British Airways Human Factors Conference

Enhancing Operational Integrity

24 May 2001

The Dimensions of Organisational Resilience to Operational Hazards

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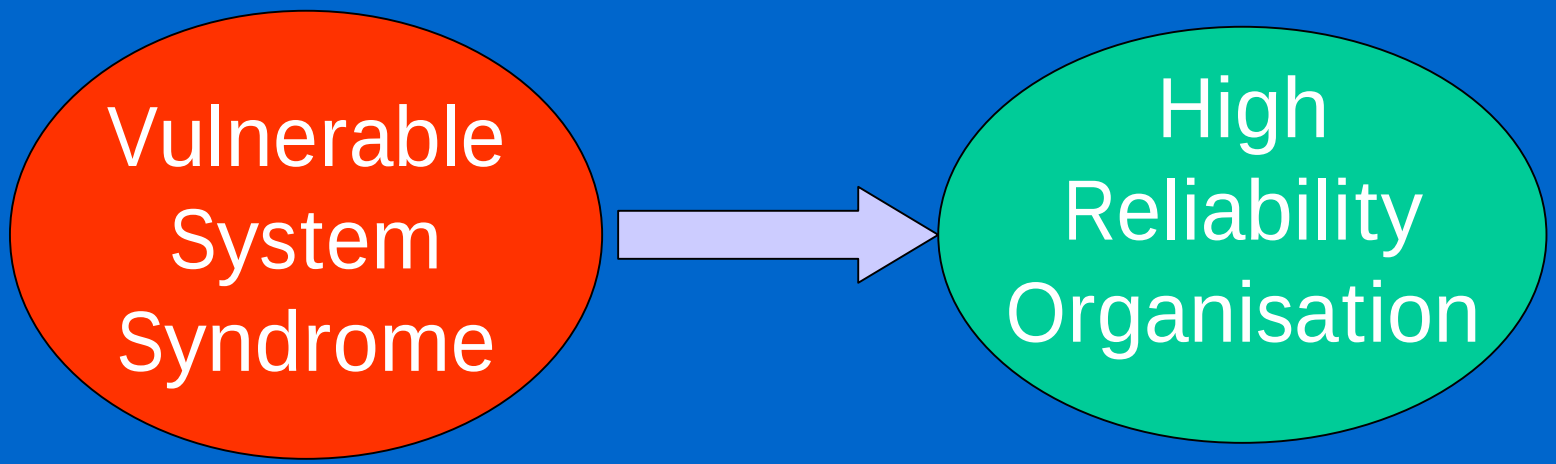
Steps along the way

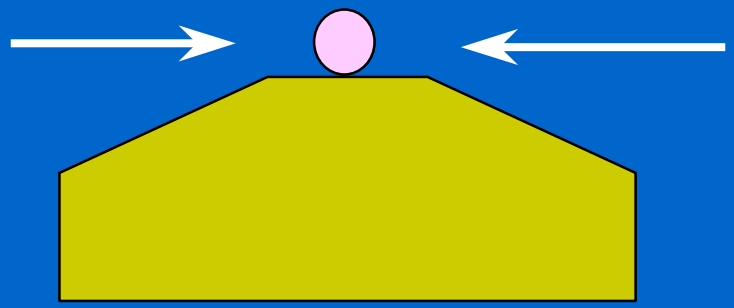


The two faces of safety

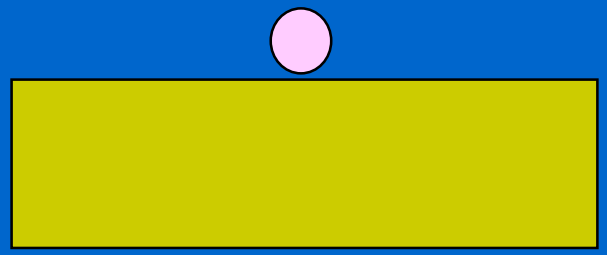
- Negative face as revealed by accidents, incidents, near misses, exceedances and free lessons
- Positive face = system's intrinsic resistance to its operational hazards.

Intrinsic safety

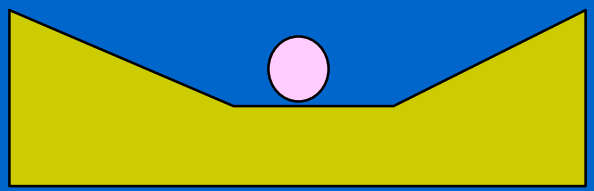
Vulnerable system



Average system



Resistant system



Vulnerable System Syndrome

- Three core pathologies
  - Blame
  - Denial
  - And the pursuit of (the wrong kind of) excellence

Penalties of blaming individuals

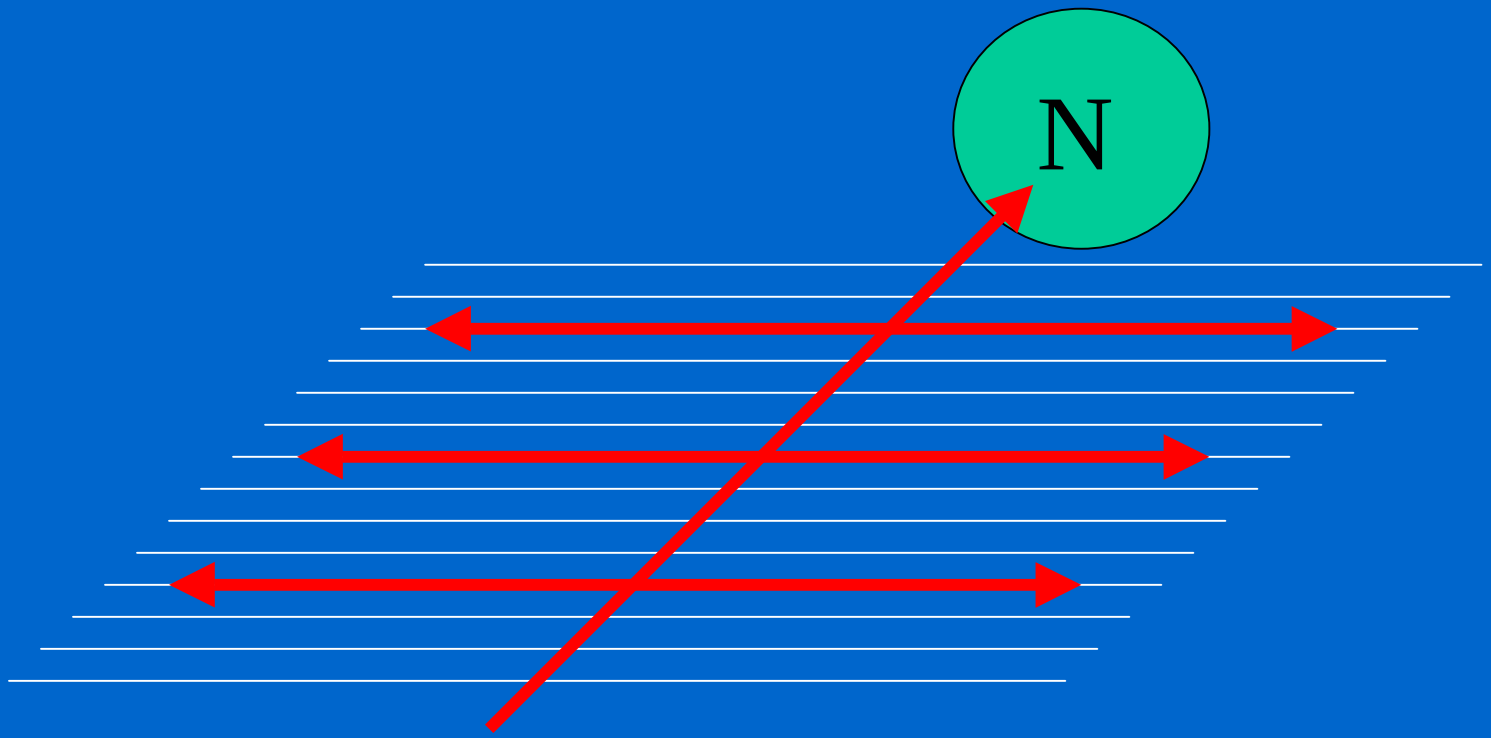
- Failure to discover latent conditions
- Failure to identify error traps
- Management has its eye on the wrong ball
- A blame culture and a reporting culture cannot co-exist

Denial:
Westrum's classification of three types of safety culture

- Pathological
- Calculative
- Generative

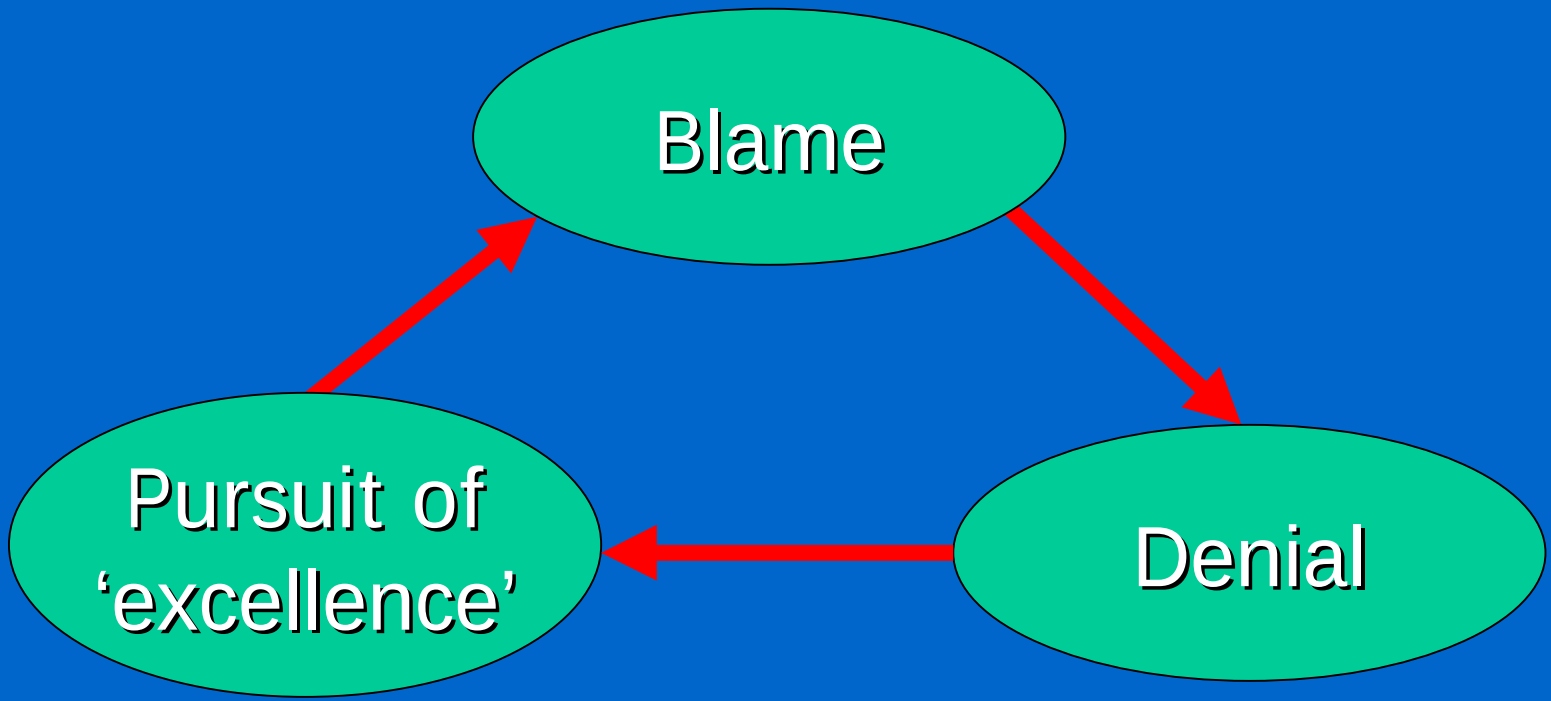
Distinguished mainly by how they handle risk-related information:
Deny it or welcome it.

Wrong kind of excellence:
Thinking in causal series rather than causal networks



Unaware of side-effects

A self-perpetuating cycle



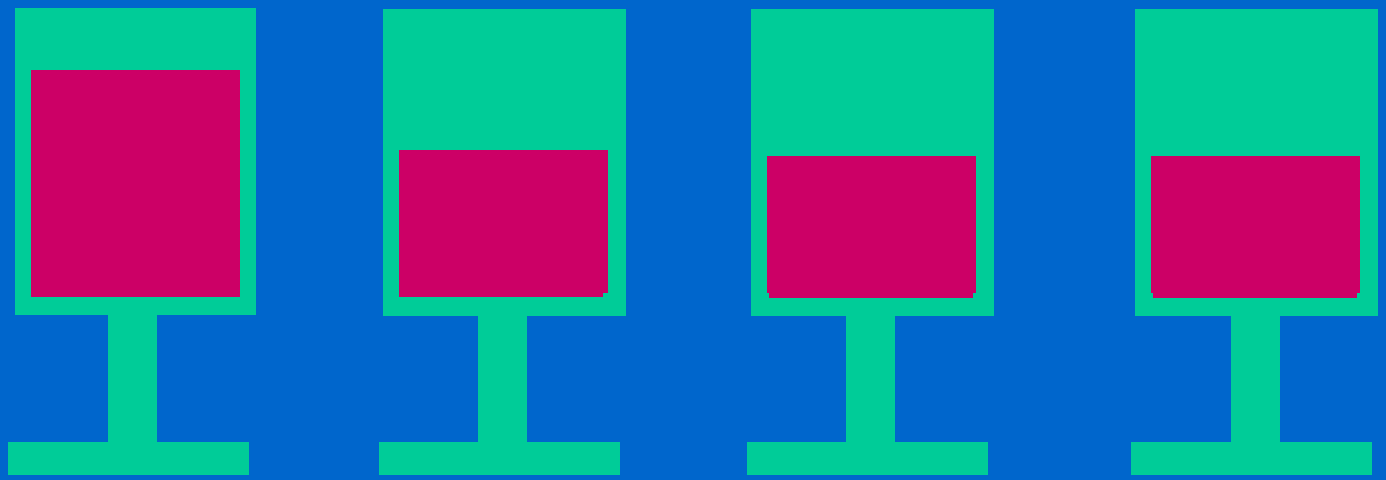
The last word on VSS

- No organisation is entirely free of VSS
- Deeply rooted in human psychology
- Need to be constantly on the look out for the signs and symptoms
- The ability to detect incipient indicators and the collective will to fight them are essential prerequisites for effective risk management

Three C's: Excellence drivers

- Commitment: In the face of ever-increasing production pressures, do you have the will to make your safety management tools work effectively?
- Cognizance: Do you understand the nature of the 'safety war'—particularly with regard to human and organisational factors?
- Competence: Are your safety management techniques, understood, appropriate and properly utilised?

Four P's of management: The application areas



Principles (Philosophy)

Policies

Procedures

Practices

3Cs x 3Cs = 9 sets of indicators

	Commitment	Cognizance	Competence
Principles (Philosophy)	1	2	3
Policies	4	5	6
Procedures		7	8
Practices			9

1. Principles & commitment

- Safety is recognised as being everyone's responsibility, not just that of the risk management team.
- Top management accepts occasional setbacks and nasty surprises as inevitable. It anticipates that staff will make errors and trains them to detect and recover them.
- Safety-related issues are considered at high-level meetings on a regular basis, not just after a bad event.

2. Principles & cognizance

- Past events are thoroughly reviewed at high-level meetings and the lessons learned are implemented as global reforms rather than local repairs.
- After some mishap, the primary aim of top management is to identify the failed system defences and improve them, rather than seeking to pin blame on specific individuals at the ‘sharp end’.
- Understood that effective risk management depends critically on the collection, analysis and dissemination of relevant information

3. Principles & competence

- Top management adopts a proactive stance towards safety:
  - Strives to seek out recurrent error traps
  - Eliminates error-provoking factors in system
  - Brainstorms new scenarios of failure
  - Conducts regular ‘health’ checks on organisational ‘vital signs.’
- Top management recognises that error-provoking institutional factors are easier to manage and correct than fleeting psychological states.

4. Policies & commitment

- Safety-related information has direct access to the top.
- Safety management is fast-track not an oubliette—and rewarded accordingly.
- Meetings relating to safety are attended by staff from a wide variety of departments and levels.
- Messengers will be rewarded not shot.

5. Policies & cognizance

- Management recognises the necessity of combining reactive outcome data with proactive process information. The latter entails far more than occasional audits.
- Organisation has policies in place that recognise the dependence of a safe culture upon the prior establishment of . . .
  - A reporting culture
  - A just culture

6. Policies & competence

- Reporting system policies:
  - Qualified indemnity against sanctions
  - Confidentiality and/or de-identification
  - Separation of data collection from disciplinary procedures
- Disciplinary system policies:
  - Agreed distinction between acceptable & unacceptable behaviour
  - Peers involved in disciplinary proceedings

7. Procedures & cognizance

- Procedures should identify error-prone steps in tasks.
- Procedures backed by training in the recognition and recovery of errors.
- An awareness that procedures cannot cover all circumstances. Special training for on-the-spot personnel.

8. Procedures & competence

- Procedures to be:
  - Intelligible
  - Workable
  - Available, etc.
- Knowledge required to do a job should be shared between procedures, reminders & forcing functions.

9. Practices & competence

- Rapid, useful and intelligible feedback on lessons learned and actions needed.
- Bottom-up information listened to and acted upon.
- Visible top-level involvement: walking the talk & talking the walk.

Reliability is a dynamic non-event

- ‘Dynamic’ because safe outcomes (non-events) are achieved through timely adaptations and compensations by human elements to an uncertain and dynamic world.
- ‘Non-event’ because nothing bad happens. and ‘normalcy’ does not claim attention.

Cognition vs. activity
(Weick et al., 1999)

	Activity	Cognition
Traditional 'efficient' organisations	Strive for consistency	Have variable mindsets
High reliability organisations	Encourage flexibility	Strive for stability

Collective mindfulness

Collective mindfulness

- A continuing awareness of the possibility of human, technical and/or systemic failure.
- Expect that errors will be made and train personnel to anticipate & recover them.
- Work hard to create a reporting culture & make the most out of limited event data.
- Generalise rather than localise failures.

The two faces of the human factor

Human as hazard

- Slips
- Lapses
- Mistakes
- Violations

Human as hero

- Adjustments
- Compensations
- Recoveries
- Improvisations

The variability paradox

- Elimination of human error is seen as a primary goal by many system managers.
- As with technical unreliability, they strive for greater consistency of human action.
- But human variability protects the system in a dynamic uncertain world.

Finally . . .

A story about pursuing the wrong kind of excellence