

IAEA Presentation

Edgar Schein

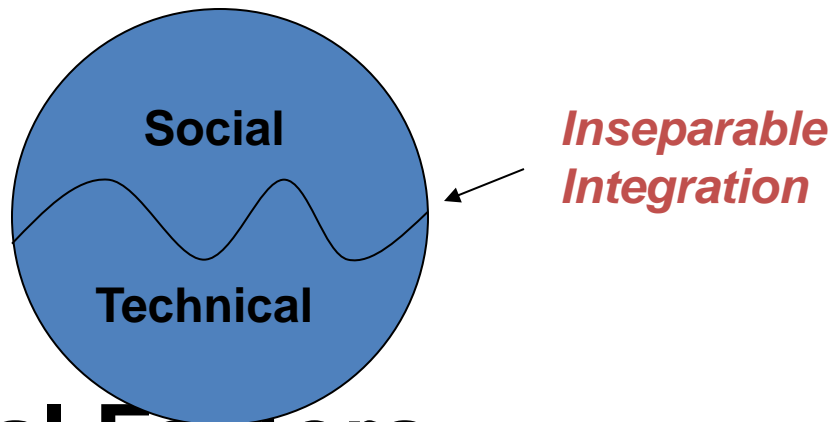
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Creating a “Culture” of Safety

A Socio-Psychological View

Safety Factors

- **Socio-Technical Systems Approach**



- **Technological Factors**
- **Human/Cultural Factors**

Technological Factors

- **Maximize initial “1st Order” design for safety**
- **Examine potential interactions among technical factors, especially as each component becomes more sophisticated**
- **Consider “failure modes”**
 - **Will redundancy assumptions always hold?**
 - **Will the design fail “gracefully” or “catastrophically”**

Human Factors

- **Why don't people comply with rules and procedures**
- **Why do people display “Bystander Behavior” --fail to speak up when they observe or know something**
- **“Practical Drift”**
- **Sub-culture misunderstandings & conflict**

Cultural Perspectives

- **When we use the term “culture,” what is our referent? What “group” is the locus and “owner” of what we describe as a culture?**
- **The concept of culture only makes sense if it refers to the *shared* behavior, perceptions, feeling, norms and assumptions of a particular population or group that shares a history of experience.**

Which Cultures are Relevant

National/Ethnic Culture

Industry Culture

Generic Sub-cultures

Occupational Sub-cultures

Critical Sub-Culture Boundaries

- **The Engineering/Design Sub-culture**
 - **Standardization/Elegance/Completeness**
- **The Operator Sub-culture**
 - **Pragmatic efficiency or efficient pragmatism**
- **The Executive Sub-culture**
 - **Costs and benefits**
 - **Measures, incentives and rewards**

Sub-Cultural Biases - 1

- **Engineering/Design values lead to insufficient awareness of what goes on in the field, and a reluctance to design for contingencies that destroy elegance.**
- **E/D prefers and drifts toward language and thinking that is more abstract and general**
- **E/D prefers “blueprints”, general models, and analytical representations of reality**
- **E/D work is office and HQ based**

Sub-Cultural Biases - 2

- **Operators value their ability to solve the problems that require innovation, to deal with “surprises” (efficient pragmatism).**
- **Operators develop a local language that derives from local realities and that may not be understandable to E/D**
- **Operators realize that “working to rule” by following procedures exactly is often inefficient, hence are motivated to create “safe” deviations.**

Sub-Cultural Biases - 3

- Executives value financial effectiveness as measured by the accounting/measurement/reward system.
- Executives view both E/D and Operations as a cost to be monitored and controlled.
- Executives “integrate” both E/D and Operations in financial terms by analyzing the ultimate costs of not doing exactly what E/D or operations wants to do.
- Operator and public safety are a variable, not an absolute criterion. In some cases, they are “externalities.”

Different Concepts of Risk

- **How E/D thinks about risks to operators and the public--make things absolutely safe no matter what the cost and no matter how restrictive the rules (lack of awareness of operator realities)**
- **How Operators perceive risks--get the job done even if it involves some risks, maybe indifference to public safety (satisfice rather than maximize)**
- **How Executives perceive risks--minimize public risks and assess the costs of absolute operator safety (satisfice rather than maximize)**

WHY DON'T PEOPLE TELL?

- **WHAT FORCES ARE THERE THAT PREVENT EMPLOYEES FROM REPORTING UNSAFE CONDITIONS, UNSAFE PRACTICES THAT THEY OBSERVE, MAINTENANCE NEEDS, AND OTHER CONCERNS ABOUT SAFETY THAT THEY MAY HAVE?**

MORE SUBTLE FORCES

- **Personal Forces such as fear, complacency, bystander behavior**
- **Organizational Forces such as punishment or indifference**
- **Managerial Forces of not creating a climate for upward reporting**

KEY FORCES IN THE BOSS

- UNWILLINGNESS TO CHALLENGE IDEAL SELF-IMAGE BECAUSE IT IS TOO THREATENING TO CONSIDER THAT THINGS ARE NOT WORKING PROPERLY, LEADING TO AN INITIAL ATTITUDE OF SKEPTICISM TOWARD ANY NEGATIVE FEEDBACK AND ASKING FOR EVIDENCE OR PROOF, I.E. IGNORING WEAK SIGNALS**
- UNWILLINGNESS TO EXPEND THE EXTRA ENERGY THAT WOULD BE REQUIRED TO LOOK INTO IT AND FIX IT IF SOMETHING IS FOUND; JUST AS THE SUBORDINATE IS UNWILLING TO ROCK THE BOAT OR MAKE WAVES, SO THE BOSS ALSO DOES NOT WANT TO DO THIS**
- UNWILLINGNESS TO ADMIT TO HIGHER LEVELS THAT THERE MAY BE PROBLEMS IN HIS/HER ORGANIZATION**

One Managerial Solution

- Executives and managers learn to ask their subordinates for input and reward upward communication
- Make it clear that safety supersedes schedule and productivity
- Humble Inquiry

References

- Amalberti, R. (2013) *Navigating Safety*. New York: Springer.
- Schein, E. H. (2013) *Humble Inquiry*. San Francisco: Berrett/Kohler.