Safety Intelligence and Chronic Unease in Senior Managers

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IAEA, Developing Improvement Programmes for Safety Culture, November, 2015
Safety culture research from 1992 (Flin et al.)

- Questionnaires for measuring safety climate

- Focus on workforce behaviour – non-technical skills – (Crew Resource Management - CRM)

- Focus on supervisors & managers, especially senior managers
Safety culture: Offshore workforce perceptions of management commitment to safety – 2001

“Senior managers would approve of me taking shortcuts” 21% agree

“My company would stop work for safety, even if it meant they would lose money” 31% disagree

Ratings of senior managers’ priorities

Scotland – rated by surgeons

UK Consultant Surgeons rating their senior managers (n=138)

- Patient safety: 42%
- Waiting lists: 27%
- Cost: 15%
- Reputation: 16%
Senior Managers and Safety

• Management commitment is one of the main drivers of employees’ safety performance (Michael, Evans, Jansen & Haight, 2005)

• “[…] managers can change and improve existing corporate culture by establishing safety – recognisable for all staff members – as high priority.” (German Federal Bureau of Aircraft Accidents Investigation, 2004)

• Only 5% of the existing leadership literature focuses on senior level management (Horn & Zaccaro, 2003)

• In the safety research literature senior managers are a ‘neglected species’ (Flin, 2003)
Safety Intelligence of Senior Managers and Safety Outcomes

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What is Safety Intelligence?

- Skills and traits of senior managers in relation to safety
- Abilities and Understanding regarding
  - Information
  - Safety risks to the organization
  - Decision making
Problem Solving

"I am looking at where the greatest risk lies. And then I make sure that I am happy that the plans to manage that risk are being dealt with. So if we are having a period of safety issues, incidents or near misses, then I am involved in what we are doing about it and what it is. Let's understand it." Senior manager - aviation
Safety Intelligence for CEOs
Eurocontrol White Paper (2013)

Based on research by
Kirwan
Eurocontrol

& Fruhen, Mearns, Flin
University of Aberdeen

www.eurocontrol.int
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<th>Question</th>
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<td>1. What are the top five safety risks for your organization?</td>
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<td>2. What is being done about each of them?</td>
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<td>3. Do you have an internally-published Just Culture Policy in your ANSP?</td>
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<td>4. How often do you give a safety message to staff?</td>
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<td>5. Is Safety a standing item on the Board Agenda</td>
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<td>6. Can you name three safety culture strengths and three safety culture weaknesses for your ANSP?</td>
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<td>7. What is currently the most significant operational safety threat for your ANSP as evidenced by quarterly incident trend information?</td>
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<td>8. What are the top three Human Factors areas your organisation needs to focus on to assure safe operational performance?</td>
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<td>9. Which are your two best operational units (e.g. towers, ACCs, or individual sectors) in terms of safety performance? Which are the two most vulnerable?</td>
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<td>10. Name two learning points from incidents or safety studies which have been translated into operational practice in your ANSP</td>
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<td>11. Is Safety represented at Director level?</td>
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<td>12. Do your discussions with other ANSPs (especially FAB partners) include Safety?</td>
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Chronic unease (for safety)

• Weick (1987) commented in relation to the Alexander Keilland drilling rig accident, “Part of the mindset for reliability requires a chronic suspicion that small deviations may enlarge, a sensitivity that may be encouraged by a more dynamic view of reliability” (p. 119).

• Reason (1997) used ‘chronic unease’ in the context of complacency, which can be triggered by the absence of negative events, leading “people [to] forget to be afraid” (p.39).
‘A major factor that contributed to the accident was the widespread assumption in Japan that its nuclear power plants were so safe that an accident of this magnitude was unthinkable.’

(Amano, Foreward)
RAF Nimrod XV230 (Haddon-Cave report)
Mid-air refuelling accident (2006) 14 fatalities

‘.. the NSC [Nimrod Safety Case] process was fatally undermined by a flawed assumption that the Nimrod was ‘safe anyway’ and that, therefore, the NSC exercise did not really matter.’ (p263)

‘.. mis-categorised the catastrophic fire risk represented by the Cross-Feed/SCP duct (Hazard H73) as ‘Tolerable’ when it plainly was not.’ (p.11)

Failure of leadership and culture
Drilling Blow-outs

Deepwater Horizon drilling rig on Macondo, 2010

West Atlas drilling rig on Montara well, 2009


www.abdn.ac.uk/iprc/
Deepwater Horizon 2010

• In an e-mail April 16, a BP official involved in the decision explained: "It will take 10 hours to install them. I do not like this." Later that day, another official recognized the risks of proceeding with insufficient centralizers but commented: "Who cares, it's done, end of story, will probably be fine."

• Noting that a safety culture must be led from the top and permeate a company, Reilly condemned the companies for operating under a "culture of complacency" and called for top-to-bottom reform.
Chronic unease

• “An essential prerequisite for effective safety management is the expectation that errors will always occur. Chronic unease along with continuous vigilance and adjustment are still the main weapons in the error management armoury.” (Reason, 2003, p.44)

• The experience of discomfort and concern about the management of risks.

• Cf Risk tolerance

Fruhen & Flin – Chronic Unease in Senior Managers Research Project sponsored by Shell 2013-2014
A state of mild psychological strain in which an individual experiences discomfort and concern about the control of risks.

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<th>Component</th>
<th>Description</th>
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<td>Vigilance</td>
<td>The ability to notice and identify (weak) indicators of risks in the environment.</td>
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<td>Propensity to worry</td>
<td>A tendency to worry about risk and safety. This can include emotional and somatic reactions.</td>
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<td>Requisite Imagination</td>
<td>The ability to mentally project the development of a situation into the future based on its current state</td>
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<td>Flexibility of thought</td>
<td>The tendency to approach safety related issues from many angles, to think about them critically and to question assumptions.</td>
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<tr>
<td>Pessimism</td>
<td>A personality trait reflecting a tendency to resist complacency and to anticipate failure.</td>
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Fruhen, Flin & McLeod et al., 2014
Flexible thinking (f = 181 in 25 interviews)

Pessimism (f = 162 in 27 interviews)

“It is constantly asking but why does it do that? Is that really the design and if it’s really the design why did we accept that for the design?”

“I look at the trend of first aids; I look at the trend of small spills. I combine that with my own observations when I am on site and that’s how I make my assessments, how I think it is going.”

Results: the components of unease

- Flexible thinking (f = 181 in 25 interviews)
- Pessimism (f = 162 in 27 interviews)
- Propensity to worry (f = 121 in 26 interviews)
- Vigilance (f = 102 in 25 interviews)
- Requisite imagination (f = 50 in 23 interviews)
- Experience (f = 35 in 16 interviews)

“Chronic unease means for me having that alarm, that radar, having my antennae up every time we do something different which we haven’t done before and really going back to the first principles.”

“Leaders need to listen, hear when people are making comments that might be a little different in what they normally do because they might be trying to tell you something.”
Chronic unease

Some managers are more prone to experience unease and to use it in their work.

- Depending on their
  - Pessimism
  - Propensity to worry
  - Requisite imagination

- Leading them to
  - Be vigilant
  - Think flexibly
  - Not jump to conclusions
  - Encourage speaking up

Fruhen et al., 2014, 2015
Chronic Unease: Tolerance of ambiguity/ tolerance of risk

![Graph showing the relationship between utility of unease and level of unease.](image-url)
Measurement

• Current phase is to test new tools for the measurement of safety intelligence and chronic unease in managers.

• Design of development workshops.
Further information

• r.flin@abdn.ac.uk
• www.abdn.ac.uk/iprc
  lists of projects and papers and reports