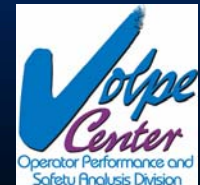


Safety Culture

Sponsored by the FRA
RDV-30

TRB Human Factors in Transportation Workshop 105

Volpe National Transportation Systems Center
Operator Performance and Safety Analysis
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January 12, 2003



Outline

- Definitions and Terms
- Positive Safety Culture
- Improving Safety Culture

Organizational Culture

- Learned behavior as an organization copes with forces internal and external (Schein, 1985)
 - Behaviors
 - Values
 - Assumptions
- Organizations have subcultures (Schneider, 1990)
 - Safety
 - Customer Service
 - Quality

Safety Culture

- “The safety culture of an organization is the product of individual and group values, attitudes, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organization’s health and safety programmes.”
(ACSNI, 1993)
- “Shared values (what is important) and beliefs (how things work) that interact with an organization’s structures and control systems to produce behavioral norms (the way we do things around here)” (Reason, 1997)

Safety Culture Norms and Patterns of Behavior

- Maximum efficiency and minimum risk
- Sharing responsibility
- Tolerance of departure from rules
- Passing information
- Self-presentation

Misumi, Wilpert, and Miller, 1999. Nuclear Safety: A Human Factors Perspective

Safety Culture versus Climate

- Culture is more permanent and the climate is what fluctuates day to day: climate is a manifestation of culture (Lee, 1998).
- “*Perceptions* of the events, practices, and procedures and the kinds of behaviors that get rewarded supported, and expected in a setting” (Schneider, 1990).

Safety Climate Constructs and Outcomes

- **Organization Value for Safety** (Zohar, 1980) → Fewer unsafe behaviors and accidents
- **Upward Safety Communication** (Hoffmann & Stetzer, 1998) → Increased accuracy in reporting
- **Team Work** (Hofmann and Stetzer, 1996) → Fewer unsafe behaviors and accidents
- **Approaching Others** (Hofmann and Stetzer, 1996; BST, Inc. 2000) → Fewer unsafe behaviors, injuries
- **Injury Reporting** (BST, Inc., 2000) → Increased reporting and accuracy

Positive Safety Culture

■ High Reliability Organizations (HRO)

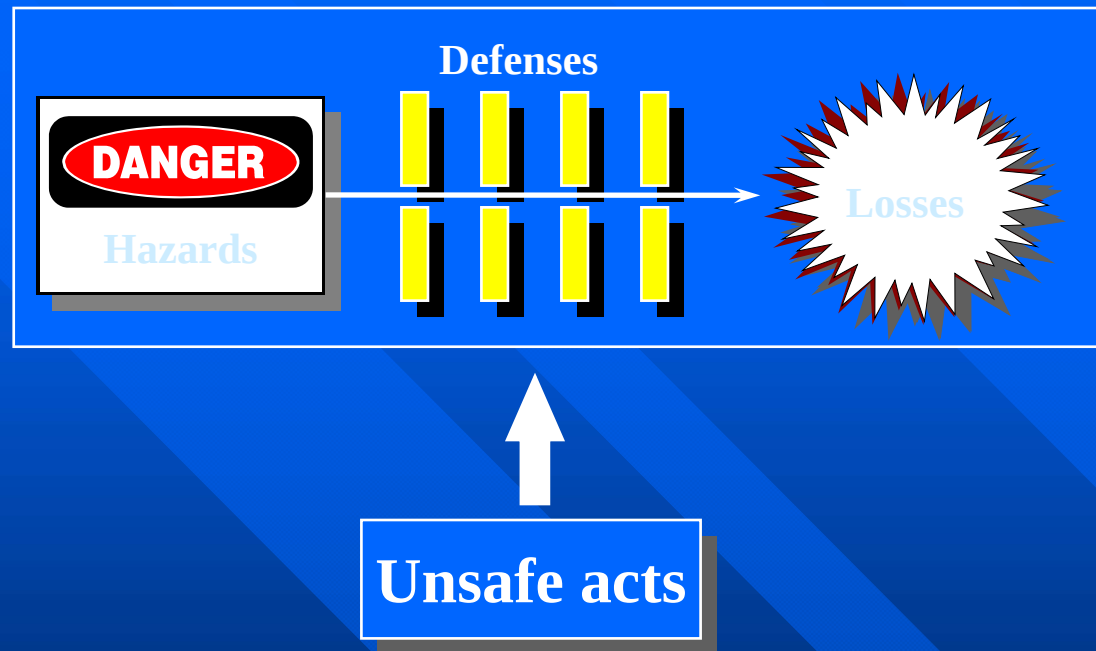
(LaPorte, Rochlin, Robers and Weick, 1991)

- Potential for error, disaster overwhelming
- Catastrophic consequences to accidents
- Examples: Nuclear power generation, electric power generation
- Fewer disasters than one might expect

Characteristics of HROs

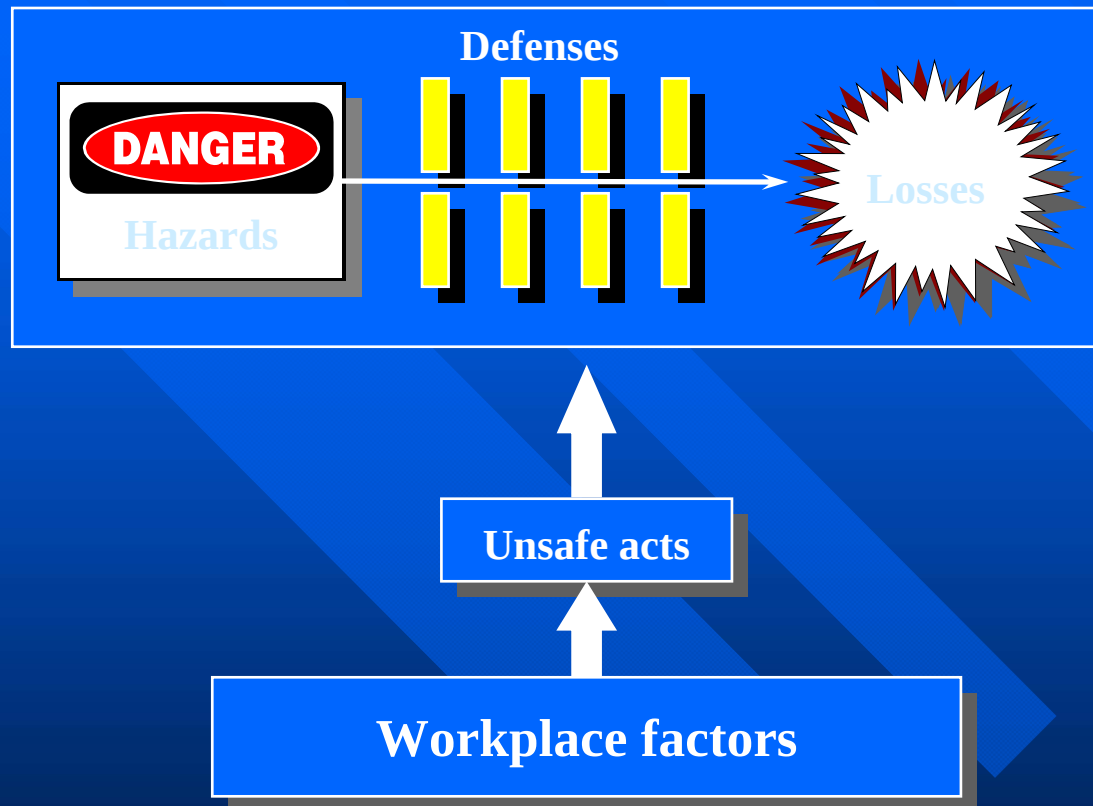
- Sensitivity to operations
- Commitment to resilience
- Preoccupation with failure
- Reluctance to simplify interpretations
- Deference to expertise

Changing Safety Culture (Reason, 1997)



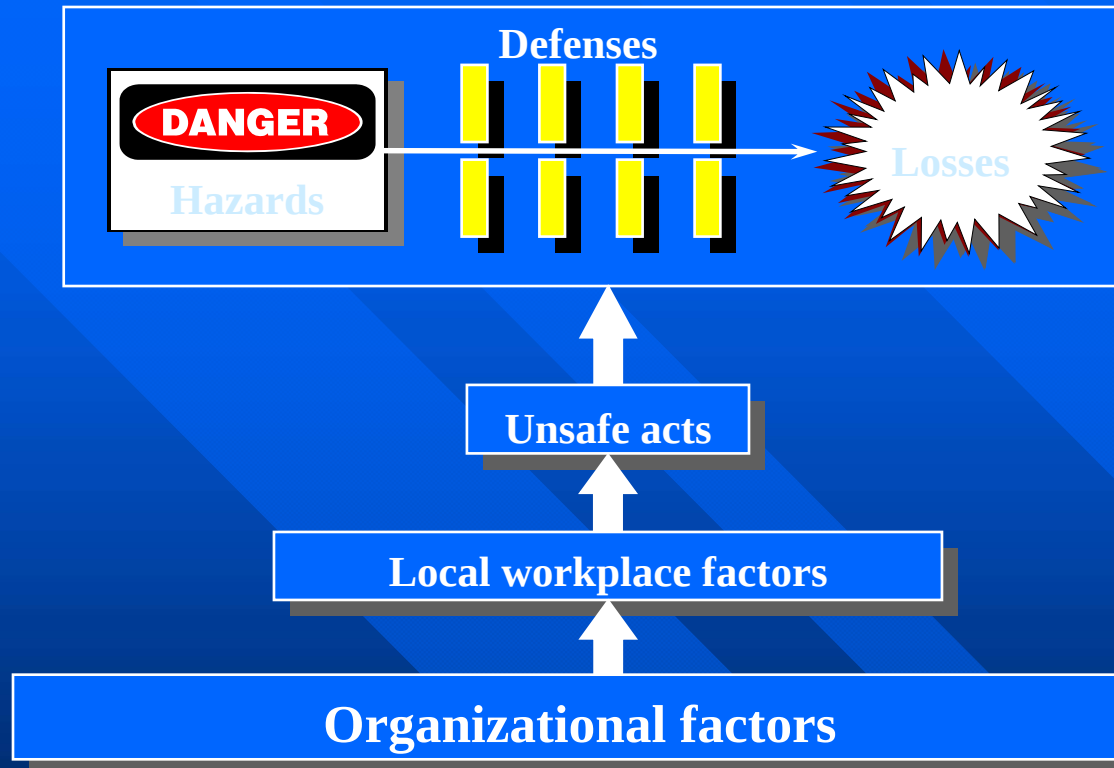
Unsafe acts are the actions people take “on the floor” that cause the defenses to fail

Changing Safety Culture: Workplace Factors (Reason, 1997)



Workplace factors are the conditions and tools affecting the workers performing the task

Changing Safety Culture: Organizational Factors (Reason, 1997)



- **Organizational factors** represent the work environment—the safety and business climate of the workplace, such as:
 - values & priorities, organizational structure & processes, resource allocations, ...

Changing Safety Culture: Aligned Systems and Practices



Changing Safety Culture: Interventions

- Behavior Based Safety
- Safety Rules Revision
- Close Call Reporting Systems
- Executive Coaching
- Line Operation Safety Audit
- Safety Culture Survey Guided Development
- Self Analysis
- Negotiated Rule Making