
THE ROLE OF KNOWLEDGE MANAGEMENT IN ACHIEVING HARMONIZED HIGH LEVEL OF NUCLEAR SAFETY

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The challenge for governments in the nuclear safety regulatory area is to maintain high standards of safety while ensuring that regulation is effective and focused on real risks. We speak more and more about the need for harmonization, one of the reasons probably is that the context in which nuclear regulators work has changed. Protecting citizens and the environment is a more demanding task in the 21st century. Nuclear operators must perform more efficiently and be more innovative in a highly integrated international economy. Perhaps not surprisingly, regulators can hear from the industry that the current regulatory system often acts as a constraint to innovation, competitiveness, investment and trade.

Regulatory oversight was earlier very much connected to inspection and review of the technical solutions presented for various purposes. Today it is instead an outspoken strategy by many regulators to move more towards inspection and reviewing of the work processes by which nuclear power plants themselves ensure that their safety management activities are covering and efficient. The concept of risk informed regulation has also been associated to an allocation of resources for regulatory activities, which is governed by their importance for safety.

The enlarged EU is the world's leading nuclear electricity generator. Development in regulatory approaches and priorities due to changing economic conditions to produce electricity, ageing and modernization of existing reactors and due to human assets takes place in countries with nuclear power. The EURATOM Treaty calls for the establishment of "uniform safety standards" in the EU, at the same time, the sovereign power of national governments to manage their energy sectors is affirmed. A compromise must be found which maintains the highest safety standards for EU citizens, but respects these two positions.

The nuclear safety regulatory requirements are always anchored in the national legislation, because they imply the exercise of authority in the case a utility fails to live up to the requirements. However, the member states of EU have much to be gained from harmonization of national approaches.

The objective of WENRA harmonization work is to achieve step by step the level of convergence warranting that "there are no substantial differences between the countries from the safety point of view in generic formally issued national safety requirements, and in the resulting implementation on the nuclear power plants".

Harmonization means neither uniformity nor loss of responsibility. It means, for instance, that a improvement that has been discovered in one place can be more easily made universal. Harmonization is a prerequisite for sharing a certain number of tasks, rather than reinventing them in every institution involved. Harmonization would thus enable all actors to more easily achieve the standards of those with the best ones.

The goals for the interface between regulatory and industry oversight activities also need to be considered. Perhaps an ideal world would rely on nuclear industry self-regulation with regulatory oversight to assure itself and the public that the self-regulation is working. This requires also a better understanding of how the social environment influences both nuclear industry safety performance and regulatory oversight activities.

Knowledge management is important for enhancing an organization's ability and capacity to deal with its mission, its ability to deliver the results and to be able to cope with change.

The value of knowledge management relates directly to the effectiveness with which the managed knowledge enables the members of the organization to deal with today's situations and effectively envision and create their future. Without access to managed knowledge, every situation is addressed based on what the individual or group brings to the situation with them. With access to managed knowledge, every situation is addressed with the sum total of everything anyone in the organization has ever learned about a situation of a similar nature.

Regulators, like most other organizations in the nuclear field, face the challenge of capturing and managing its nuclear knowledge due to an ageing workforce. There is now a generation shift. This means that many people who are well aware of what is said in safety legislation, standards and recommendation are less conscious of why it is said. For addressing this challenge we need tools for transferring data into information, information into knowledge and knowledge into wisdom.