

How to Achieve High and Low Reliability Organizations

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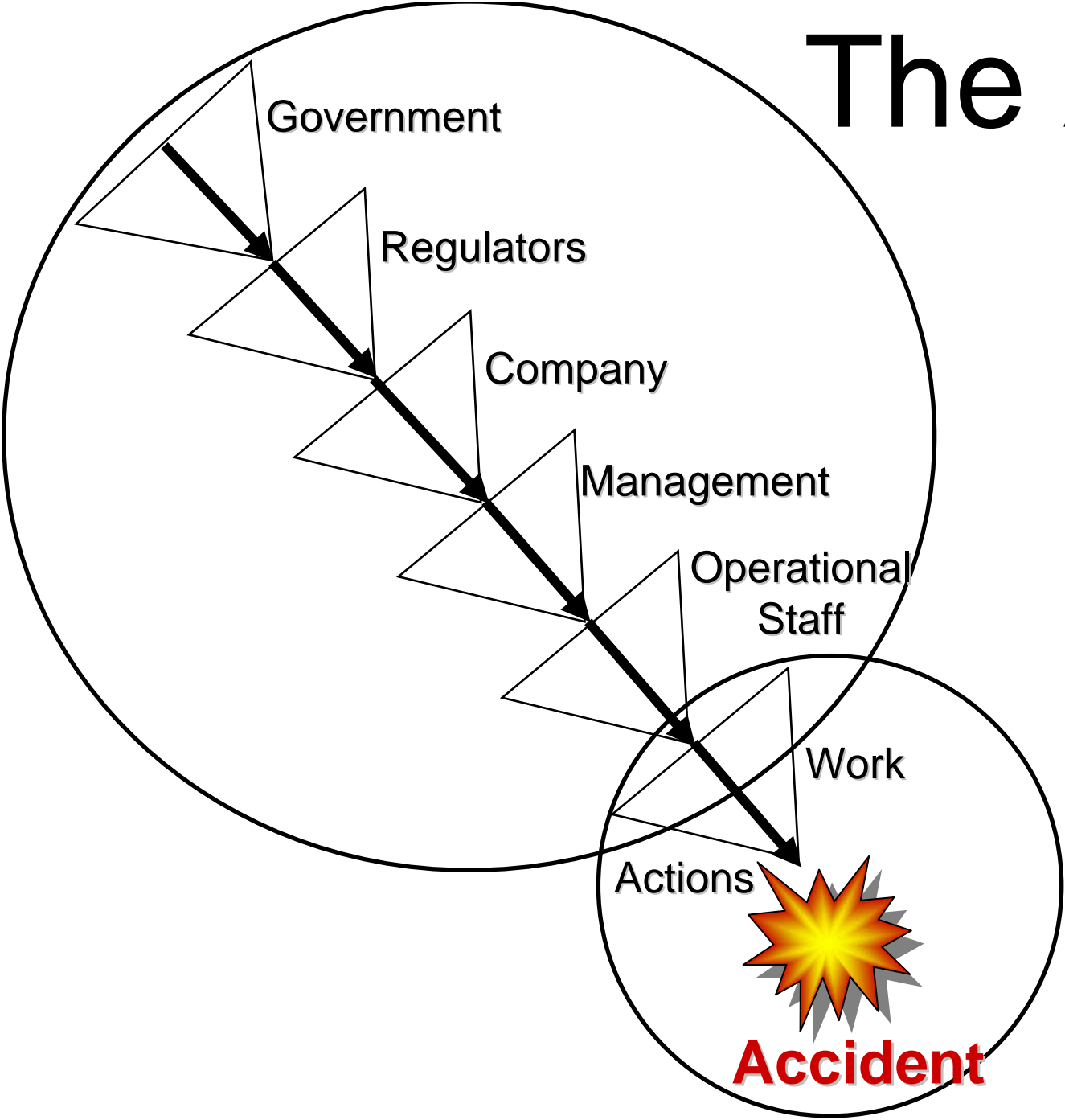
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The Arrow



- U.S.S. Greneville
- U.S.S. San Francisco

- Hurricane Betsy
- Hurricane Katrina

- Bhopal, India
- Institute, West Virginia

- Challenger Space Shuttle
- Columbia Space Shuttle

- Piper Alpha Platform
- Petrobas Platform

- Amoco Cadiz
- Exxon Valdez

What is an HRO ?

- **An organization**
 - conducting relatively error free operations
 - over a long period of time
 - and making consistently good decisions resulting in
 - high quality and reliability operations

1. Process Auditing:

- An established system for ongoing checks designed to spot expected as well as unexpected safety problems.
- Safety drills are in this category, as is equipment testing.
- Follow-ups on problems revealed in prior audits are critical.

2. Reward System:

- The reward system is the payoff an individual or organization receives for behaving one way or another.
- Organizational theory points out that organizational reward systems have powerful influences on the behavior of individuals in them.
- Similarly, inter-organizational reward systems also influence behavior in organizations.

3. Quality Degradation:

- Avoiding degradation of quality and/or developing inferior quality: This refers to the essential quality of the system as compared to a referent generally regarded as the standard for quality in the industry.

4. Perception of Risk:

- There are at least two elements of risk perception;
 - (1) Whether or not there is knowledge that risk exists, and
 - (2) If there is knowledge that risk exists, the extent to which it is acknowledged and appropriately mitigated and/or minimized
- Part two is a logical outgrowth of part one.

5. Command and Control Elements:

- Migrating decision making: (the person with the most expertise makes the decision).
- Redundancy: (people and/or hardware), i.e., backup systems exist.
- Senior managers who see the “big picture”: i.e., they don't micromanage.
- Formal rules and procedures: A definite existence of hierarchy but not necessarily bureaucracy in the negative sense.
- Training.

High Reliability Organizations

Reward & Recognition

- Drive the correct behaviors
- Value contribution of the line

Process auditing

- spot the expected and unexpected

Migrate decision making to the appropriate person

Senior managers who see the big picture

Quality Systems

Formal rules and procedures

Depth/Org. Capacity

Training

- High technical competence

Risk Perception

- Knowledge that risks exist?
- Extent to which risk is acknowledged and mitigated

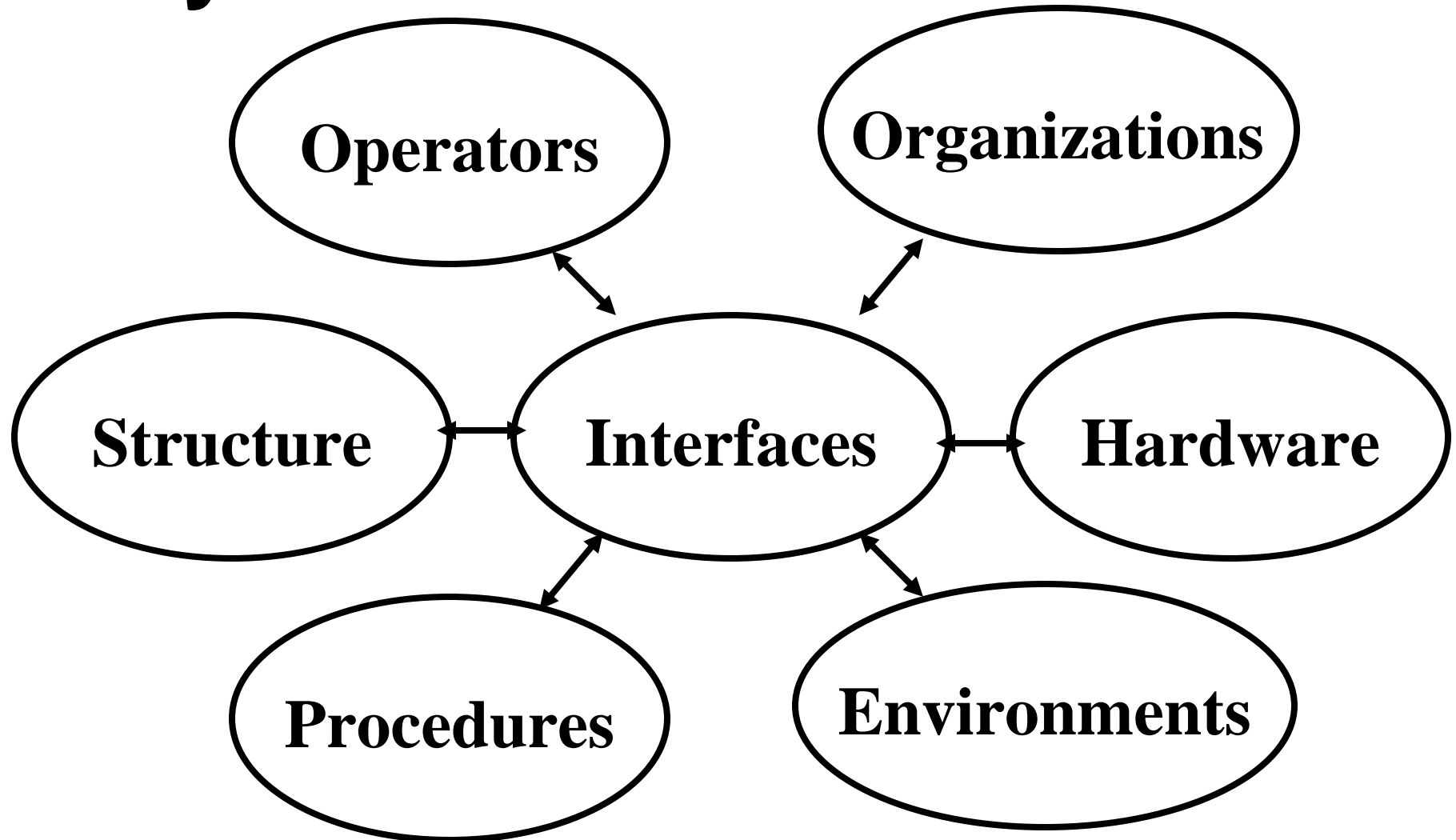
Organizations Targeting High Reliability Operations

- Commercial Aviation (e.g. United Airlines)
- US Naval Carrier Aviation (e.g. USS Nimitz)
- US Navy Submarine Service (eg Admiral Rickover)
- Commercial Banking (e.q. Risk Management Association, S.W.I.F.T.)
- Healthcare (e.g. Loma Linda Hospital Pediatric Intensive Care Unit, Kaiser Permanente Neo Natal Units, Kaiser IT Division)
- Commercial Nuclear Power (e.g. Diablo Canyon Power Plant)
- Commercial Marine Industry (e.g. BP, Shell)
- Community Emergency Services (e.g. Orange County, CA, Fire Authority)
- Manned Space Flight (Columbia Accident Investigation Board, NASA-Goddard)

Mr. and Mrs. America and all the Ships at Sea: Just In....

- Interdependent Nature of Systems Components
- Components Need to Work Together
- Unintended Consequences of Changes in A Affecting B
- What are These Components?

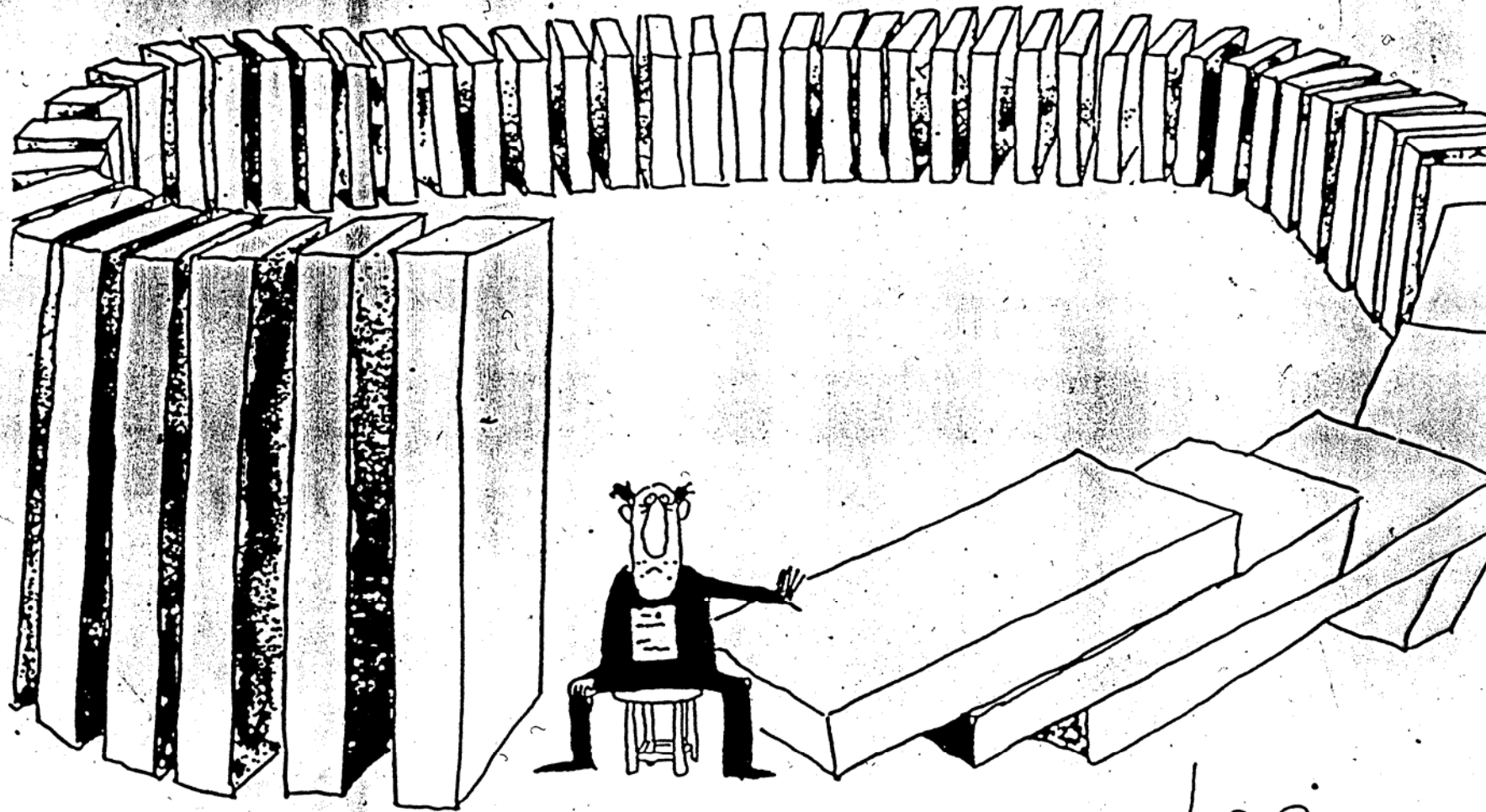
Components of a 'System'



IT'S THE SYSTEM,

STUPID

"Here is what we know. It is not just the tire, it's the car. And it's not just the car, it's the driver. Nothing in the system has made a numero uno priority either of protecting New Orleans from hurricanes or to restoring even hanging onto - the Louisiana coast. We have a flood control program, a navigation program, a permitting program, a coastal management program, a flood insurance program, a coastal restoration program - just for openers - and they do not talk to each other. They are riddled with conflicts, basically headless, basically goal-less, weakened by compromises and refuse outright to deal with first causes and first needs (Houck, 2006 p.40).



Levin

wing by Levin; © 1976 The New Yorker Magazine, Inc.

From HRO



to LRO

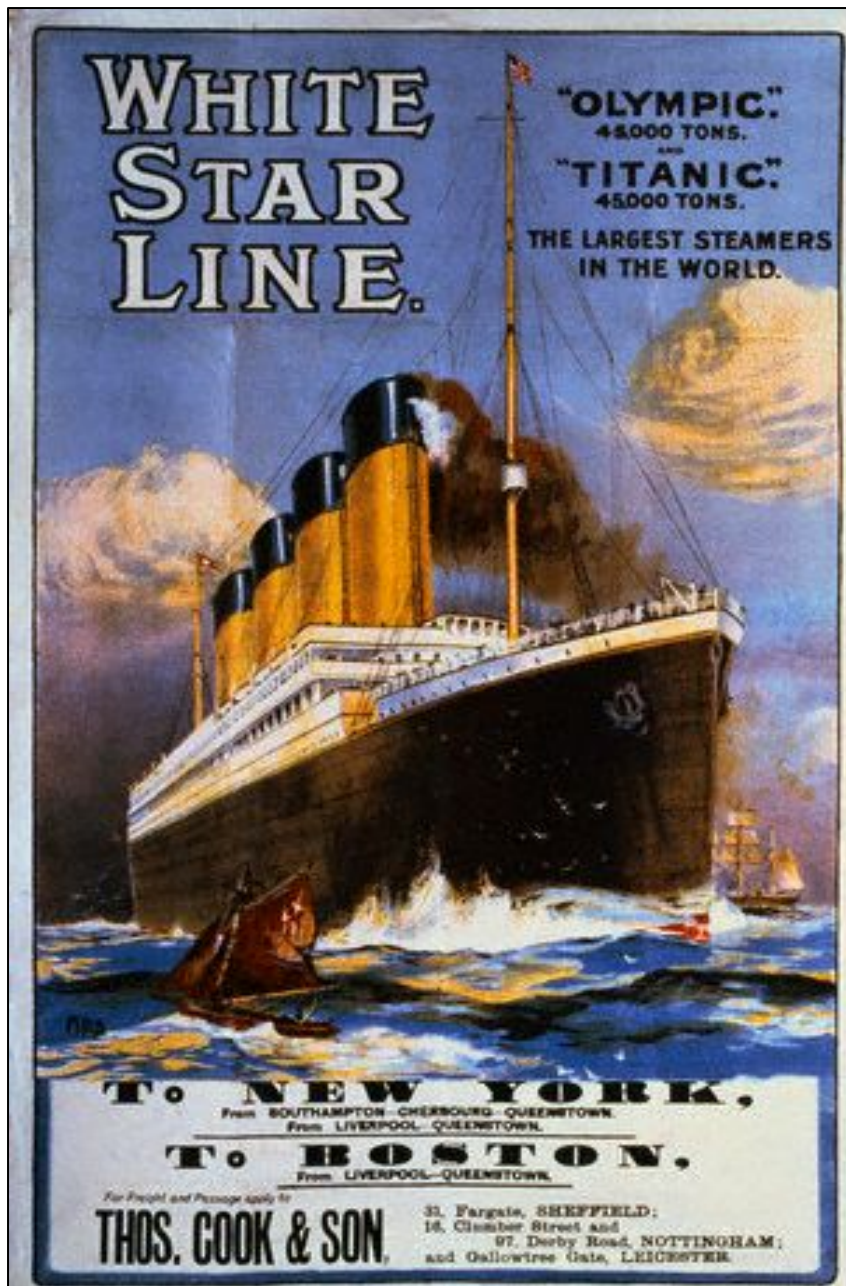
Non-HRO's

Weick, Sutcliffe, Obstfeld (1998)

- **attend meetings and solve nothing,**
- **catch airplanes and miss 'connections',**
- **conduct briefings and persuade no one,**
- **evaluate proposals and miss the winners,**
and
- **meet deadlines for projects on which the plug has been (or should be) pulled**
- **organizations in which people shuffle papers and lose a few**

Non-HRO's

- **Focus on success**
- **Underdeveloped cognitive infrastructure**
- **Focus on efficiency**
- **Inefficient learning (episodic)**
- **Lack of diversity (focused conformity)**
- **Information & communications filtering**
- **Reject early warning signs of quality degradations**



When anyone asks me how I can best describe my experience in nearly forty years at sea, I merely say, uneventful.

Of course there have been winter gales, and storms and fog and the like, but in all my experience, I have never been in any accident of any sort worth speaking about.

I never saw a wreck and never have been wrecked, nor was I ever in any predicament that threatened to end in disaster of any sort.

You see, I am not very good material for a story.

~

Edward J. Smith, Captain, RMS Titanic