and shared to reduce the risks of its loss are the subjects of DNV GL's knowledge strategy process.

The process has four dimensions:

1. Importance: this dimension refers to the potential impact of losing this knowledge. How might the loss contribute towards safety related incidents or disruptions to operations. Consider also the emerging importance of new know edge areas and those areas with decreasing impact.
2. Proficiency: this dimension refers to the level of quality of the knowledge in a given knowledge area.
3. Codification: this dimension describes what part of the knowledge has been codified into writing, diagrams or other forms of (electronic) artefacts. Is it necessary to review and update the codified documents to guarantee currency and readiness?
4. Diffusion: this dimension refers to the spread of knowledge across people

WHAT IS CRITICAL KNOWLEDGE?

The determination of what type of knowledge is critical, depends in the first place on the specific goals and targets of an organization and in the second place on the most important work flow/ processes that lead people to reaching these goals in the most effective way.

In stressing this, the ISO has clearly recognised the importance of appropriate and clear defined work flows and processes for a qualitative strong organization. It is also clear that the ISO stresses an emphasis on the importance of the way the most important knowledge is developed and used.

HOW DO YOU DEVELOP INSIGHTS INTO YOUR CRITICAL KNOWLEDGE?

Most organisations do have an idea, an overview - perhaps implicit or maybe explicit - of their critical knowledge areas. However, we believe that it is important to refresh this picture and update this view on a regular basis with the latest insights and developments from inside and outside of the organisation. Only if organisations have an explicit view of their critical knowledge can they create a framework to understand and manage it.

The framework for developing an overview of your critical knowledge is the mission and organisational strategy: What is our most important goal, what do we strive for?

Based on the mission and strategy there are basically two ways to make critical knowledge areas explicit:

1. Approach based on process descriptions and process flows: You can select the most important processes which support the most important company goals. Decisions will depend upon on how extensive you would like to define your critical knowledge explicitly.
2. Approach based on the organisation's structure: You can focus on a specific department or team and see what their specific contribution is to reach the overall organizational goals. What is the most important knowledge needed by this department or team to be capable of deploying and to execute its contribution to the organizational goals and its strategy?

In both situations you will have to involve staff to identify and define which knowledge is the most important, next to which knowledge is really critical. The former can be achieved in brainstorming and prioritisation workshops and the latter, for example, through ranking on impact scores.

Returning to the case of the asset rich organization, this means that in using the first, work process-based approach, they may choose one of the main processes and develop a list of critical knowledge areas for working, acting and behaving in executing work in this process, such as:

- Knowledge of fault diagnosis.
- Knowledge of possible solutions to the fault.
- Knowledge of results and expectations of potential treatments.
- Knowledge of how to update asset records.

In the second organizational structure-based approach you may focus on a team or department. If you do so for, the safety management department, for example, and based on what participants score as critical for their activities and contributing to the strategy and organizational goals, the following critical knowledge areas may well be defined:

- Knowledge of how to conduct quantitative safety studies.
- Knowledge relating to fire and explosion analyses.
- Knowledge involved in the work environments relating to human factors issues.
- Knowledge of how to conduct an incident investigation.

From ISO 9001:2015 version:

7.1.6 ORGANISATIONAL KNOWLEDGE

The organisation shall determine the knowledge necessary for the operation of its processes and to achieve conformity of products and services. This knowledge shall be maintained, and made available to the extent necessary.

When addressing changing needs and trends, the organisation shall consider its current knowledge and determine how to acquire or access the necessary additional knowledge.

- **NOTE 1** Organisational knowledge can include information such as intellectual property and lessons learned.
- **NOTE 2** To obtain the knowledge required, the organisation can consider:
  a) internal sources (e.g. learning from failures and successful projects, capturing undocumented knowledge and experience of topical experts within the organisation).
  b) external sources (e.g. standards, academia, conferences, gathering knowledge with customers or providers).

WHAT TO DO WITH THIS CRITICAL KNOWLEDGE?

When it comes to organising critical knowledge, what do you actually do?

Emphasis and focus should be on making sure that:

- There is a common understanding of what knowledge is required in the organization to execute processes and work in the best way and that it is secured that this knowledge is available.
- You understand what you do not need to know by looking at priorities, accuracy of information or possibility and availability of alternative resources who could handle this information better.
- The knowledge is:

  ✓ Ready to use, suitable for those who need it in their daily operations and at the level of proficiency.
  ✓ Made available in a way that makes it easy to re-use. Make it easy for people to use and adapt this knowledge in their work at the time they need it. Make the content of the knowledge adjustable to the organisation's operations;
  ✓ Available for people and that they know how to use the organisational social and technical infrastructure easily, such as meetings, peer reviews, databases, intranet, etc., to easily get to this knowledge in a timely fashion;
  ✓ Easy for people to find;

- People use the knowledge from the organisation's collective memory.
- People use validated knowledge and not define their own versions as there will be strong chance of multiple, perhaps inconsistent or even divergent approaches.
- New insights and developments, from inside and outside the organisation, if relevant, are included in the organisational memory. Update and make your critical knowledge concrete in real contexts by explaining your approaches and ways of working with new experiences and ensure that updates are validated.


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Ultimately, these are the process steps that when completed together form the knowledge cycle that provides an overview of your critical knowledge areas and focuses attention to ensure that they are:

- Captured in ways that make them re-usable.
- Stored in structured ways to enable people to find them easily and thus available when needed.
- Mobilised and used by the right people.
- Applied by staff who can learn and make sure the knowledge is updated with new insights and experiences.

The knowledge cycle needs to be managed and someone needs to take responsibility and be accountable for it to ensure that these processes are executed, applied and completed.

ISO 9001 COMPLIANCE

What is in place in relation to your identified critical knowledge areas: 'how do we do this now?'

You will most likely find gaps in the knowledge cycle such as the unavailability of knowledge due to local storage restrictions or the fact that knowledge is only available in people s heads and not documented at all. To make this valuable knowledge available to a wider audience you will need to inform how you want to organize the information, describe and formalize it.

You may also find that some knowledge is insufficient and needs to be expanded in the organization because the analysis has shown that that the level of expertise is to too low to meet organizational requirements and goals.

These extremely important insights can help organizations to arm themselves better and manage the knowledge necessary to achieve their goals.

The further management and way to report the findings on critical knowledge depends on the choice how to analyze it what is described earlier in this paper as a process based approach or the approach that looks at knowledge management within a department or team.

If critical knowledge and how it is organised is captured via a focus on processes the most logical thing to report this is via adjustments to the process descriptions /quality manuals.

If critical knowledge is captured via the organisational structure perspective, then most organisations choose to develop a knowledge plan: an adjustment to the tactical plan of the department, which defines and describes the critical knowledge areas that play an important role and how they are organised and maintained.

KNOWLEDGE STRATEGY AND ITS USE

- Gives direction and structure to team activities on how to contribute to the realisation of organisational goals.
- Prioritises the team results to work on.
- Makes clear which knowledge is needed for the team to be able to reach the team goals and thereby contribute to the organisational goals.
- Articulates explicitly:
  - How the team is going to organise the capture, development and exploitation of the knowledge to those team members who need this knowledge;
  - How the team is going to organise and manage the knowledge cycle. The plan will also give an overview of the necessary social and technical infrastructure to help spread the crucial knowledge throughout working processes.

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DNV GL has provided training courses and advisory services in the field of knowledge management since 1988.

We help our customers to build, retain and transfer business-critical knowledge through systematic learning from data and human experience. Our experts work in partnership with companies to capture experiences and lessons learned from operations, and turn them into action.

For more information about our knowledge management services visit: www.dnvgl.com/km

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