IAEA Approach to Culture and Leadership for Safety

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(The interaction between Human, Technical & Organizational Factors)
The IAEA advisory group INSAG

“A vital conclusion drawn from this behaviour is the importance of placing complete authority and responsibility for the safety of the plant on a senior member of the operations staff of the plant. Of equal importance, formal procedures must be properly reviewed and approved and must be supplemented by the creation and maintenance of a ‘nuclear safety culture’”.

(INSAG-1, 1986)

The concept of the safety culture was now formally introduced in the area of nuclear safety.
Current definition of safety culture

“Safety Culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, protection and safety issues receive the attention warranted by their significance”.

(The 2007 IAEA glossary)
Is safety culture still relevant?
Organizational & cultural root causes of significant events:

- Insufficient understanding of the complexity of ‘reality’ by leaders (‘good news’ cultures, failure to encourage constructive challenge, compartmentalization)
- Insufficient connection and integration across consultant/contractor/vendor network
- Insufficient understanding of nuclear/process safety issues in decision-making and actions
- Normalisation of abnormal conditions or deviations
- Failure to learn from previous events and experiences
- Complacency
- Inability to invite the full intelligence of the organizational members into improvement processes
- Inadequate systemic approach to safety in oversight and supervision
Edgar Schein’s Levels of Culture

- **Basic Assumptions**
  - Unconscious, taken-for-granted beliefs, perceptions, feelings

- **Espoused values**
  - Attitudes, norms, strategies, goals

- **Behaviour, Artifacts**
  - Visible organizational structures & processes
Observation:
Over time, the stakeholders of the Japanese nuclear industry developed a shared basic assumption that plants were safe

- Led stakeholders to believe that a nuclear accident would not happen;
- Prohibited their ability to anticipate, prevent and mitigate the consequences of the earthquake triggering the Fukushima Daiichi Accident;

Lessons Learned:
The possibility of the unexpected needs to be integrated into the existing worldwide approach to nuclear safety – including considerations for emergency preparedness

Individuals and organizations need to consciously and continuously question their own basic assumption and their implications on actions that impact nuclear safety.
Organizational culture vs safety culture

Organizational culture – DESCRIPITIVE

Safety culture – NORMATIVE

- Strong safety culture exist when the shared norms, values and basic assumptions are continuously questioned – ‘are we safe?’ – ‘what do we not pay attention to?’
- The opposite is when the organization assumes ‘we are safe’.
From culture to safety culture

- The concept of culture is *descriptive*
- The concept of safety culture is *normative*
Two different approaches to culture

Culture as one variable amongst others:

Culture as something inherent in all aspects of the organisation:

The Variable Approach

The Metaphor Approach
Safety Standards Hierarchy

Global reference for a high level of nuclear safety
Safety Standards Hierarchy

Global reference for a high level of nuclear safety
Integration of safety culture

3.13. “A safety culture that governs the attitudes and behaviour in relation to safety of all organizations and individuals concerned must be integrated in the management system. Safety culture includes:

• Individual and collective **commitment** to safety on the part of the leadership, the management and personnel at all levels;

• **Accountability** of organizations and of individuals at all levels for safety;

• Measures to encourage a **questioning and learning attitude** and to discourage complacency with regards to safety.”
Safety Standards Hierarchy

Global reference for a high level of nuclear safety
<table>
<thead>
<tr>
<th>General Safety Requirements</th>
<th>Specific Safety Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1 Governmental and Regulatory Framework</td>
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</tr>
<tr>
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<td>2. Safety of Nuclear Power Plants</td>
</tr>
<tr>
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</tr>
<tr>
<td>Part 4 Safety Assessment</td>
<td>2.2 Commissioning and Operation</td>
</tr>
<tr>
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<td></td>
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Requirement 1: National policy and strategy for safety

2.3 (g): “The promotion of leadership and management for safety, including safety culture.”

Requirement 19: The management system of the regulatory body

4.15. The management system of the regulatory body has three purposes: … (3) The third purpose is to foster and support a safety culture in the regulatory body through the development and reinforcement of leadership, as well as good attitudes and behaviour in relation to safety on the part of individuals and teams

Requirement 29: Graded approach to inspections of facilities and activities

4.53. In conducting inspections, the regulatory body shall consider a number of aspects, including:

—Management systems
—Safety culture
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</tr>
<tr>
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<td>3. Safety of Research Reactors</td>
</tr>
<tr>
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<td>4. Safety of Nuclear Fuel Cycle Facilities</td>
</tr>
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OBJECTIVES for GSR Part 2

- Establish requirements for:
  - Effective leadership for safety
  - Effective management for safety
  - Safety culture – incl. assessments
  - Systemic approach to safety*

- Safety as a sustainable outcome of excellence in leadership and management practices

- Integrated management system: make sure that other requirements will not have any impact on Nuclear Safety

* A systemic approach to safety comprises the complex interactions within the global ‘nuclear system’ (i.e. all stakeholders including licensees, regulators, public, government), which includes each organizations’ interaction between human, technical and organizational (HTO) factors.
Systemic Approach – The Interaction between Humans, Technology and Organizations (HTO)
Safety Standards Hierarchy

IAEA Safety Standards
for protecting people and the environment

The Management System
for Facilities and Activities

Safety Fundamentals

Safety Requirements

Safety Guides

Safety Reports

IAEA
International Atomic Energy Agency

Safety Requirements
No. GS-R-3
The management system shall be used to **promote and support a strong safety culture** by:

- Ensuring a **common understanding** of the key aspects of safety culture within the organization;
- **Providing the means** by which the organization supports individuals and teams in carrying out their tasks safely and successfully, taking into account the interaction between **individuals, technology and the organization**;
- Reinforcing a **learning and questioning attitude** at all levels of the organization;
- Providing the means by which the organization continually seeks to **develop and improve** its safety culture.”
Safety Standards Hierarchy

Safety Fundamentals

Safety Requirements

Safety Guides

Safety Reports

IAEA Safety Standards
for protecting people and the environment

Application of the Management System for Facilities and Activities

Safety Guide
No. GS-G-3.1

IAEA
International Atomic Energy Agency
Safety Culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, protection and safety issues receive the attention warranted by their significance.

-2007 IAEA Safety Glossary
Safety is a clearly recognized value
Attributes

• High priority to safety: shown in documentation, communications and decision-making
• Safety is a primary consideration in the allocation of resources
• The strategic business importance of safety is reflected in business plan
• Individuals are convinced that safety and production go ‘hand in hand’
• A proactive and long-term approach to safety issues is shown in decision-making
• Safety conscious behavior is socially accepted and supported (both formally and informally)
Accountability for safety is clear

Attributes

• Appropriate relationship with the regulatory body exists, which ensures that the accountability for safety remains with the licensee
• Roles and responsibilities are clearly defined and understood
• There is a high level of compliance with regulations and procedures
• Management delegates responsibilities with appropriate authority to enable accountabilities
• Ownership for safety is evident at all organizational levels and by all individuals
Safety is learning driven Attributes

- A questioning attitude prevails at all organizational levels
- An open reporting of deviations and errors is encouraged
- Internal and external assessments, including self-assessments are used
- Organizational and operating experience (both internal and external to the facility) is used
- Learning is enabled through the ability to recognize and diagnose deviations, formulate and implement solutions and monitor the effects of corrective actions
- Safety performance indicators are tracked, trended, evaluated and acted upon
- There is a systematic development of staff competencies
Safety is integrated into all activities

Attributes

- Trust permeates the organization
- Consideration for all types of safety, including industrial and environmental safety and security, is evident
- Quality of documentation and procedures is good
- Quality of processes, from planning to implementation and review, is good
- Individuals have the necessary knowledge and understanding of the work processes
- Factors affecting work motivation and job satisfaction are considered
- Good working conditions exist with regards to time pressures, workload and stress
- Cross-functional and interdisciplinary cooperation and teamwork are present
- Housekeeping and material condition reflect commitment to excellence
Leadership for safety is clear

Attributes

- Senior management is clearly committed to safety
- Commitment to safety is evident at all management levels
- Visible leadership showing involvement of management in safety related activities
- Leadership skills are systematically developed
- Management assures that there is sufficient and competent staff
- Management seeks the active involvement of staff in improving safety
- Safety implications are considered in the change management process
- Management shows a continuous effort to strive for openness and good communications throughout the organization
- Management has the ability to resolve conflicts as necessary
- Relationships between management and staff are built on trust
Safety Standards Hierarchy

Safety Reports

Safety Guides

Safety Requirements

Safety Fundamentals

IAEA Safety Standards
for protecting people and the environment

The Management System for Nuclear Installations

Safety Guide
No. GS-G-3.5
Specific guidance for nuclear installations*

- Further explanation of the five safety culture characteristics and the attributes
- Improving safety culture
- Warning signs of a decline in safety culture
- Concept of interaction between individuals, technology and the organisation
- Assessment of safety culture

* Nuclear power plants, other reactors (research and critical assemblies), nuclear fuel cycle facilities
IAEAs Approach to Safety Culture Continuous Improvement

- Culture is seen as something we can influence, rather than something we can control.
- Culture work needs to encompass the whole organization – not only as a top-down process.
- Edgar Schein’s well established iceberg metaphor helps to understand and how to continuously improve safety culture.
  - observe visible aspects (artefacts and behaviour, “above surface”) and;
  - interpret this information to reveal the cultural reasons behind (found in attitudes, values and basic assumptions, “below surface”)
- For safety culture improvement, the IAEA emphasises human interactions (shared space) including trust, mindful communication, learning attitude, inquiring attitude, self-accountability, diversity, self-reflection etc.
Shared Space

- Safe performance depends on the ability and willingness of individuals to continuously think, engage, and demonstrate safe behaviours. It is shaped by
  - Personal motivation
  - Knowledge and understanding
  - *Shared space*
- A good shared space is characterized by
  - Working relationships that support trust
  - Decrease of power dynamics
  - Mutual respect
  - Openness – free flow in sharing of thoughts and ideas
  - Enables individuals to express views related to their inner thoughts and feelings about a particular issue without fear of recrimination or exclusion
  - Shared space goes deeper than sharing facts
  - Dialogue instead of discussion/argumentation
…Thank you for your attention
Effective cultural change work

Key considerations:

• Culture change is about self-transformation for all, not just ‘we will change them’
• Work with realistic ambition – don’t cover everything
• Endurance counts – no quick fixes
• Don’t start what can’t be followed-up
• Exercise power to keep culture on the agenda

Source Prof. Mats Alvesson 2010
Making it happen

• Clarify the image of what it is all about
• Work with a strong sense of ‘we’ – reduce the gap between change agents and the rest
• Avoid hyper culture and focus on practices
• Pay careful attention to process and reception – combine pushing and dialogue
• Avoid n-steps thinking – football game rather than a relay race

Source Prof. Mats Alvesson 2010