

Safety Culture

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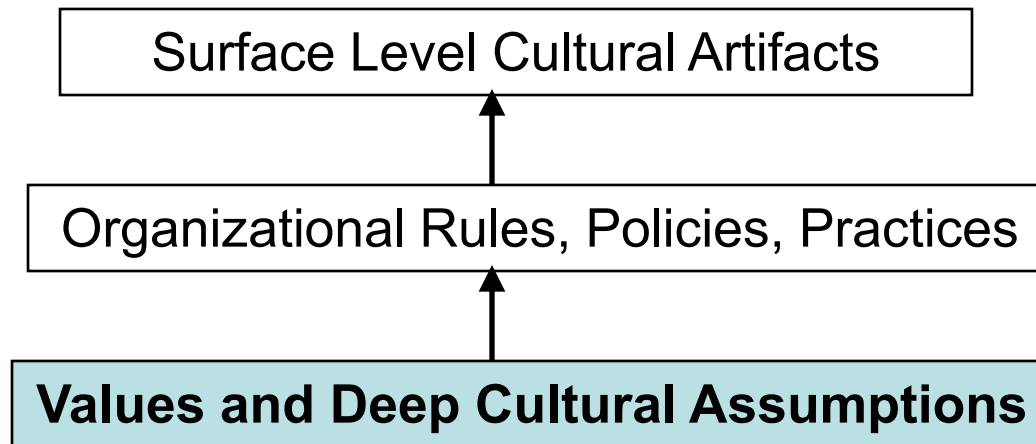
MIT

Background

- Practicing and teaching system safety engineering for 33 years.
- Experience in almost all industries, e.g.,
 - Aerospace (aviation and space exploration)
 - Defense
 - Transportation (automobiles, trains, air traffic control)
 - Oil and Gas, Chemicals
 - Nuclear Power
 - Healthcare
- Member of the Baker Panel on the BP Texas City oil refinery explosion (2005-2007)
- Senior Consultant to the Presidential Oil Spill Commission (DWH), Columbia Accident Investigation Board, etc.
- Co-owner of a 20-year old safety engineering company (Safeware Engineering Corp.)

What is Safety Culture?

Shein: The Three Levels of Organizational Culture



Safety culture is set by the leaders who establish the values under which decisions will be made.

Safety Culture

- Simply changing organizational structures may lower risk over short term, but superficial fixes that do not address the set of shared values and social norms are likely to be undone over time.
- Trying to change culture without changing environment in which it is embedded is doomed to failure
- Historical and environmental factors affect safety culture
 - Commercial aircraft
 - Nuclear power (U.S.)
 - Nuclear Navy (SUBSAFE)
- Do industries and companies learn from accidents?
 - Others?
 - Their own?

Example Operational Safety Philosophy (1) (Colonial Pipeline)

- All injuries and accidents are preventable.
- We will not compromise safety to achieve any business objective.
- Leaders are accountable for the safety of all employees, contractors, and the public.
- Each employee has primary responsibility for his/her safety and the safety of others.
- Effective communication and the sharing of information is essential to achieving an accident-free workplace.

Example Operational Safety Philosophy (2) (Colonial Pipeline)

- Employees and contractor personnel will be properly trained to perform their work safely.
- Exposure to workplace hazards shall be minimized and/or safeguarded.
- We will empower and encourage all employees and contractors to stop, correct and report any unsafe condition.
- Each employee will be evaluated on his/her performance and contribution to our safety efforts.
- We will design, construct, operate and maintain facilities and pipelines with safety in mind.
- We believe preventing accidents is good business.

Types of Flawed Safety Cultures

- Culture of Denial
 - Risk assessment is unrealistic
 - Credible risks and warnings are dismissed without appropriate investigation (only want to hear good news)
 - Believe accidents are inevitable, the price of productivity
- Compliance Culture
 - Focus on complying with government regulations
 - Produce extensive “safety case” arguments
- Paperwork Culture
 - Produce lots of paper analyses with little impact on design and operations

Culture of Denial Examples

- “Our accident rates are going down”
 - Look at worker injury rates: personal or occupational safety vs. system or process safety
 - Choose statistics that give best result
- “Accidents are the price of productivity. A dangerous domain”
- Mines: “Everyone has lots of safety violations”

- In initial message I was asked to
 - “Offer some initial speculations on the possibility of developing [a good safety] culture in the shale gas industry”
- I’m pessimistic but will offer some

Leadership is Key to Changing Culture

- Safety requires passionate and effective leadership
- Tone is set at the top of the organization
- Not just sloganeering but real commitment
- Setting priorities
 - Adequate resources assigned
 - A designated, high-ranking leader

Paul O'Neill and Alcoa

- "I intend to make Alcoa the safest company in America. I intend to go for zero injuries."
- "The board put a crazy hippie in charge and he's going to kill the company"
 - “I ordered my clients to sell their stock immediately, before everyone else in the room started calling their clients and telling them the same thing. It was literally the worst piece of advice I gave in my entire career.”

Paul O'Neill and Alcoa (2)

- Within a year of O'Neill's speech, Alcoa's profits hit a record high and continued that way until he retired in 2000.
- All that growth occurred while Alcoa became one of the safest companies in the world.
- Understood that safety and productivity are not conflicting
- “Keystone Habits”: Change one habit and changes will ripple through organization

Leadership is Key to Changing Culture (2)

- Minimize blame (“Just Culture”)
 - Blame is the enemy of safety
- Peer pressure can be effective
 - Moratorium after DWH
- Customers have more power than government
- Engineer the incentive structure to encourage the behavior you want

Food Safety Example

- New alliance of retailers, food growers, and farm workers
 - Workers had little incentive to report safety problems. Paid at a piece rate and taking even 10 minutes to report a safety problem would reduce their pay. One manager said that if workers spotted animal feces in an area where ripe strawberries were ready to be plucked, they might have still simply picked those berries.
 - Teach workers how to spot signs of food contamination and train in good practices in exchange for better pay and working conditions
 - “This program means that instead of one auditor coming around once in a while to check on things, we have 400 auditors on the job all the time.”

Food Safety Example (2)

- Unexpected benefit is worker retention
 - “Sure, the money is important, but I also feel good because I am helping to improve quality and safety,” Mr. Esteban said. “Those things are important to my family, too.”
- Products carry certification to inform consumers