

# **Safety Culture: Paradox and Leadership**

European Commission  
Mutual Joint Visit Inspectors Workshop  
18 Sep 2015, The Hague

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(ex Shell)



# Who is the CCPS and what do we do?

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Not for Profit, Corporate supported – more than 180 members

## **Vision**

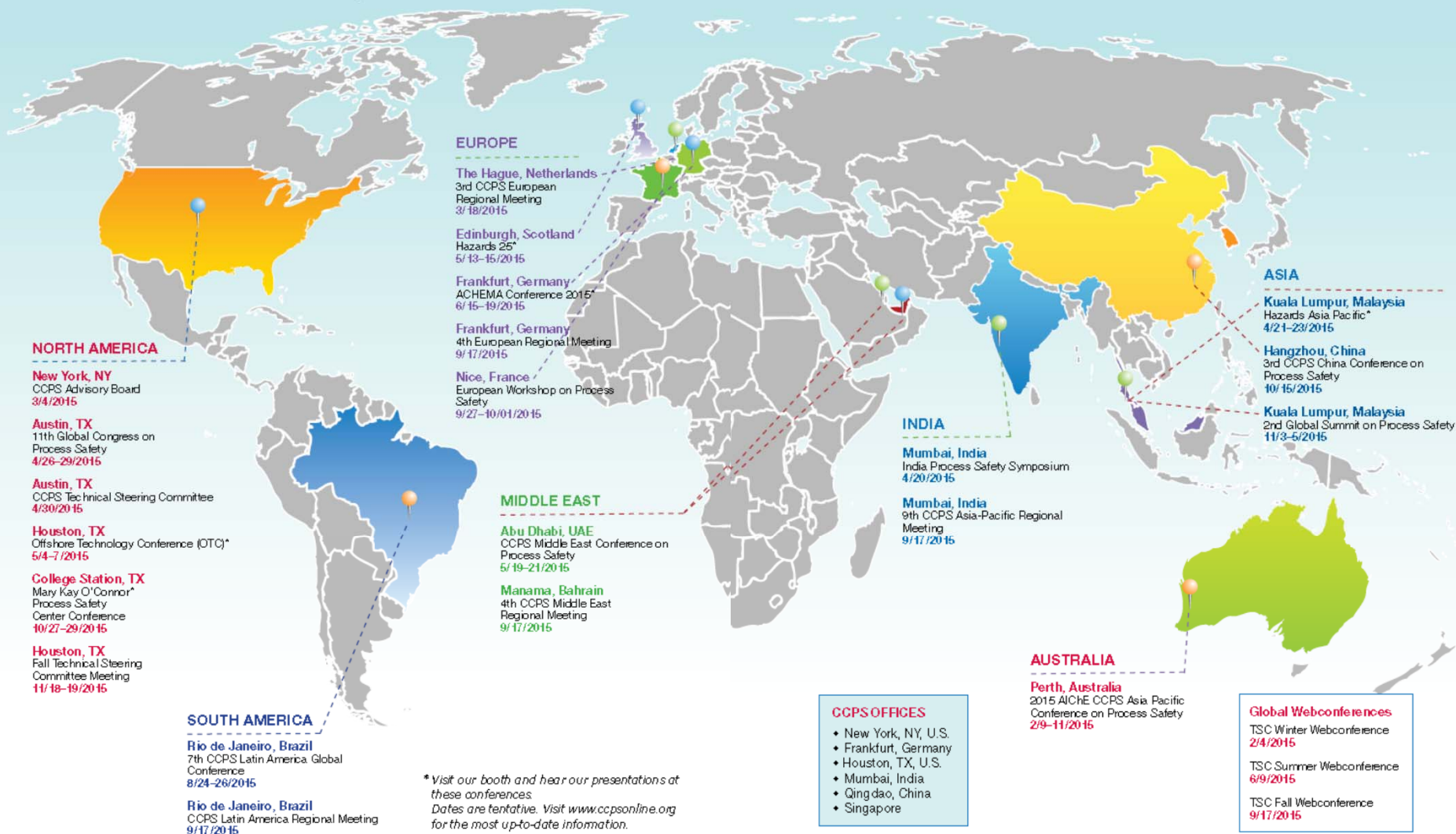
In order to protect people, property and the environment, CCPS brings the best process safety knowledge and practices to industry, academia, governments and the public around the world through collective wisdom, tools, training and expertise

## **Mission**

- Promoting process safety as a key societal value and expectation
- Establishing process safety as the foundation for responsible operations
- Serving as the premier world-wide resource for process safety and development of the "state-of-the-art" solutions
- Fostering knowledge, understanding and implementation of process safety by executives, management, technicians, engineers, students, government officials and the public
- Advancing process safety technology, culture and management practices

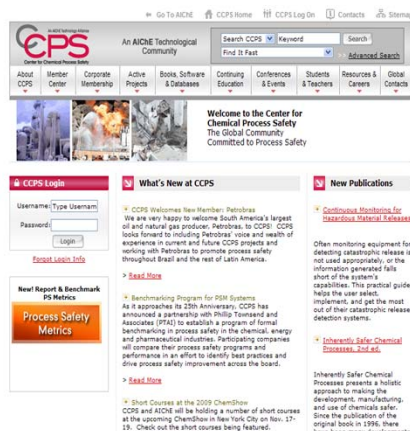
***The Global Community Committed to Process Safety***

# CCPS 2015 Meetings, Destinations and Global Offices

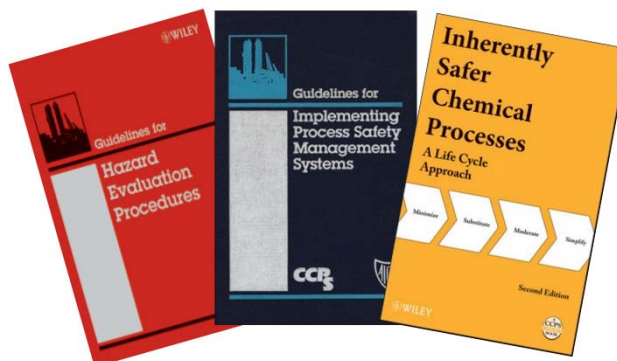


# Leading Process Safety since 1985

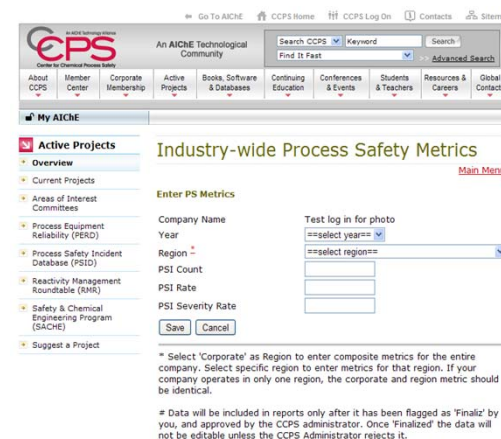
## Sharing Best Practices



## Creating Books and Publications



## Creating Industry-wide Tools, Programs and Guidelines



## Process Safety Beacon



## Conducting Global Conferences and Training



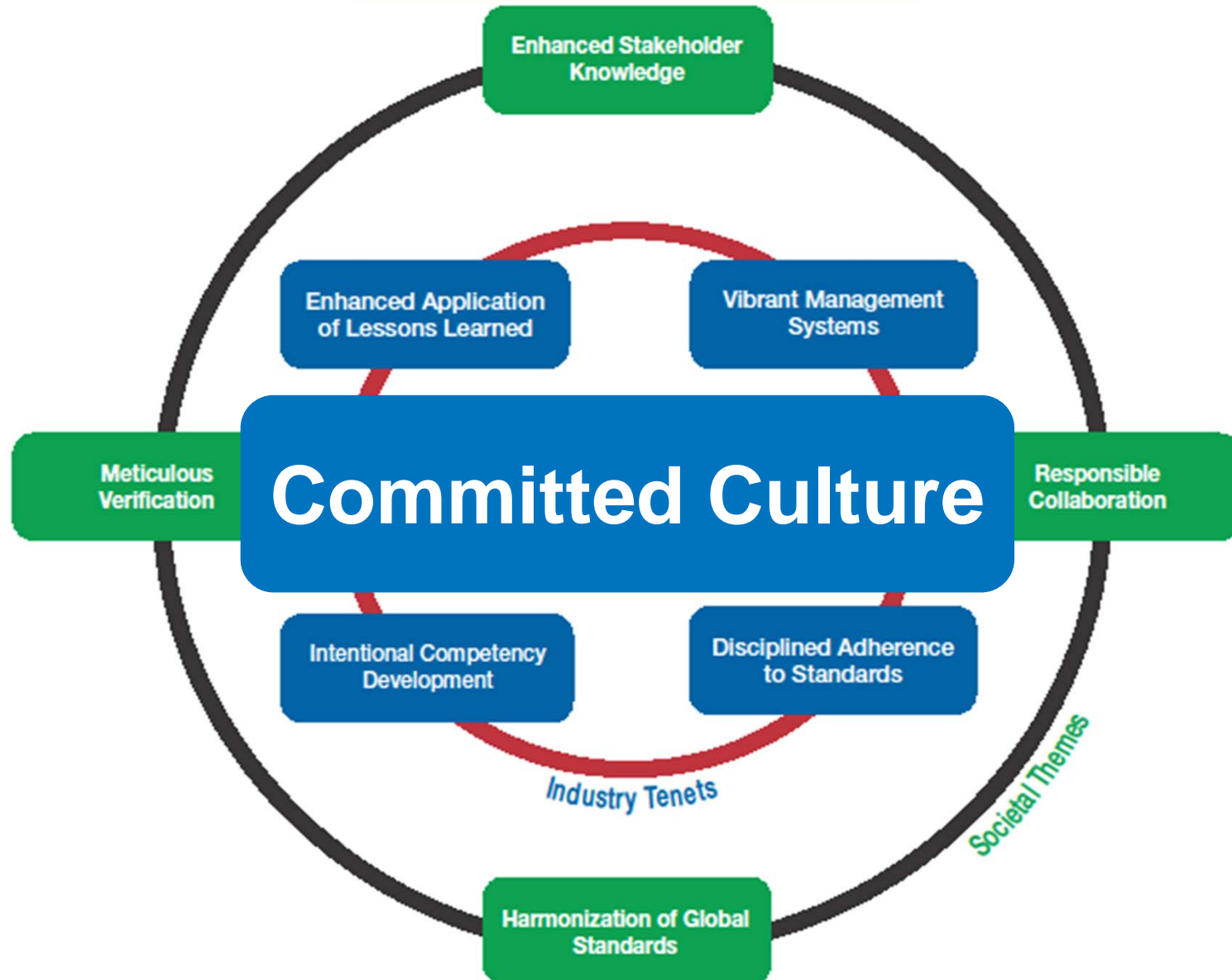
## Why 'Vision 20/20'?

- Make a step change in management of process safety
- Set a clear target
- Prioritize and integrate all CCPS projects

**Envisions the characteristics of companies with great process safety performance - by 2020**

Project Committee Chair - Cheryl Grounds, BP

# VISION20/20



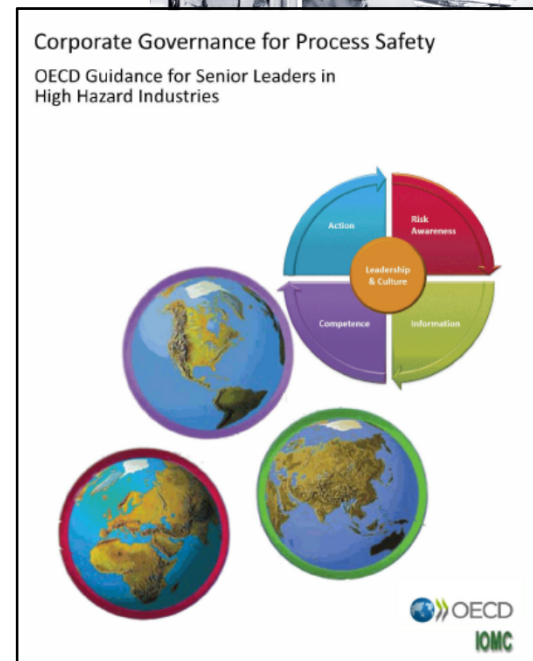
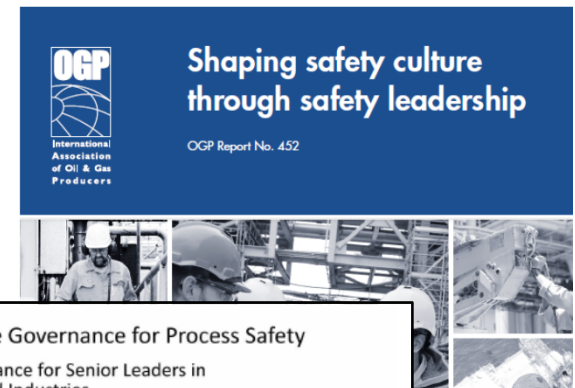
# Committed Culture

1. Felt leadership from senior executives through plant personnel
2. Leadership instills disciplined adherence to the policies and procedures
3. Strong sense of vulnerability



# 1 - 'Felt' leadership - from senior executives through plant personnel

- **OECD Guidance**
  - Guidance for Senior Leaders in High Hazard Industries
- **OGP 452 –Shaping Safety Culture through Safety Leadership**
- **CCPS**
  - **Inspiring Process Safety Leadership - The Executive Role**
- **ICHEME / EPSC**
  - Process Safety Leadership for Senior Executives (PSL)
- **UK HSE**
  - **Leadership for the major hazard industries**
  - Process Safety Leadership Group 'Principles'



# 1 - 'Felt' leadership - from senior executives through plant personnel

## Corporate Governance for Process Safety

OECD Guidance for Senior Leaders in  
High Hazard Industries

● **LEADERSHIP AND CULTURE:** CEO and leaders create an open environment where they:



### Leadership & Culture

- Keep process safety on their agenda, prioritise it strongly and remain **mindful of what can go wrong**.
- **Encourage people to raise process safety concerns**, or bad news to be addressed.
- Take every opportunity to be role models, promoting and discussing process safety.
- Delegate appropriate process safety duties to competent personnel whilst maintaining overall **responsibility and accountability**.
- Are visibly present in their businesses and at their sites, asking appropriate questions and constantly challenging the organisation to find areas of weakness and opportunities for continuous improvement.
- Promote a “safety culture” that is known and accepted throughout the enterprise<sup>2</sup>.



## 1 - 'Felt' leadership - from senior executives through plant personnel

A strong Safety Culture is:

- **An informed culture** – the organisation collects and analyses relevant data to stay informed of its safety performance.
- **A reporting culture** – people are confident they can report safety concerns without fear of blame.
- **A learning culture** – the organisation learns from its mistakes and makes changes to unsafe conditions.
- **A flexible culture** – the organisation is able to reconfigure the chain of command if faced by a dynamic and demanding task environment.
- **A just culture** – people understand the boundary between behaviours considered acceptable and unacceptable. Unacceptable behaviours are dealt with in a consistent, just and fair manner.

*(adapted from Reason, 1998)*

# 1 - 'Felt' leadership - from senior executives through plant personnel

## Process Safety Culture

### Requirements

- *EXTRACT from 'Shell HSSE Control Framework' (1)*



The Business Leader is Accountable for requirements 18 – 19 below:

18. Appoint for each life cycle phase of an Asset, an [Asset] Manager, including the Project Manager or Wells Manager during the design and construction phase, with single-point accountability for Process Safety management of the Asset.
  - 18.1. Define the technical and professional qualifications and experience for appointment as an Asset Manager.
  - 18.2. Manage any gaps in the competence of the [Asset] Manager through an agreed and documented plan and through technical and professional support from members of the Asset leadership team.
19. Review the Process Safety Risks to the Business at least annually, in line with Management Review.
  - 19.1. Review leading and lagging Process Safety indicators as listed in the current PMR Specification.
  - 19.2. Determine and record whether the Process Safety Risks are ALARP.
  - 19.3. Request corrective action where needed.
  - 19.4. Prioritise actions.
  - 19.5. Initiate exit from the Asset when Process Safety Risks are assessed, as intolerable and corrective action is not considered possible.

# 1 - 'Felt' leadership - from senior executives through plant personnel

## Process Safety Culture

### Requirements

- *EXTRACT from 'Shell HSSE Control Framework' (2)*



The Asset Manager, Project Manager or Wells Manager is Accountable for requirements 20 – 22 below.

20. Review the Process Safety Risks to the Asset at least annually, in line with [Management Review](#).

20.1 Apply requirements 19.1 to 19.5 above in this review.

20.2 Confirm that the Asset meets the Technical Integrity requirements to continue operation.

21. Know what Hazards the Asset has with RAM red and yellow 5A and 5B Process Safety Risks, and know how these Risks are managed to ALARP.

22. Demonstrate leadership in Process Safety through measurable and visible actions.

22.1. Communicate the vision and the supporting objectives and targets for Process Safety management of the Asset.

22.2. Set expectations and accountabilities for the Process Safety management of the Asset.

22.3. Communicate on a frequent basis face-to-face with staff about Process Safety.

22.4. Encourage reporting of Process Safety Incidents, including near misses, investigate and review Incidents, set corrective action, and communicate learning.

22.5. Track and communicate closure of actions arising from Process Safety Incident investigations and Process Safety reviews.

## 2 - Leadership instills disciplined adherence to the policies and procedures

From **'Guidelines on a Major Accident Prevention Policy and Safety Management System, as required by Council Directive 96/82/EC (SEVESO II)'** Neil Mitchison & Sam Porter (Eds.)

### **Operational Control**

Safe working practices should be defined for all activities relevant for operational safety.

Procedures, instructions and methods of work should be developed in co-operation with the people who are required to follow them, and should be expressed in a form understandable to them. The operator should ensure these procedures are implemented and provide the training necessary.

These written procedures should be made available to all staff responsible directly or indirectly for operation, and where appropriate to others involved such as maintenance staff. They should also be subject to periodic review both to ensure that they are current and accurate, and to ensure that they are actually followed.

## 2 - Leadership instills disciplined adherence to the policies and procedures

### PSLG Principles of Process Safety Leadership

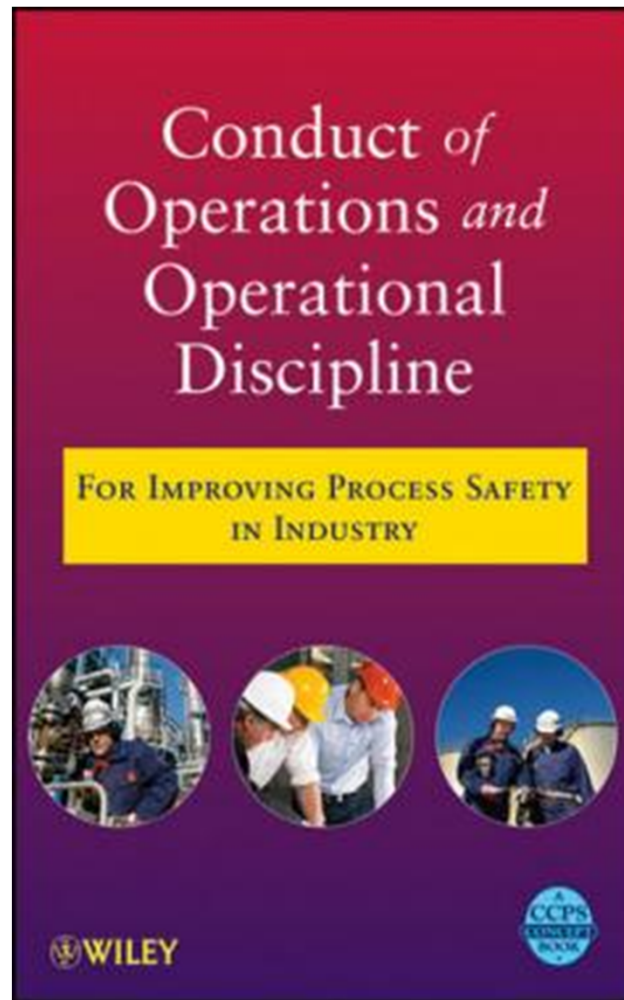
**Process Safety Leadership Group (PSLG) is committed to improving process safety in the industries we represent. We believe that to achieve this, industry leaders have a critical role to play and must commit to establishing the following principles of process safety management in each business:**

#### **Principles:**

- Clear and positive process safety leadership is at the core of managing a major hazard business and is vital to ensure that risks are effectively managed;
- Process safety leadership requires board level involvement and competence. For companies with boards located outside the UK then the responsibility to show this leadership rests with the most senior UK managers;
- Good process safety management does not happen by chance and requires constant active engagement;
- Board level visibility and promotion of process safety leadership is essential to set a positive safety culture throughout the organisation;
- Engagement of the workforce is needed in the promotion and achievement of good process safety management;
- Monitoring process safety performance based on both leading and lagging indicators is central to ensuring business risks are being effectively managed;
- Publication of process safety performance information provides important public assurance about the management of risks by an organisation; and
- Sharing best practice across industry sectors, and learning and implementing lessons from relevant incidents in other organisations, are important to maintain the currency of corporate knowledge and competence.

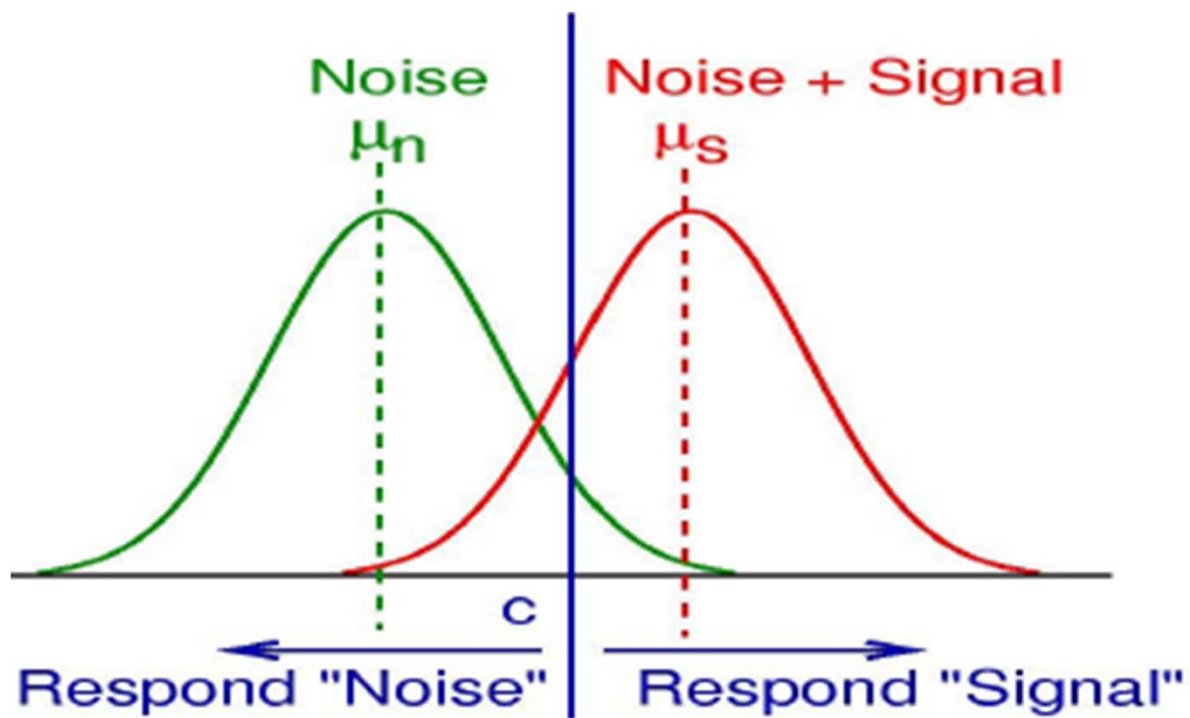


## 2 - Leadership instills disciplined adherence to the policies and procedures



## 3 - Strong sense of vulnerability

**‘Chronic Unease’** ...having a ‘strong response to weak signals’



# Committed Culture

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## Safety culture: Flexible....??

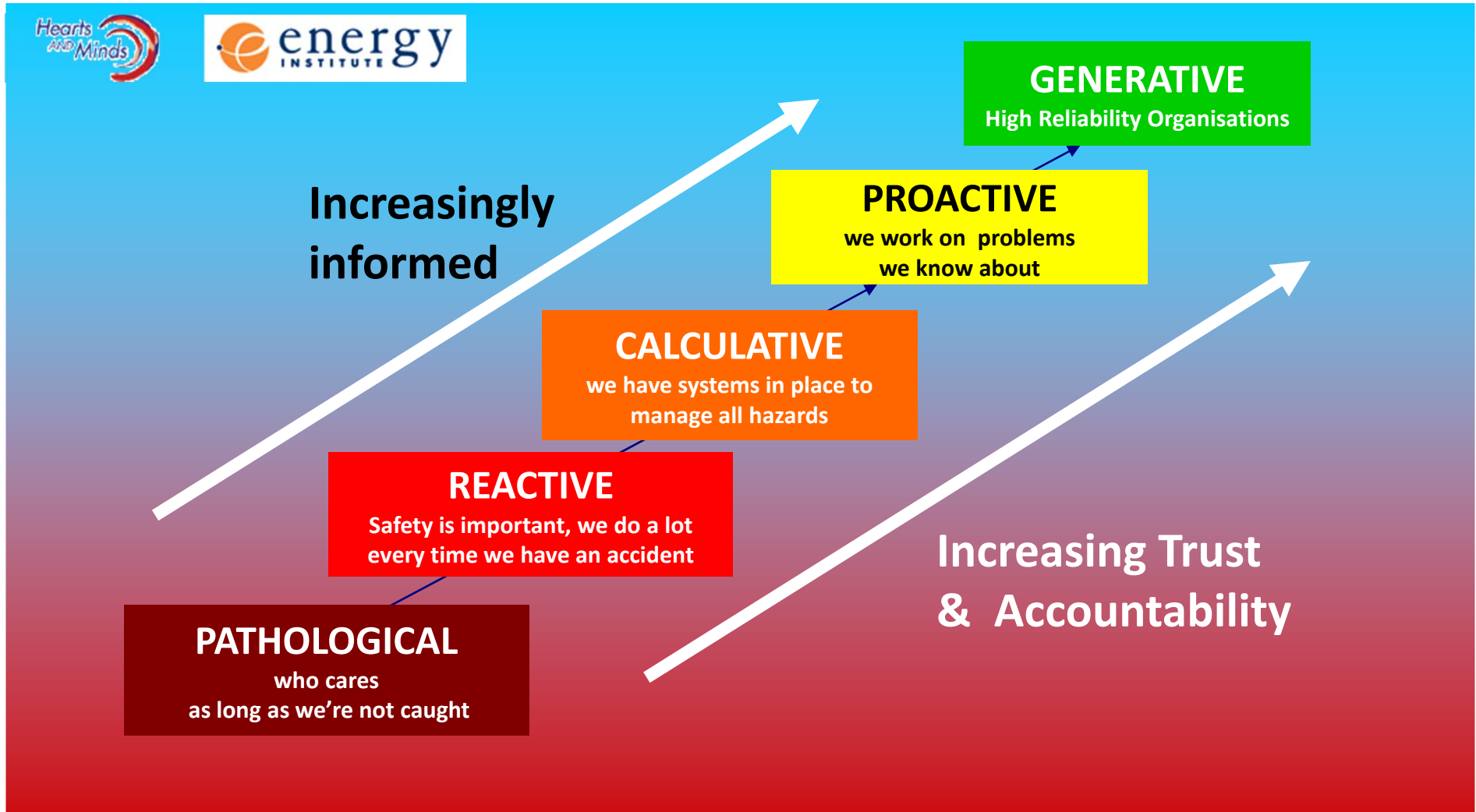


A flexible culture is a culture in which an organisation:

- is able to reconfigure themselves in the face of high tempo operations or certain kinds of danger;
- has the ability to rapidly alter its structure, typified by moving from the conventional hierarchical mode to a flatter mode; and
- has the right level of expertise to make assessments and decisions.

# Safety culture: Flexible....??

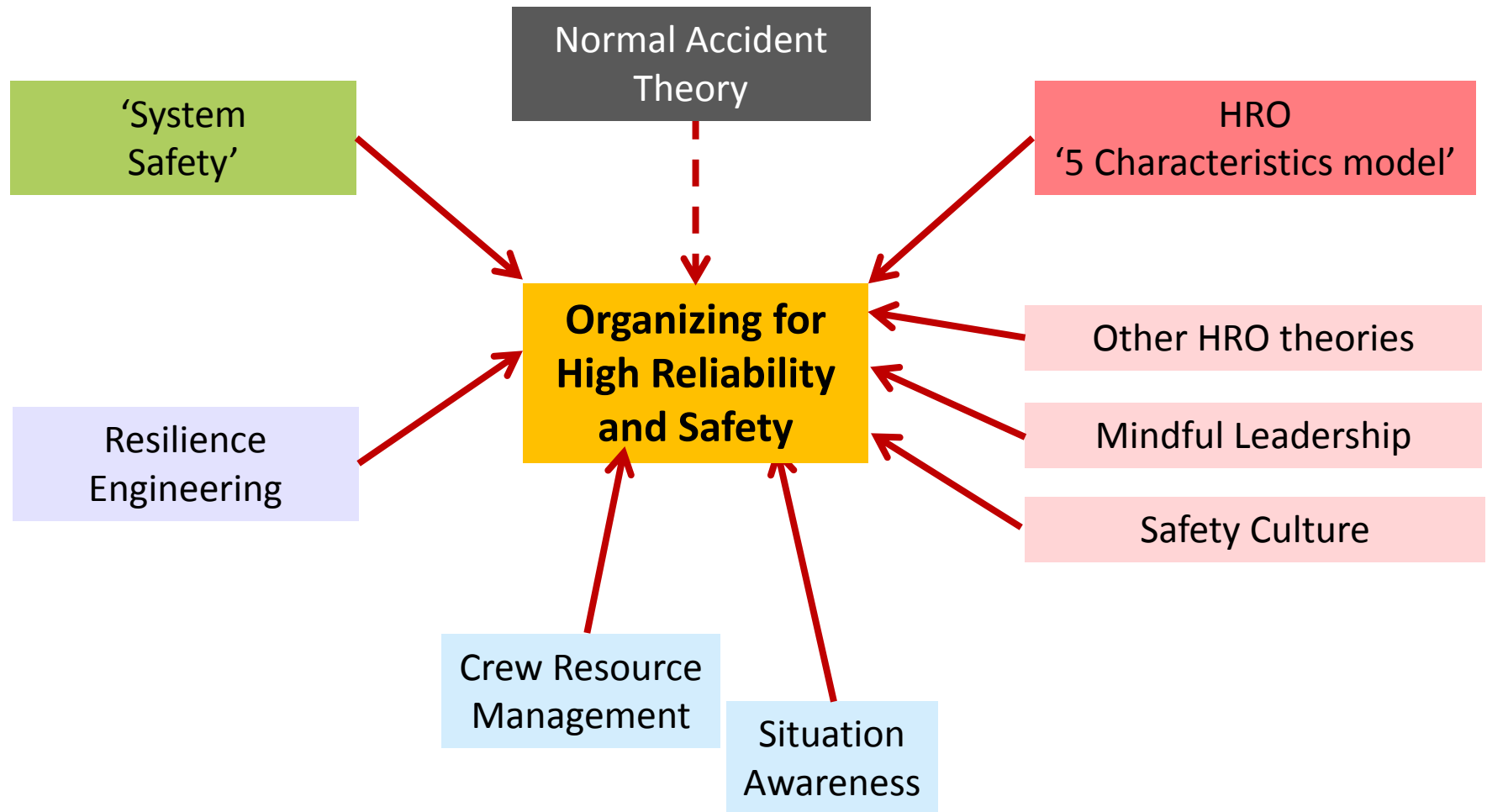
...How do we think we manage (process) safety?





# Safety culture: Flexible....??

...How do we think we manage (process) safety?



## **Safety culture: Flexible....??**

**...How do we think we manage (process) safety?**

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**High Reliability Organizing: ‘Mindful sense-making’...**

### **The ‘5 Characteristics’ model**

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

# Safety culture: Flexible....??

...How do we think we manage (process) safety?

## Containment of unexpected events:

- Deference to expertise
- Redundancy
- Oscillation between hierarchical and flat/decentralised structures
- Training and competence
- Procedures for 'unexpected' events

## Just culture:

- Encouragement to report without fear of blame
- Individual accountability
- Ability to abandon work on safety grounds
- Open discussion of errors

## Problem anticipation:

- Preoccupation with failure
- Reluctance to simplify
- Sensitivity to operations

## Definition:

- Tight coupling
- Catastrophic consequences
- Interactive complexity

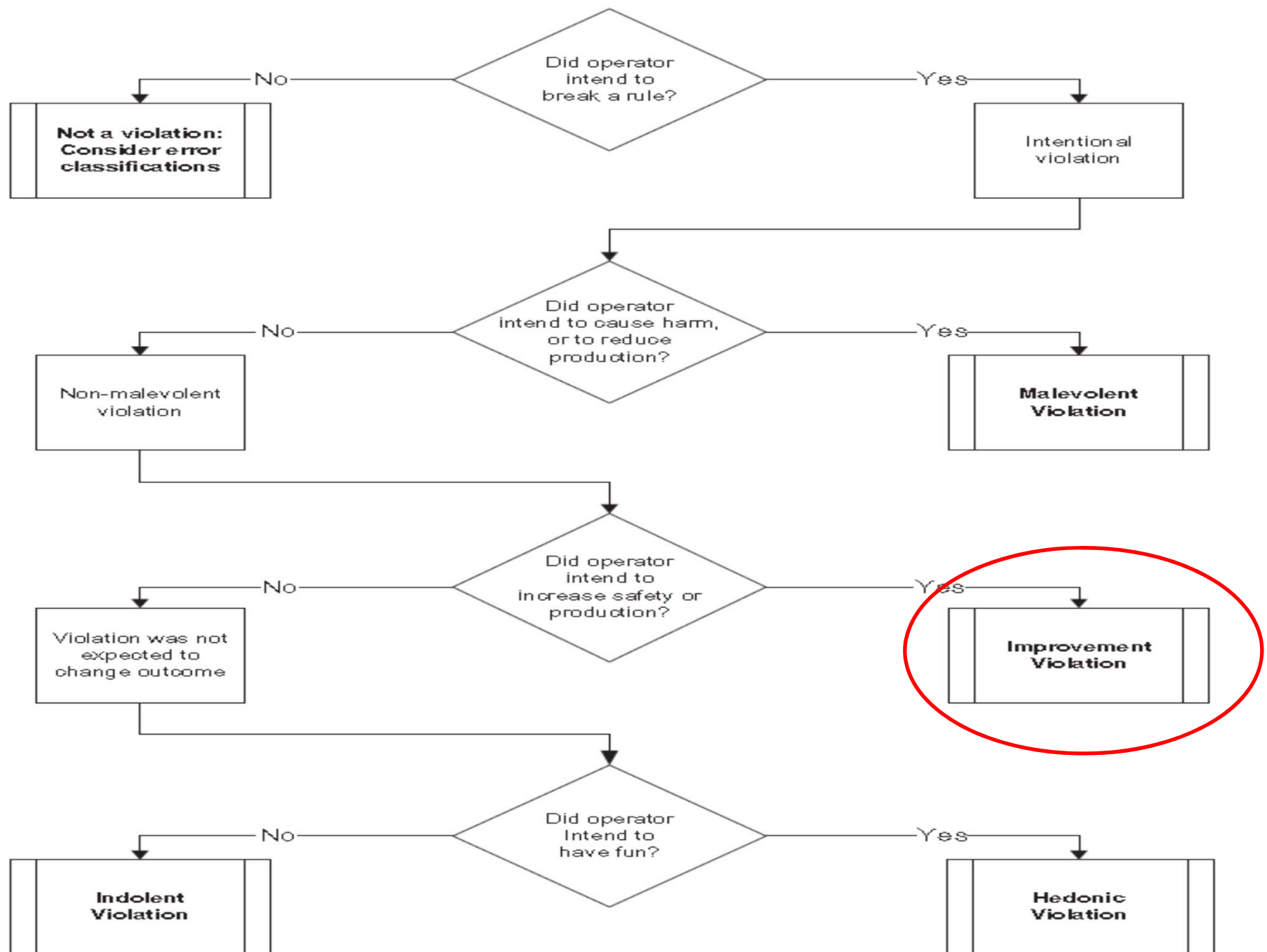
## Learning Orientation:

- Continuous technical training
- Open communication
- Root Cause Analysis of accidents /incidents
- Procedures reviewed in line with knowledge base

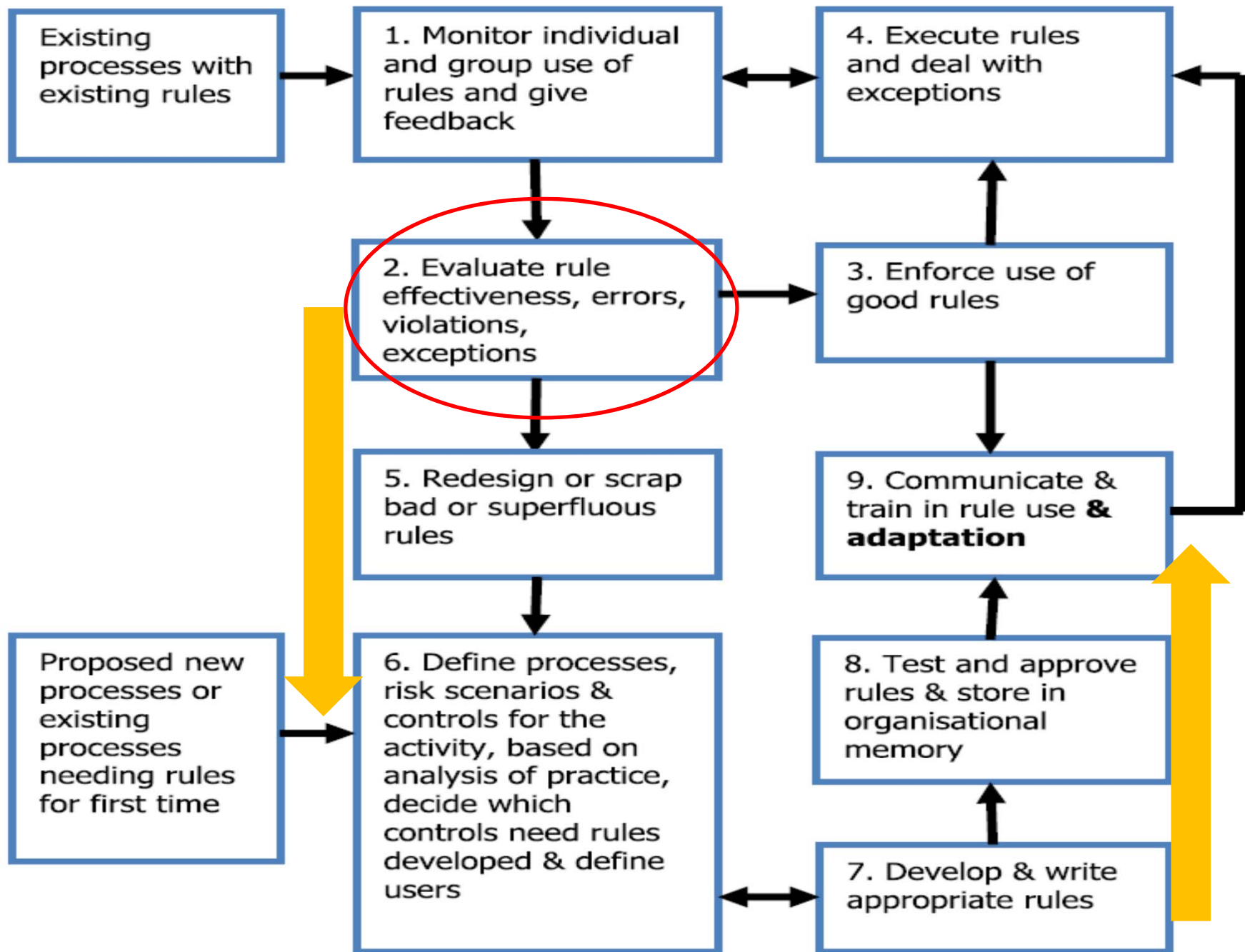
## Mindful Leadership:

- Bottom-up communication of bad news
- Proactive audits
- Management by exception
- Safety-production balance
- Engagement with front-line staff
- Investment of resources





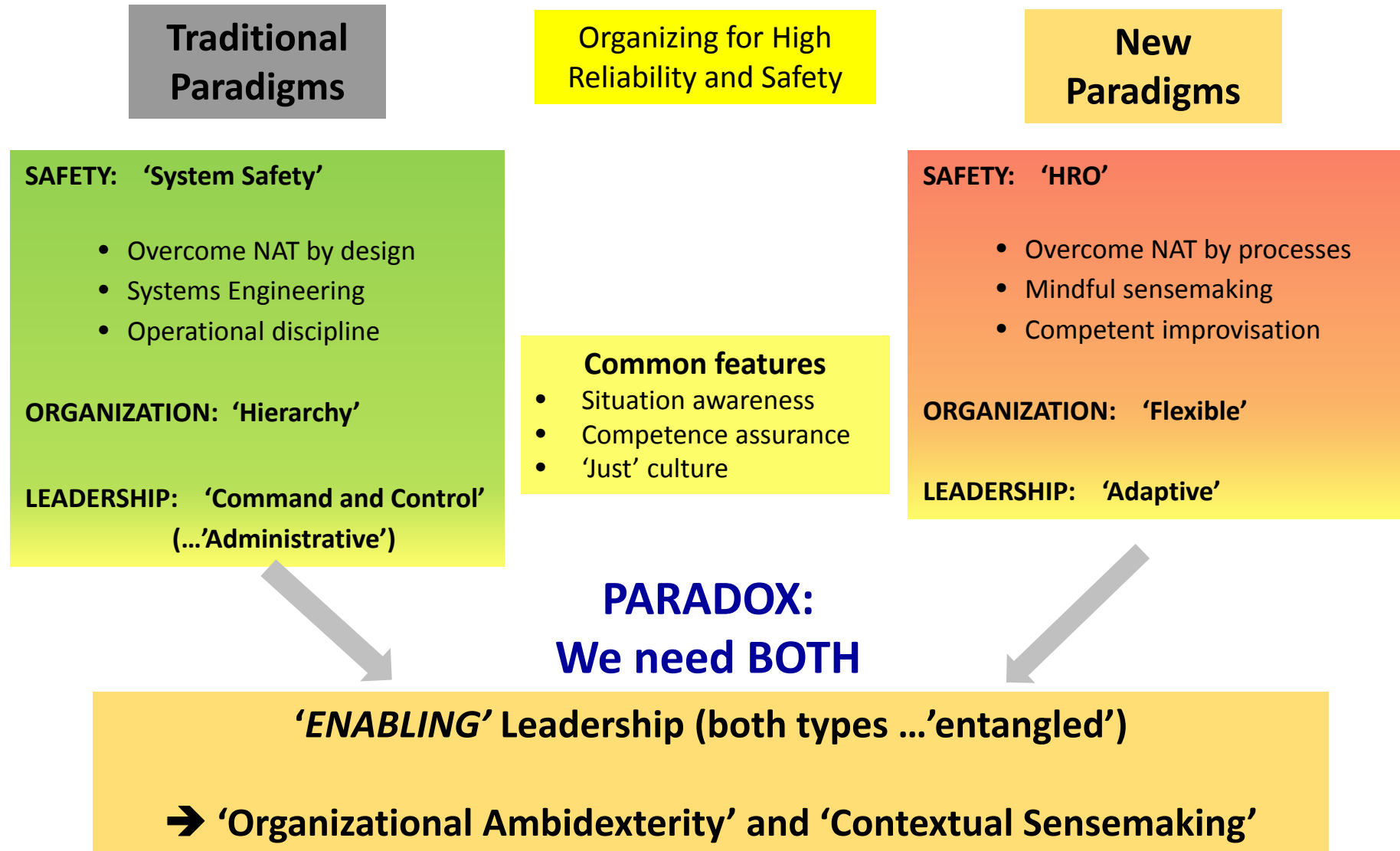
**Fig. 4.** Flowchart for unsafe acts level violations.



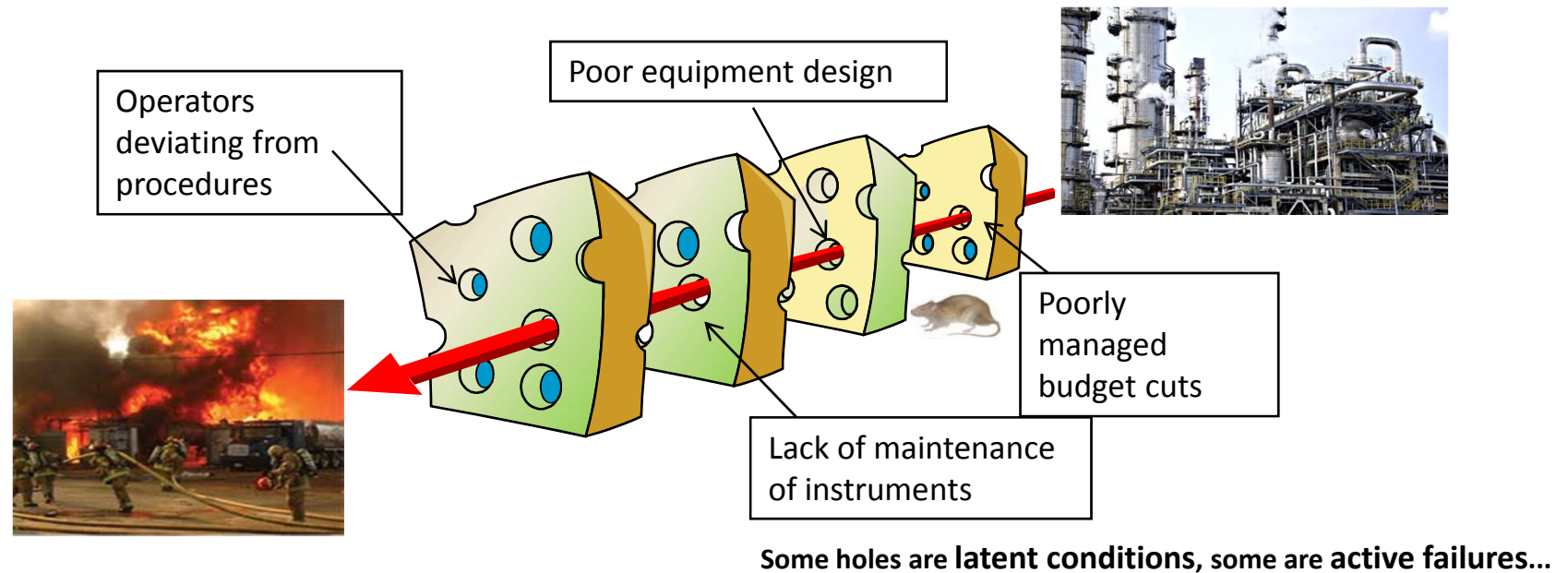
**Fig. 1.** Framework of rule management. Adapted from [Larsen et al. \(2004\)](#). Hale & Borys 2013



# A Paradox of Paradigms



## James Reason's Swiss Cheese model – another possible interpretation



**Cheese slices** = 'System Safety' → Procedures & Operational Discipline

**Constant search for holes** = 'HRO' → Mindful sense-making & competent improvisation

## ***'ENABLING' Leadership:*** **(both 'Administrative' AND 'Adaptive' ...'entangled')**

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***Adaptive***  
**Leadership...??**

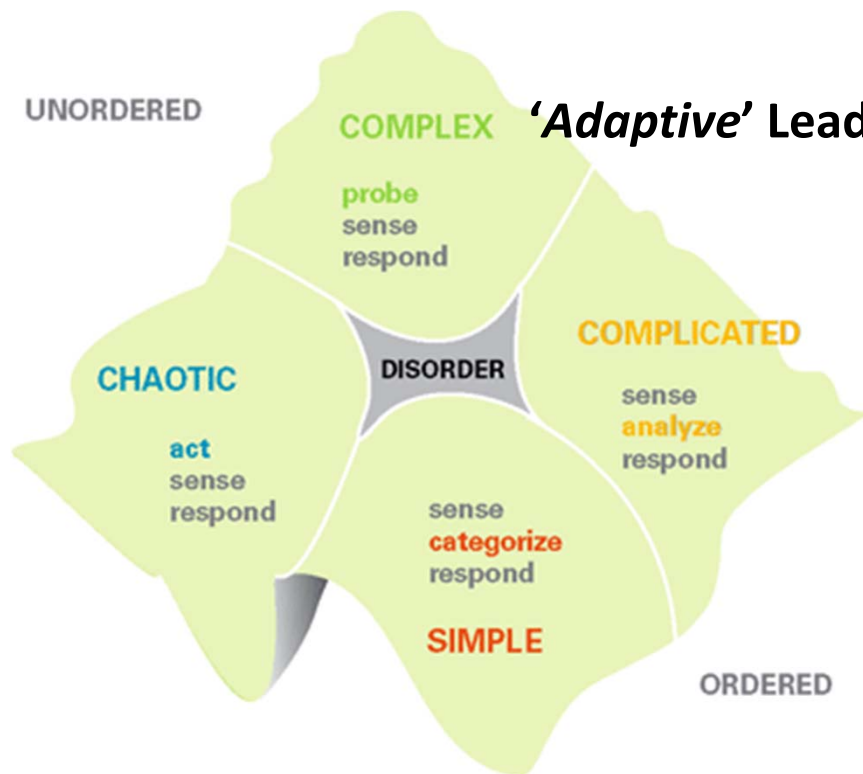
**Complexity** Theory of Leadership...  
**key idea: Emergence in Complex Adaptive Systems**



## ***'ENABLING' Leadership:*** **(both 'Administrative' AND 'Adaptive' ...'entangled')**

### **Contextual Theory of Leadership...**

**key idea: different schema of leadership for different contexts**



Snowden and Boone, HBR, 2007

## ***'ENABLING'* Leadership: (both 'Administrative' AND 'Adaptive' ...'entangled')**

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- 'Give the work back to the people'  
...ask questions – don't provide 'answers'
- Give direction (but without micromanaging)
- Maintain disciplined attention
- Provide a 'loose-tight' structure  
...establish 'big rules' and step back a bit
- Encourage diverse views and discussion  
... allow solutions to emerge

## Safety culture: How do others do it? ... Commercial Aviation

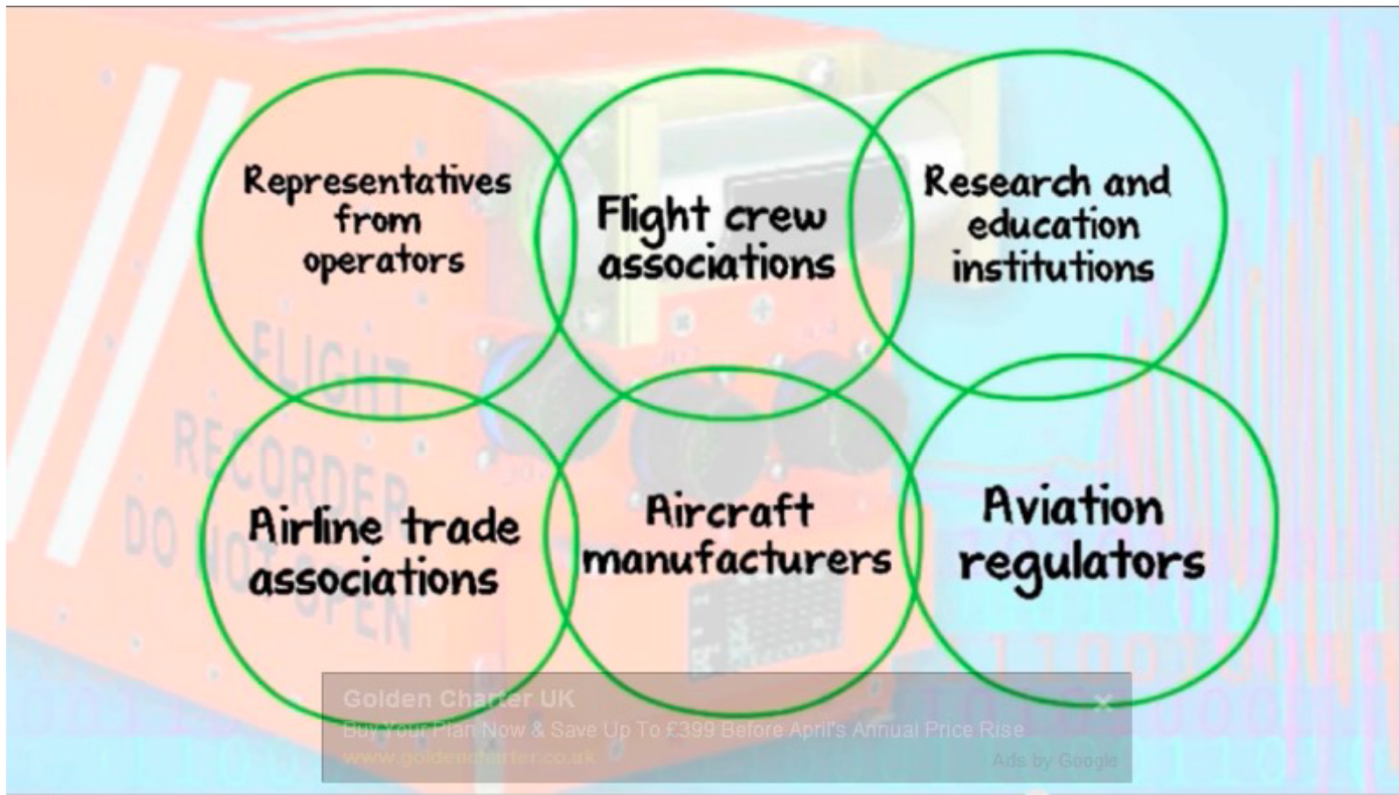
- Figure 2 shows the fatal accident rate of scheduled passenger and cargo fatal accidents per 10 million flights, by region of the world, using the regions defined by the ECCAIRS taxonomy between 2004-2013





# Safety culture: How do others do it? ... Commercial Aviation

## ECAST – collaboration



(ECAST = European Commercial Aviation Safety Team)

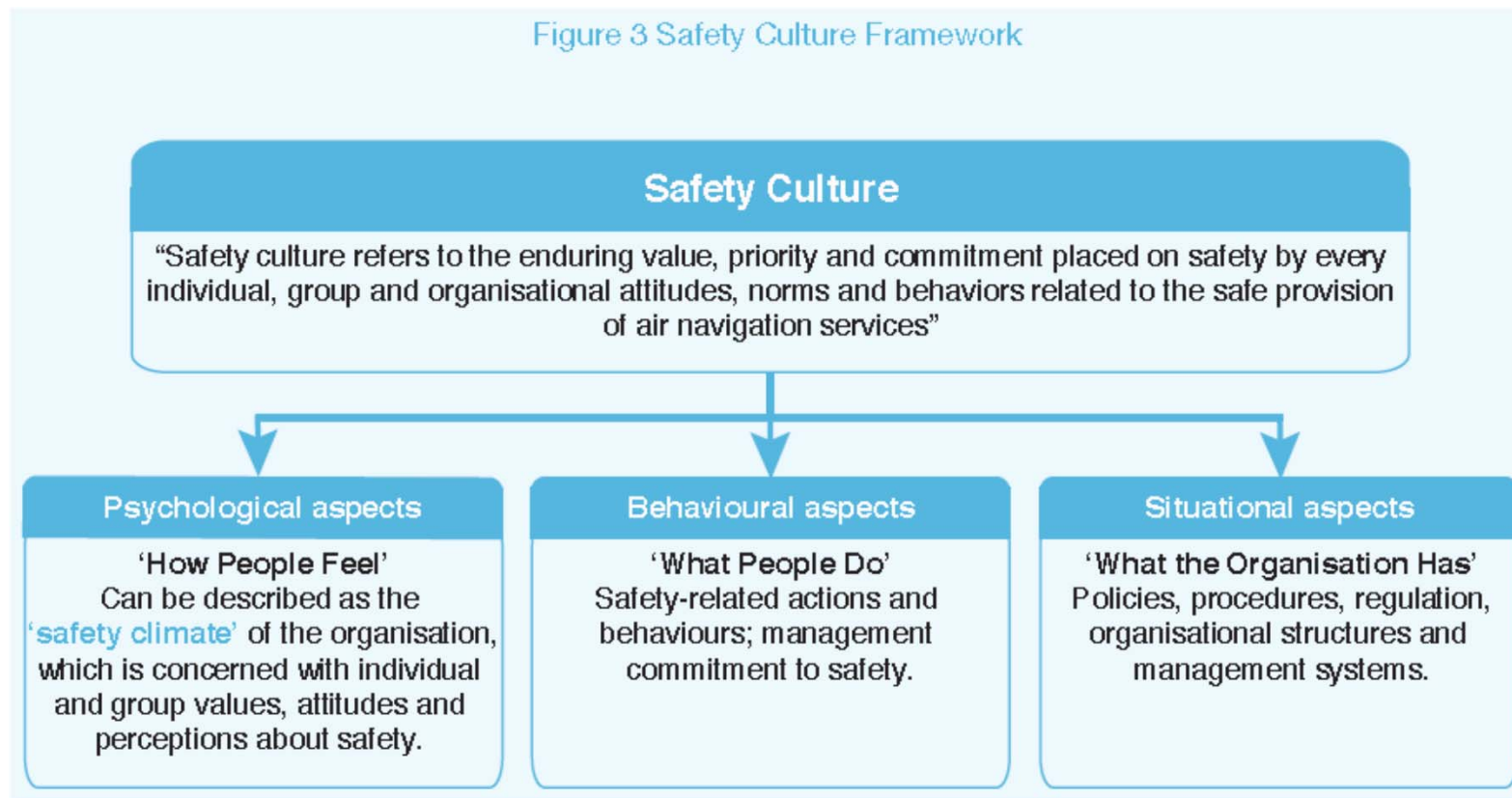
# Safety culture: How do others do it? ... Commercial Aviation

## ECAST – International collaboration



# Safety culture: How do others do it? ... Commercial Aviation

Extract from 'CANSO Safety Culture Definition and Enhancement Process' 2008



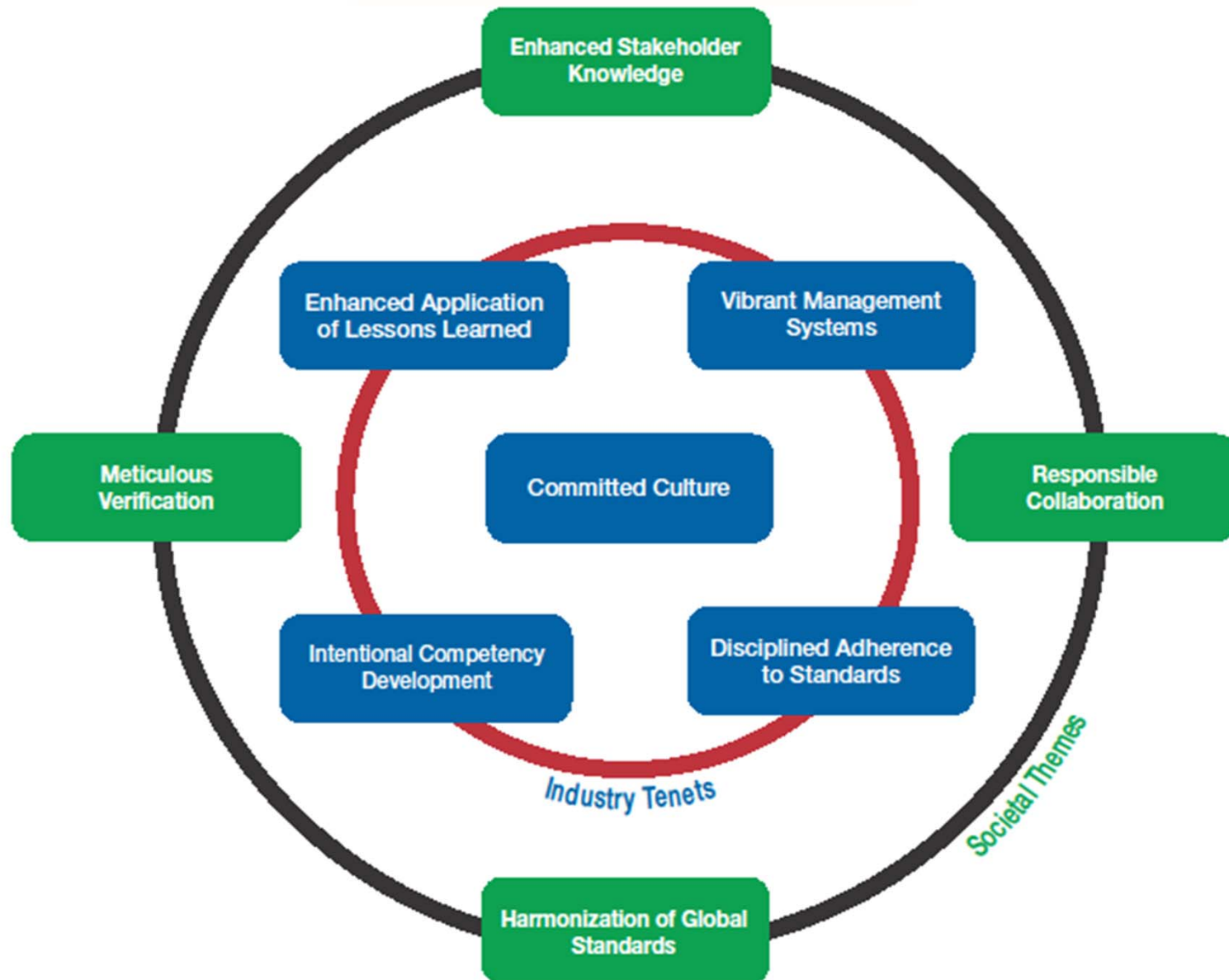
CANSO = Civil Air Navigation Services Organisation

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# VISION20/20



## Further reading

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CCPS Risk Based Process Safety Management - 2007

CCPS Conduct of Operations and Operational Discipline - 2011

UK H&S Exec RR899 – HRO Literature Survey - Nov 2011

Leadership and HROs - why banks fail Young, B. 2012

\* OGP 452 Safety culture and leadership - **Oct 2013**

\* OGP 460 Cognitive issues in process safety - **Jul 2012**

\* OGP 510 Operating Management Systems - **Jun 2014**

\* OGP 511 OMS in practice - **Jun 2014**

\* OGP 501 Crew Resource Management for Well Operations **Apr 2014**

Energy Institute 'High level framework for Process Safety' Dec 2010

<http://high-reliability.org/pages/High-Reliability-Organizations>

[IChemE Loss Prevention Bulletin Dec 2014 No 240 - Special Edition on Bhopal](#)

[UKHSE Case Study on use of leading indicators for Org SA - Scottish Power 2010](#)