

# From Safety Culture to Culture for Safety: What is it that we still have not learned?

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# Overview

- Personal perspective of history in this area over nearly 30 years.
- How did the emphasis of our thinking evolve and what have been the consequences?
- Why Culture for Safety?
- What are the implications for going forward in this direction?
- What is the Culture for the Future?

# Personal Perspective

- Three Mile Island Accident 1979 - 1986
- Chernobyl Accident 1986 - 1995
- U.S. Nuclear Regulatory Commission Research 1988 -1993
- International Community 1991 – 2002 and forward
- Davis Besse Reactor Vessel Head 2002 – 2011
- Fukushima Daiichi Accident 2011 – present

“It is our view that management science is a real and sophisticated academic field that needs to be tapped if the industry is to continue to make progress in dealing with organizational performance issues. There appears to be a lack of communication between the management science academic community and most policy-makers out in the "real world" of nuclear power plant regulation and operations. We believe that the Commission should encourage the involvement of the management science community in helping to improve the organizational performance of both the staff and the nuclear utilities.”

**Comments by Advisory Committee for Reactor Safeguards,  
April 1993 (U.S. Nuclear Regulatory Commission)**

# Emphasis Shift – Why and Consequences?

- High Reliability Organizations (University of California at Berkeley, 1990)
- Influence of Organizational Factors on Performance Reliability (1991)
- Nuclear Safety Culture – INSAG 4 (1991)
- IAEA Safety Culture Characteristics (2002)
- INPO Principles for a Strong Nuclear Safety Culture (2004)
- U.S. NRC Safety Culture Components and Attributes (2006)
- Common Language Traits for a Healthy Safety Culture (2014)



# Why Culture for Safety?

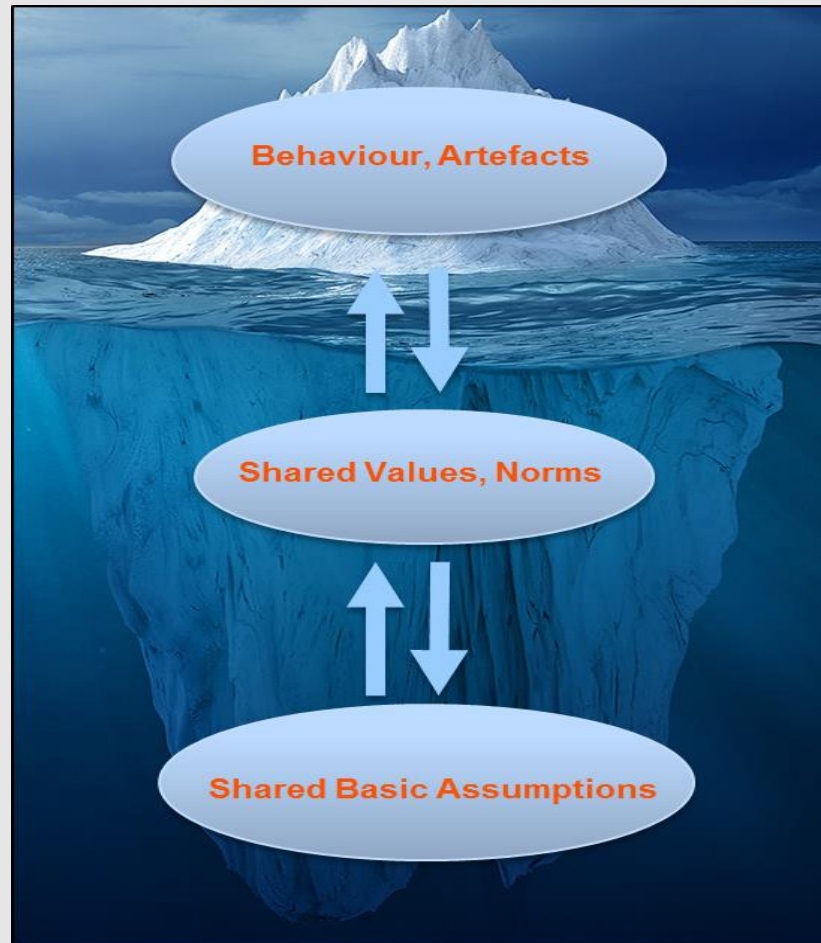
***Culture:** “The shared basic assumptions that have come to be taken for granted and that determine the member’s daily behavior.”*

*Edgar Schein, 2010*

Culture drives behavior which results in performance: Safety, Security, Quality, Economical, Production,.....



# Schein's Model of Culture



# Culture for Safety- Working Definition

Culture for Safety refers to the characteristics of the work environment, such as the values, rules, and common understandings that influence employees' *perceptions* and *attitudes* about the importance that the organization places on *safety*.



# Methodological Premises

- Models of organizational culture identify behaviors as the observables of the values and beliefs underlying them.
- Understanding the behaviors and having reliable and valid tools to assess them is the most effective way to understand and assess organizational culture.
- Too often organizations just look at processes or indicators which are only outcome measures and may be obtained by several different behaviors.
- Complexity of the relationships between individuals, technology and organizations must be considered to fully understand the organizational culture for safety.

# Methodological Premises

- Safe working environment is impossible without an effective organizational culture for safety.
- Organizational culture consists of the context within which behaviors occur and the expectations and values that are perceived to be reinforced by the organization (descriptive).
- A method that allows objective and systematic measurement of the organizational behaviors that impact safety performance is a useful tool (normative).

# Fukushima Nuclear Accident 2011

“Basic assumption” that plants were safe significantly contributed to the accident.

- All stakeholders **shared and mutually reinforced** this belief
- Influenced safety related decision making.

Conventional safety culture programs were unable to identify and correct this “basic assumption”.

- Requires an **integrated approach** considering human, organizational and technical factors.

**Individuals and organizations** need to consciously and continuously **question their own basic assumptions** and their implications on actions that impact safety.

..The possibility of the **unexpected** should be considered. (IAEA 2015)

# Emphasis Shift – Why and Consequences?

Have we become a High Reliability Organization (Industry)? Do we exhibit:

- **Preoccupation with failure** – ‘We are safe’; ‘Are we safe?’
- **Reluctance to simplify interpretations** – ‘We have the answer’; ‘What have we not considered?’
- **Sensitivity to operations** – ‘It’s not my job.’; ‘Each person plays close attention to what is and isn’t working.’;
- **Commitment to resilience** – ‘We have no alternatives.’; ‘We are relentless to succeed’.
- **Deference to expertise** – ‘I already know that’; ‘There are people who know more than me in this area.’



# Implications Going Forward

- How to select leaders?
- Measurement of what?
- How to achieve sustainable change?
- Recognition of complexity and need for diversity of expertise.

# Culture for Safety

- Importance of assessing culture for effecting safety.
- An integrative approach more likely to effect positive culture for safety through behavioral change than just performance measures.
- Discriminating behaviors can facilitate effective positive culture for safety change.
- Stakeholder guidance on culture for safety will not by itself effect positive behavioral change.
- Systemic approach is needed to effect change.

# Culture for the Future

- Reliable and validated tools for assessment and analysis of underlying basic assumptions and organizational culture do exist.
  - Using cultural understanding to promote change will result in more sustainable performance.
  - Learning from successes as well as failures will make organizations more resilient to future events.
  - As the whole system is far too complex for one individual to comprehend, an integrated approach is needed, which invites diversity of expertise and thinking.
  - Work to comprehend the whole systems of interplay between humans, technology and organization using a systemic approach to safety.
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