



The Role of Knowledge Management in Achieving Harmonized High Level of Nuclear Safety

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Contents:

- Nuclear regulator in the changing environment – the need for knowledge management
- Western Nuclear Regulators Association as an example of networking and international cooperation
- Harmonization, why is it needed, what is the benefit?
- Regulators' challenge in knowledge-intensive society

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The Regulators' Challenge

“Regulators, under unprecedented pressure, face a range of demands, often contradictory in nature:

- be less intrusive - but more effective;
- be kinder and gentler - but don't let the bastards get away with anything;
- focus your efforts - but be consistent;
- process things quicker - and be more careful next time;
- deal with important issues - but do not stray outside your statutory authority;
- be more responsive to the regulated community - but do not get captured by industry.”

The Regulatory Craft, Malcolm Sparrow (2000)

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Basic Mission of Nuclear Safety Regulatory Authority

Effective protection of the public health and safety, security, and of the environment.



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Current Regulatory Framework

- Licensee responsibility for safety
- Defence in Depth
- Safety-conscious environment (safety culture)
- Regulatory Effectiveness and Efficiency
- Risk oriented approach
- Accountability to the public
 - Citizens
 - Politicians
 - Nuclear industry
 - Interest groups

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Shift to „Soft Issues“

- As important as technical issues, not as readily solvable
 - Safety management
 - Social, human factors
 - Communication issues
- Prescriptive x goal setting legislation

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Evolving Role of Regulator

- Approaches to regulation must be continuously assessed due to dynamic context
- Boundaries of activity between plant and regulator needs adjusting
- Practical approaches must allow reactor operator/owner and regulatory body achieve their respective objectives

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Changes in Regulatory Approach

- Regulatory approach influenced by many parameters
- Impetus for changes in regulatory approach due to dynamics of various inputs
- Appropriateness of current method and amount of regulatory inspection and oversight is examined
- An ideal world would rely on nuclear industry self-regulation

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Regulatory Oversight Shifting to Processes

- In the past: inspection and review of technical solutions
- Today: outspoken strategy to move towards inspection and review of NPPs' own work processes for ensuring safety
- Risk informed regulation: allocation of resources for regulatory activities governed by their importance to safety

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Increased Pressures on the Regulatory Body

- New regulatory competencies needed
- Less expertise available to the regulator
- More aggressive relations between operator and regulator
- Information flow reduced because of sensitive market information
- Legislative basis for enforcement may be inadequate
- Pressure on regulator to avoid requiring shutdown

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Increased Pressures on the Regulatory Body

- Operators will demand more international consistency of regulations.
- Pressure to reduce regulatory impact costs (fees, research and size of regulatory body).
- Increased direct pressure on the regulator to reduce perceived unnecessary regulatory burdens.



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Increased Pressures on the Regulatory Body

- Managing of plant ageing
- Life extension and licence renewal, including upgrading to new standards
- Power upgrades and safety margins at existing reactors
- Succession planning for staff in utilities, TSOs and regulatory bodies
- Organisational matters – nuclear facilities as part of wider energy supply utilities
- Human factors
- Decommissioning

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Western Nuclear Regulators Association

- Nuclear safety was included in the EU enlargement criteria
- National safety approaches: common sources but independent development
- Western nuclear Regulators Association was established in February 1999

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WENRA members by March 2003 are the Heads of the Regulatory bodies in:

- Belgium,
- Bulgaria,
- Czech Republic,
- Finland,
- France,
- Germany,
- Hungary,
- Italy,
- Lithuania,
- The Netherlands
- Romania,
- Slovakia,
- Slovenia,
- Spain,
- Sweden ,
- Switzerland,
- The United Kingdom

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By March 2003 the objectives of WENRA comprise:

- develop a common approach to nuclear safety
- provide an independent capability to examine nuclear safety in future applicant countries
- network of chief nuclear safety regulators in Europe
- exchange experience
- discuss significant safety issues

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Harmonization, why is it needed?

- The challenge for governments in the regulatory area is to maintain high standards of safety while ensuring that regulation is effective & focused on real risks
- Need for harmonization – changing working environment
 - 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
 - Regulators can hear from the industry that the current regulatory system often acts as a constraint to innovation, competitiveness, investment and trade

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What is Meant by Harmonization?

- WENRA working group proposal:
 - „... no substantial differences between countries from the safety point of view in generic formally issued national safety requirements, and in the resulting implementation on NPP´s“
- Legal basis needed for harmonised safety
- Highest priority to be put on nuclear safety and not on political objectives

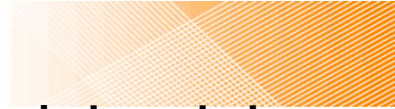
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What is Meant by Harmonization?

- Harmonization means neither uniformity nor loss of responsibility
- Harmonization means, e.g., that an improvement that has been discovered in one place can be more easily made universal
- Harmonization is a prerequisite for sharing knowledge, rather than reinventing it in every institution involved
- Knowledge sharing would enable all actors to more easily achieve the standards of those with the best ones
 - Allowance needs to be made for the existing limits of those involved
 - The question is raised as to the rate at which they can bring themselves up to standard

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Regulators' challenge in knowledge-intensive society

- Knowledge is information causing action and creation of value
- Although knowledge management itself is a new concept, organizations have always used knowledge management practices to make decisions and produce goods and services. No organization can survive without creating, acquiring and transferring knowledge to its employees.
- What has changed is the relative importance of knowledge as a source of wealth-creation compared to other factors of production.
- The knowledge-intensive economy is characterized by a more rapid creation and destruction of knowledge.
- It "reflects an acceleration of change", enabled by new information and communications technologies and requiring organizations to increase their capacity to adapt to rapidly changing circumstances.

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Regulators' challenge in knowledge-intensive society

- Knowledge management has always been at the core of regulatory bodies tasks – inseparable from strategy, planning, consultation, and implementation – but regulatory bodies are now at risk of falling behind the practices of leading-edge companies in this field. This has important consequences for the competitiveness of public organizations within a country or internationally.
- Recruitment is also affected as job seekers increasingly value jobs that continually improve their knowledge, providing them with future career opportunities.

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Regulators' challenge in knowledge-intensive society

- Governments no longer have a monopoly on knowledge in their own field as information about policies and service delivery has become more directly available to citizens, lobby groups, users, etc.
- To keep citizens' confidence regulators are also required to increase the knowledge basis of their activities and to keep track and integrate new knowledge as it is increasingly rapidly produced.

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Tasks for Near Future:

Possible Benefits of Harmonization

- Knowledge management, competent staff, technical support
- Effectiveness and efficiency of regulation
- Safety management, safety culture
- Education and research (incl. material research and engineering)
- Trust building

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Concluding remarks

- The definition of „lingua franca“ is the cornerstone of convergence we try to achieve in WENRA, this convergence is one of prerequisites of knowledge preservation and its effective use
- We succeeded to foster consensus on what is expected in the EU in the area of nuclear safety. It was indeed a common achievement, sometimes through very intensive discussions, but we can see results and benefits in:
 - Enhancement of the protection of public health and safety, and the environment, for the beneficial use of civilian nuclear energy
 - Contribution to the effectiveness and efficiency of nuclear safety regulation
 - Providing a practical forum for EU cooperation and ultimate convergence on regulatory approaches
 - Improving clarity and transparency of nuclear safety regulation across international borders,
 - Improving communication on safety issues resolution
 - Enhancement of knowledge sharing and knowledge management among WENRA members

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***Coming together is a beginning,
keeping together is a progress, and
working together is a success***

