

ISM and Safety Culture

Presentation to the 2007 ISM Workshop

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DOE on Safety Culture

Safety Culture: “The safety culture of an organization is the product of individual and group **values, attitudes, competencies, and patterns of behavior** that determine the commitment to, and the style and proficiency of, an organization’s health and safety programs.”

Reference: DOE Manual 450-4.1, Integrated Safety Management System Manual, November 1, 2006, Washington, DC: DOE.

Layers of Culture



What is Organizational Culture?

Organizational Culture: “The concept is hard to define, hard to analyze and measure, and hard to manage.”

And, yet... “... one could argue that the only thing of real importance that leaders do is to create and manage culture.”

Reference: Schein, Edgar H. (2004), Organizational Culture and Leadership, Third Edition, San Francisco: Jossey-Bass.

What is Organizational Culture?

“The sum total of what a group has learned and now takes for granted as the way to deal with the external environment and internal integration.”

“The written and unwritten rules and norms, concepts, and jargon.”

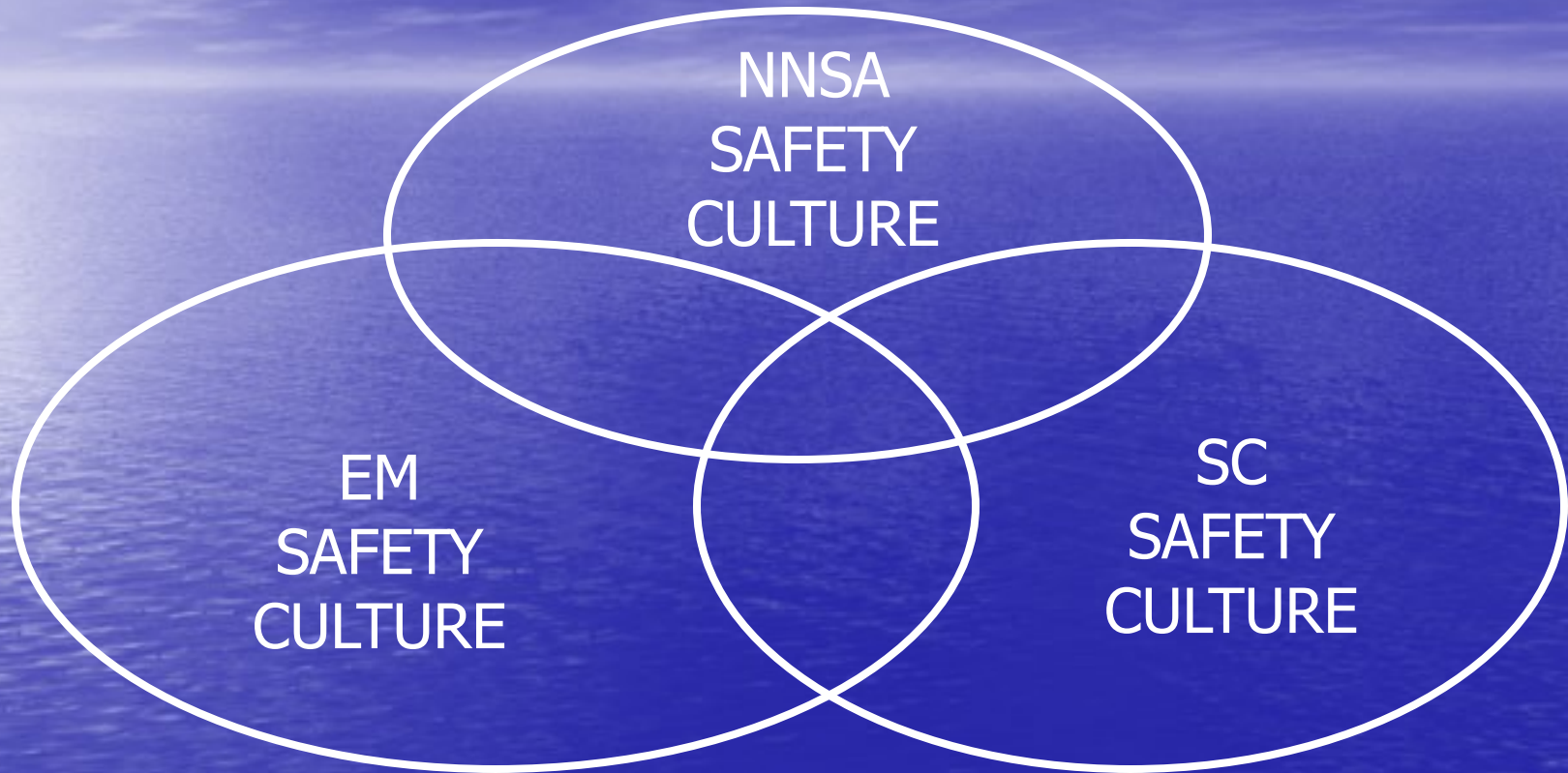
Reference: Schein, Edgar H. (2004), Training Session at the Cape Cod Institute.

Levels of Organizational Culture



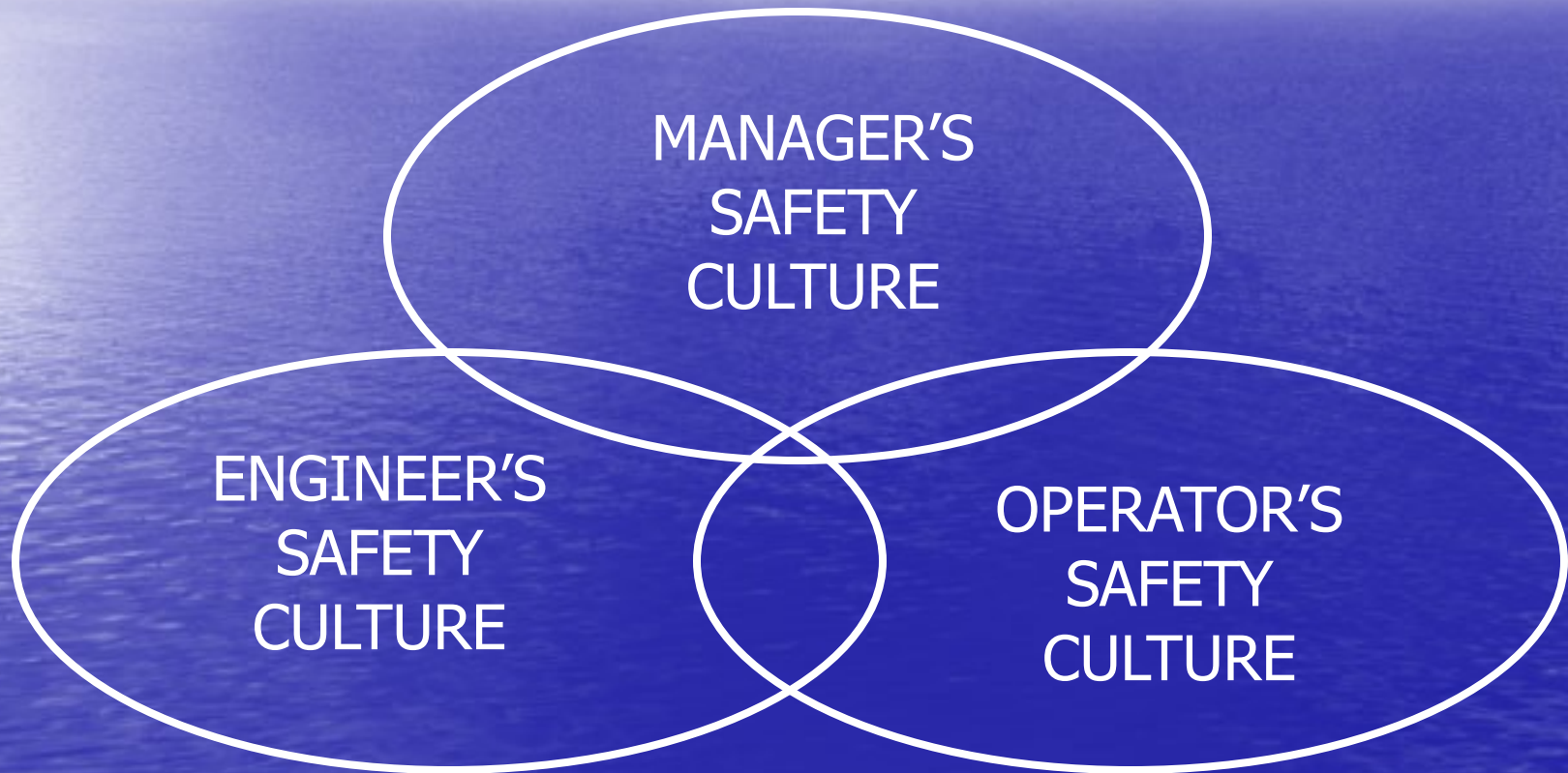
Reference: Schein, Edgar H. (2004), *Organizational Culture and Leadership*, Third Edition, San Francisco: Jossey-Bass.

Sub Cultures Exist

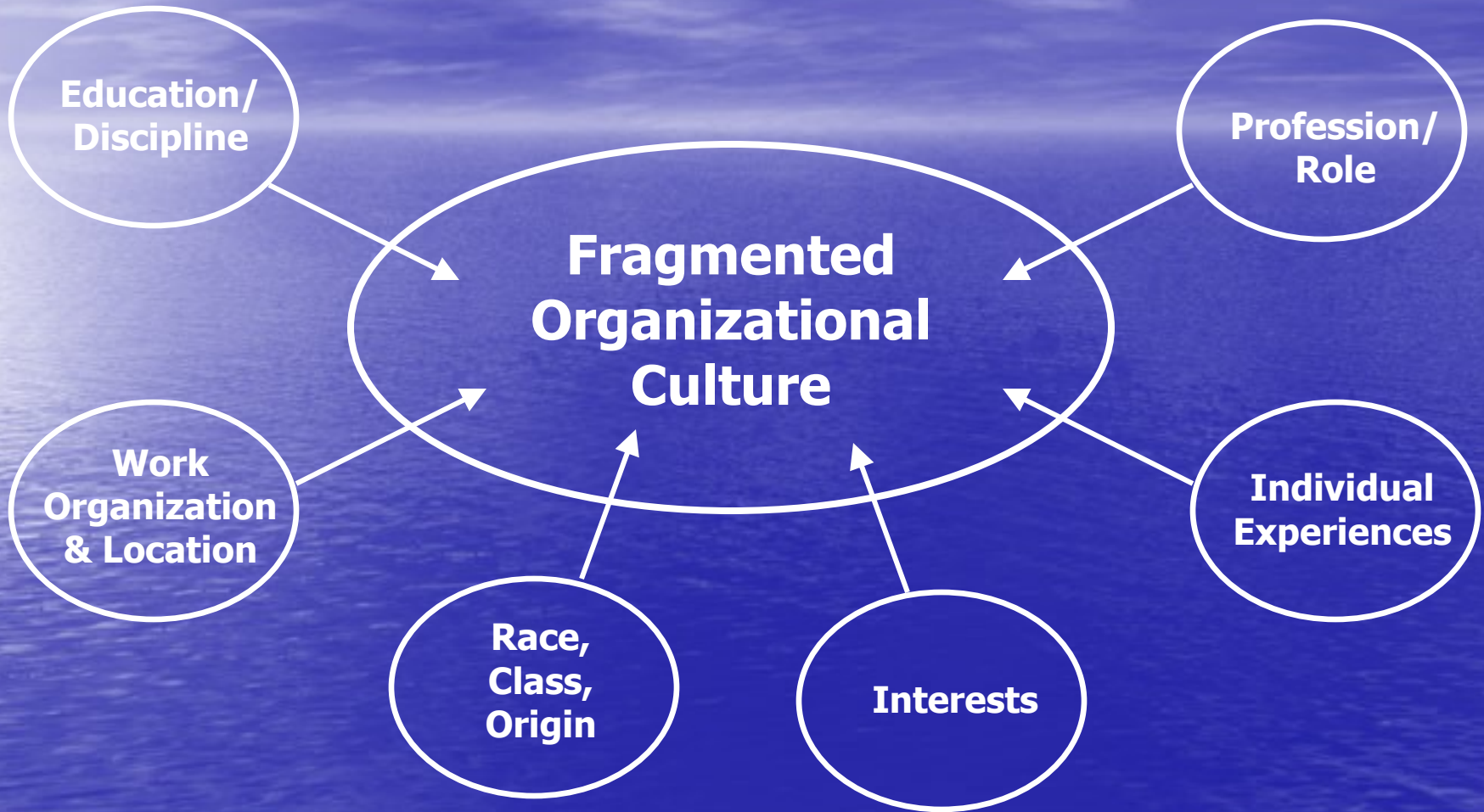


Culture is Differentiated – No organization-wide consensus; organization is a cluster of sub-cultures

Sub cultures by discipline



Cultures in Organizations



Reference: Martin, Joanne (2002) Organizational Culture: Mapping the Terrain. Sage: Thousand Oaks, CA.

Safety Culture As A Primary Cause

- **2002 Davis-Besse Reactor Vessel Head Corrosion Incident**
- **2003 NASA Columbia Accident**
- **2005 BP Texas City Explosion & Fire**

ANS on Safety Culture

Safety Culture: “In recent years, the importance of operational safety culture has come into clear focus. A strong safety culture is important to ensure the integrity of the multiple barriers of the entire defense-in-depth safety fabric. That is, the basic safety **values, norms, and attitudes** of an entire operating organization are just as important as the basic design and construction of the reactor.”

Reference: American Nuclear Society, Background for Position Statement 51, Reactor Safety, June 2007, www.ans.org.

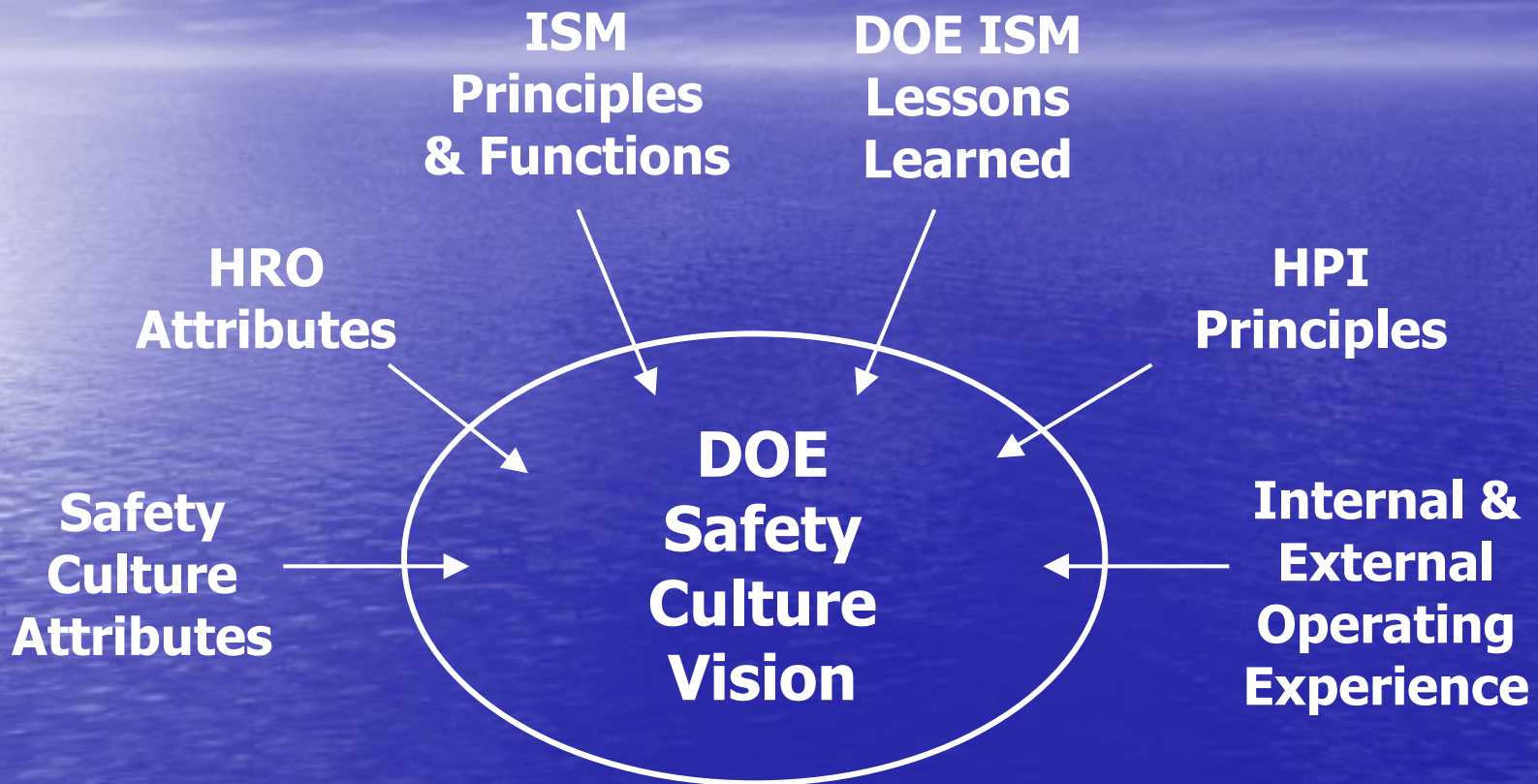
Relationship between ISM and Safety Culture ?



Where ISMS is a comprehensive management system but is recognized as not entirely encompassing "soft stuff" like beliefs, attitudes, values, and norms.

**ISMS is the foundation of DOE's safety culture.
ISMS provides the vision and expectations for DOE's safety culture.**

DOE Safety Culture Vision



Reference: DOE Manual 450-4.1, Integrated Safety Management System Manual, November 1, 2006, Washington, DC: DOE.

DOE on Key Elements of Safety Culture

ISM Guiding Principles

- (1) Line Management Responsibility for Safety
- (2) Clear Roles and Responsibilities
- (3) Competence Commensurate with Responsibilities
- (4) Balanced Priorities
- (5) Identification of Safety Standards and Requirements
- (6) Hazard Controls Tailored to Work Being Performed
- (7) Operations Authorization

Reference: DOE Manual 450-4.1, Integrated Safety Management System Manual, November 1, 2006, Washington, DC: DOE.

DOE on Key Elements of Safety Culture

+ Supplemental Safety Culture Elements

(SSCE-1) Individual Attitude and Responsibility for Safety

(SSCE-2) Operational Excellence

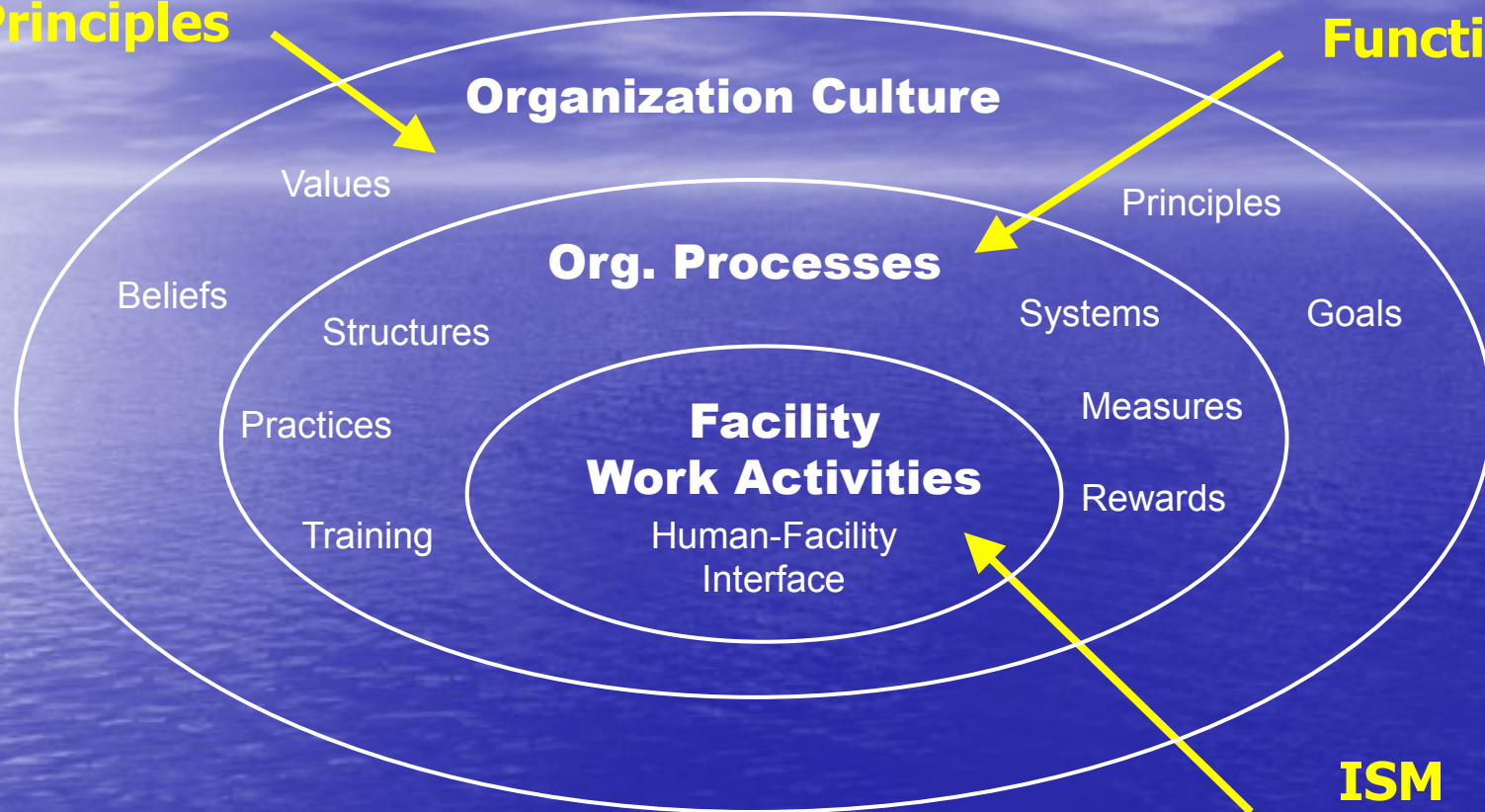
(SSCE-3) Oversight for Performance Assurance

(SSCE-4) Organizational Learning
for Performance Improvement

Reference: DOE Manual 450-4.1, Integrated Safety Management System Manual, November 1, 2006, Washington, DC: DOE.

**ISM Guiding
& Supplemental
Principles**

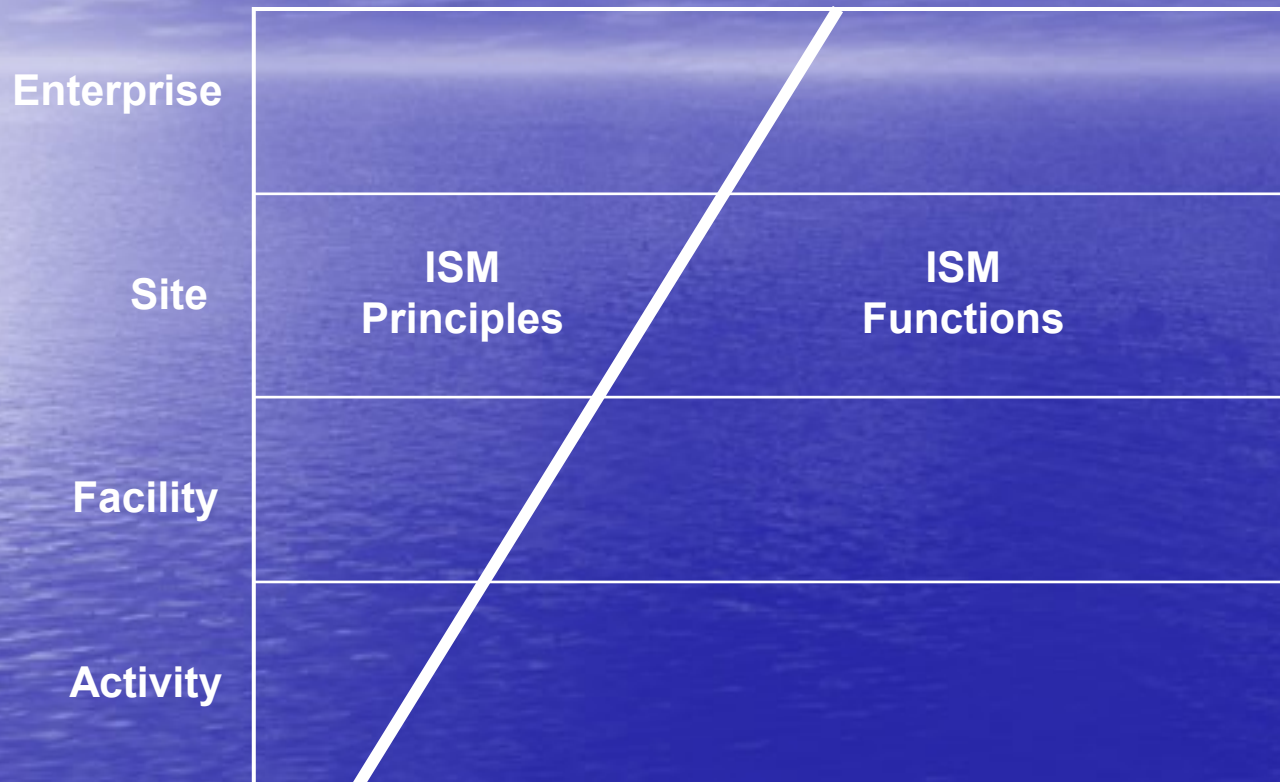
**ISM Core
Functions**



**ISM
Objective:
Do Work Safely**

Reference: DOE Manual 450-4.1, Integrated Safety Management System Manual, November 1, 2006, Washington, DC: DOE.

Different Attention at Different Levels



Relative Focus of Attention by Level

Reference: DOE Manual 450-4.1, Integrated Safety Management System Manual, November 1, 2006, Washington, DC: DOE.

Potential Next Steps for Policy

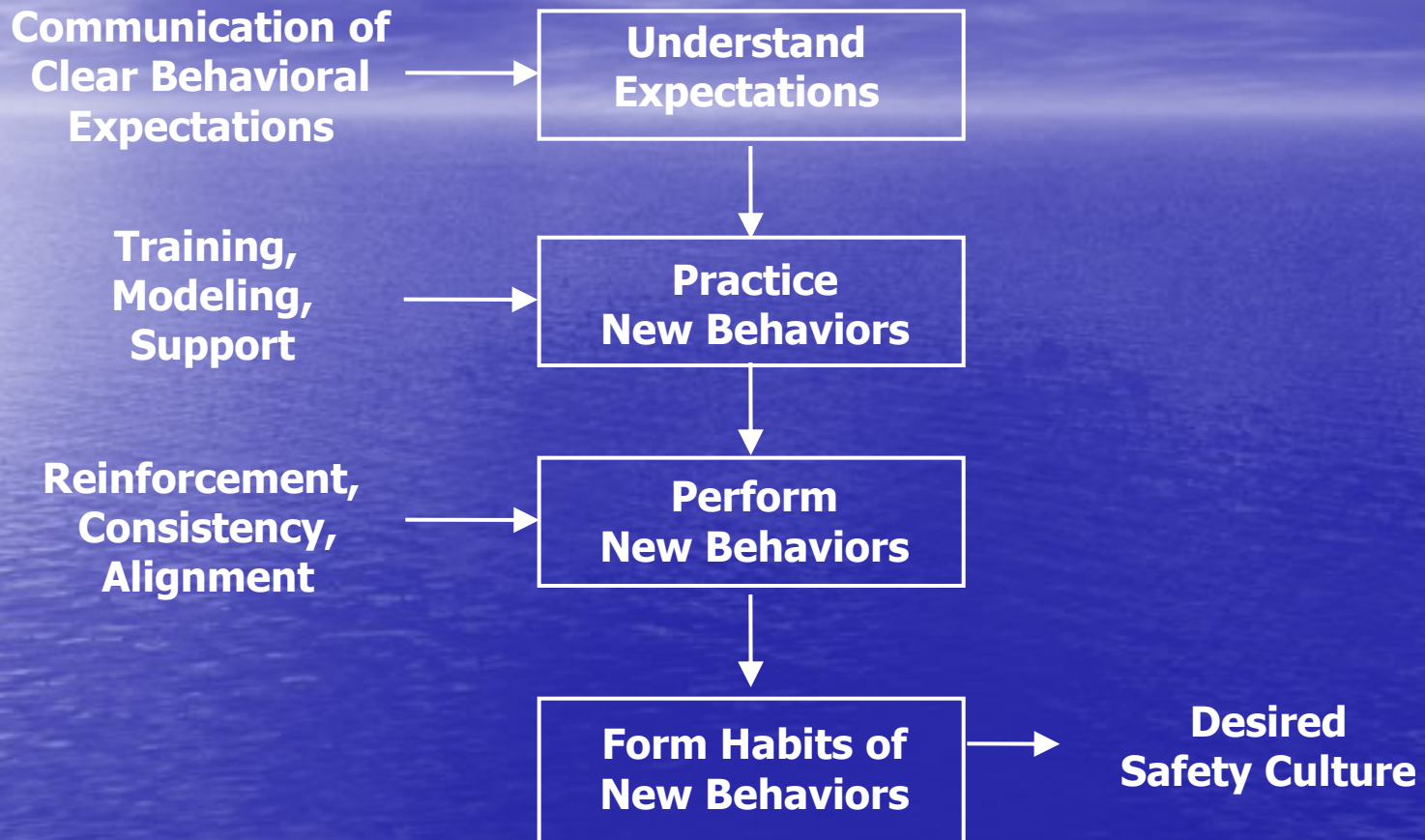
- **Keep Supplemental Safety Culture Elements as Guidance for Contractors/Expectations for DOE.**
- **Incorporate Supplemental Safety Culture Elements as Expectations for Contractors – Revise ISMS DEAR clause.**
- **Re-review the total of the 7 existing ISMS guiding principles and 4 supplemental safety culture elements, and come up with one revised list, which will be DOE's safety culture expectations – Revise ISMS DEAR clause.**
- **Issue separate guide on effective safety culture, as an element of ISMS controls, but not a central one.**

How Do We Change Safety Culture?

“Managers don’t have power to create new culture – only have power to coerce behavior.”

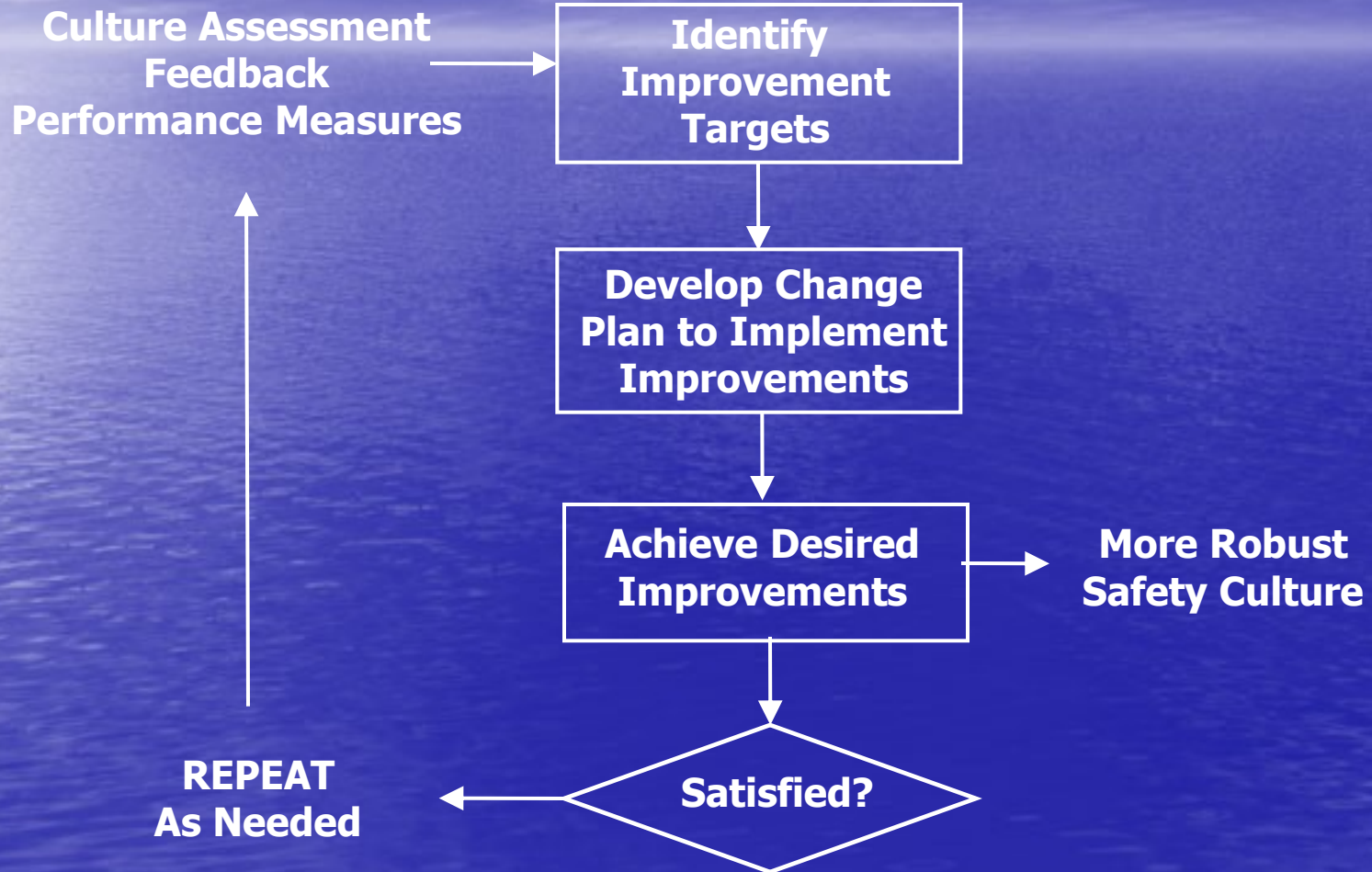
Reference: Schein, Edgar H. (2004), Training Session at the Cape Cod Institute.

Process for Changing Behaviors to Change Culture



Reference: DOE Manual 450-4.1, Integrated Safety Management System Manual, November 1, 2006, Washington, DC: DOE.

Continuous Improvement Process



Stages of Safety Culture Development

1. Pathological	“Who cares as long as we don’t get caught.”
2. Reactive	“Safety is important – we do a lot every time we have an accident.”
3. Calculative	“We have systems in place to manage all hazards.”
4. Proactive	“We work hard on problems we still find.”
5. Generative	“We know that achieving safety is difficult. We keep brainstorming new ways in which the system can fail and have contingencies in place to deal with them.”

Reference: Hudson, Patrick (2002). *Aviation Safety Culture*. Leiden, Netherlands: Leiden University, Center for Safety Science.

Stages of Safety Culture Development

Stage 1 – Regulation Driven – Safety management is determined by regulation and rules (Compliance)

Stage 2 – Management Driven – Good safety performance becomes an organizational goal (Performance)

Stage 3 – Continuous Improvement Driven – Safety performance can always be improved (Process)

Reference: C. Viktorsson, IAEA, Section Head, Policy and Program Support.

Conclusions

- (1) Safety culture exists, is important, and deserves leadership focus and attention.**
- (2) ISM systems, in general, and the ISM principles, in particular, with the addition of the Supplemental Safety Culture Elements, provide the foundation for an effective safety culture.**
- (3) The most effective way to change culture is to identify a small set of desired behavior changes and focus on changing those, and then continue this process.**

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Questions?

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