

CAA CONFERENCE “Partnership in Safety: The Next Steps”

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KEYNOTE SPEECH

by

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Philosophy

1. So much of life, and good governance and good law, is about getting the right balance. Balance between the rights of the individual and the rights of society; between the needs of victims and the interests of the state; between short term gain and the long term cost; between reparation and retribution.
2. Jeremy Bentham and JS Mills’ Utilitarianism suggests that the principle to have in mind is “*the greatest good for the greatest number*”. Bentham dismissed watery moral judgments. For Bentham, only consequences matter. Actions are to be judged strictly on the basis of how their *outcomes* affect general utility.¹
3. In times of increasingly scarce resources and financial pressures, how do you get that balance right?
4. One of the ways is to focus your time, energy and resources on areas that you think really matter in terms of *outcomes*. Don’t be misty-eyed about safety. Be hard-nosed. Look at the stats and see what you most common, serious and habitual risks are and target those. Share and discuss knowledge, experiences, concerns and *outcomes* with colleagues in the industry and regulators.
5. That is why it is a such a pleasure and privilege to be here today at this CAA Conference *Partnership in Safety: The Next Steps* and to be asked to give this Keynote speech to you.
6. I applaud the collaborative and collegiate approach between industry and the regulators which is at the heart of your Conference today - and targeting of the Significant Seven areas of concern which merit intense focus. Bentham would have approved – and so do I.

Air Travel today

7. It is good to see such widespread representation from all parts of the airline industry here today. I do not have to tell you that you are in an important business facing major pressures on all sides:

¹ Bentham, Jeremy. *The Principles of Morals and Legislation* (1789).

- (a) *Pressure from the public* - who want more and cheaper flights. The EU Commissioner for Tourism recently pronounced “*Travelling for tourism today [as a Human] right.*”² (It is a pity he did not tell Vulcan, the God of fire and volcanoes,³ or French Air Traffic Controllers!). The number of passengers using UK terminals is approaching a quarter of a billion annually. .
 - (b) *Pressure from the environmental lobby* - who want fewer and more expensive and less polluting flights (and a doubling of APD).
 - (c) *Pressure from the Unions* – who seek to further what they see as the legitimate rights of their hard-pressed members.
 - (d) *Pressure from Governments* - who have something of a love/ hate relationship with the airline industry and airports – and say with the same breath that you are vital for UK plc and jobs but also a scourge on the environment and a good night’s sleep (and deserve a doubling of APD).
 - (e) *Pressure from unexpected events* - such as 9/11, 7/7 and/or the Credit Crunch and/or ash clouds and/or US State Department warnings about travelling to Europe - causing sudden sharp drops in passenger numbers.
 - (f) *Pressure from the bean counters* – who look at costs and yields (and wonder why if aircraft can fly on one engine, then why they need two pilots).
 - (g) *Pressure from the Regulators on the Industry and vice-versa* – as the Regulators seek to exercise their role as they see best and Industry bridles at too much ‘meddling’.
8. The daily challenges faced by the average airline executive makes the life of a mere banker or barrister seem, frankly, pedestrian and prosaic, with the vortex of fuel price fluctuations, vagaries of weather, scarcity of slots, squeezed yields, competition investigations, unions and pensions, opprobrium because of climate change, and now volcanoes. Nor is the job of aviation regulator getting any easier because you are damned if you do and damned if you don’t.

Backdrop

9. I mention all this in opening this Keynote speech because the current pressures on, and challenges faced by, the airline industry have rarely been greater and form a worrying, but compelling, backdrop to a conference such as this to do with Air Safety. There is importance and urgency to your deliberations - and the collective and collegiate wisdom can bring to bear on some of the crucial areas of safety which you have identified is invaluable.

² Commissioner Tajani, Madrid Conference, 14 April 2010.

³ Vulcan was *Ἥφαιστος*, the Greek god of fire and craftsmanship, named Vulcan by the Romans. He was the son of Zeus and Hera. Hephaestus was born lame and ugly, and his mother Hera hated him on first sight.

Safety figures

10. Work by ASCEND⁴ show that if the accident rate today was the same as in the immediate post-Second World War years, there would be about 4,000 air accidents globally per annum or over 10 aircraft accidents a day. In fact, the average accident rate now is less than 20 majors per annum, or less than 1 fatal accident per million flights. But there is ample scope for improvement: whilst the accident rate in Europe is below the world average, it is still *twice* that of North America. One of the questions you have to ask is Why is this? What can we do about it?

Nimrod Report

11. Gretchen Burrett asked me if I could speak a little bit about the Nimrod Report. Whilst you will appreciate there are many aspects I can't talk about, I will do what I can to highlight some of the key lessons to be learned.

Tough love

12. The Nimrod Report was an exercise in *tough love*. And, as the Secretary of State said at the time, it made painful reading for all.
13. Such catastrophic accidents are, mercifully, rare in most domains. But, if properly investigated and analysed, they can be a once-in-generation opportunity to learn fundamental lessons. As it happens, the Nimrod story - where much did go wrong which could go wrong during a period of great organizational change times - contains many valuable lessons over many areas.
14. I pay public tribute again to the MOD for the way in which they readily acknowledged the shortcomings, sought to learn the lessons and have rolled up their sleeves and started implementing the raft of recommendations as rapidly as possible.
15. Nothing can change the past. But the important thing is to learn from it. As Albert Einstein said, "*The only source of knowledge is experience*".

The Seven Pillars of Nimrod

16. I have warmed to your cinematic theme *The Significant Seven* and offer you this morning *The Seven Pillars of Nimrod*.. There are many lessons to draw from Nimrod but I would highlight seven in particular:
17. **First, it is important to look at the underlying organisational causes of any major accident.** It is easy to blame the guy with the screwdriver or the joystick or the clipboard in his hand. But that would often be missing the main point. It is important to examine the fundamental 'organisational causes' of accidents rather than look narrowly at errors and omissions by individuals or the broken '*widget*'. The Nimrod Report focused intensely on organizational causes and found 12 uncanny, and worrying, parallels between the organisational causes of the loss of Nimrod XV230 and the organisational causes of the loss of the NASA Space Shuttle '*Columbia*':

⁴ Highlighted by Harold Caplan FRAeS in the 2008 Lee S Kreindler Memorial Lecture.

- (1) The 'can do' attitude and 'perfect place' culture.
- (2) Torrent of changes and organisational turmoil.
- (3) Imposition of 'business' principles.
- (4) Cuts in resources and manpower.
- (5) Dangers of outsourcing to contractors.
- (6) Dilution of risk management processes.
- (7) Dysfunctional databases.
- (8) 'PowerPoint engineering'.
- (9) Uncertainties as to Out-of-Service date.
- (10) 'Normalisation of deviance'.
- (11) 'Success-engendered optimism'.
- (12) 'The few, the tired'.

18. Second, if you have to outsource, it is important not to outsource your thinking and to remain an 'intelligent customer'. BP's Gulf oil spill imbroglio and Toyota's recent accelerator pedal problems are a reminder of the dangers of outsourcing. Successful outsourcing is crucially dependent on acting as an 'intelligent customer'. This in turn depends on (a) continued engagement of customer personnel in the technical decision-making process and (b) maintaining the necessary in-house expertise in the relevant disciplines, particularly engineering. This means retaining bright, informed, skilled, experienced people (for instance engineers) who know what they are doing, what the suppliers should be supplying and who keep alert. The 10 messages for airlines I have in relation to outsourcing are:

- (1) *Don't outsource thinking – or decision-making.* That is the non-delegable duty of Duty Holders.
- (2) *Don't automatically assume industry, consultants or experts can do it better, quicker, cheaper than you.*
- (3) *Do exercise critical thinking as to whether or not there in fact exists greater house knowledge of the subject, the piece of kit or how to fix the particular problem in-house than outside the organization.*
- (4) *Beware industry, consultants and experts bearing gifts – or professing experience and expertise which is more aspiration than real.* They want to attract the business.
- (5) *Do not assume that because X is the OEM (Original Equipment Manufacturer) that they are any good at maintenance.* Manufacturing and maintenance are two entirely different beasts.
- (6) *Do not assume that an OEM (Original Equipment Manufacturer) of a old 'legacy' platform will have any more of a clue as to what happened 30 years ago than you do.* The turnover of personnel can be even greater in the civilian sector than it is in the military.

- (7) *Do not assume that qualifications and initials are any substitute for practical or operator knowledge.*
- (8) *Do ensure that there is regular and pro-active project management and engagement with the providers at appropriate levels.*
- (9) *Beware consultants making a mountain (of paperwork) out of molehill – and what I have referred to as the ‘thud’ factor. A nice fat report lands on your desk which feels substantial and ‘robust’. Never mind the quality, feel the width.*
- (10) *Beware experts persuading you that yet further and further work is required.* How often have you read a report which concludes that further work is required or desirable before a final view can be formed.

19. **Third, avoid what I call the three ‘comfort blankets’ of complexity, compliance and consensus.** They can lull one into a (warm) sense of false security and conceal dangers:

- (a) *There is a certain comfort in complexity.* An organizational structure which is of Byzantine complexity can look impressive in a coloured organogram or PowerPoint but is likely to reflect diffuse responsibility, attenuated lines of accountability and confusion in the ranks as to who does what. As Martin Anderson of the HSE memorably said to me: *“NASA was so complex it could not describe itself to others.”* You need simplicity and to know who the key Duty Holders are.
- (b) Equally, pumping out complex, elaborate, prolix volumes of regulations may give the writers, the promulgators and the Powers-that-Be a warm feeling – and the comfort of a high wall to put between themselves and the problem – but this is not in the long run generally fair or helpful to those on the front line who have to read, mark and inwardly digest it, let alone implement it. And it can lead to *“a compliance culture”* which is not a safe culture. The focus is increasingly on the process rather than the problem. And as the enlightened traffic guru Hans Monderman said and I quote in my Report *“The greater the number of prescriptions, the more people’s sense of personal responsibility dwindles.”*
- (c) Equally it is easy for everyone to hold hands and have warm feelings at a meeting about safety on the back of a ‘consensus’ that all is really well – this stifles the awkward questions and sense of unease that should be ever-present in an organisation that properly grasps risk management. I am a great believer in Mr Awkward at the back of the room throwing the curve-ball.

20. **Fourth, (as Lord Cullen said) Safety Case should be an aid to thinking, not an end in themselves.** I felt strongly that the Safety Case regime had lost its way in certain environments. It had led to a culture of ‘paper safety’ at the expense of *real* safety and did not represent value for money. Its shortcomings included:

bureaucratic length; obscure language; a failure to see the wood for the trees; archaeological documentary exercises; routine outsourcing to Industry; lack of vital operator input; disproportionality; ignoring of age issues; compliance-only exercises; audits of process only; and prior assumptions of safety and ‘shelf-ware’. Many of these criticisms of Safety Cases were not new: see the *Ladbroke Grove Rail Inquiry* and the writings of Professor McDermid’s Department at the University of York. I recommended in the Military Domain that Safety Cases should be renamed “*Risk Cases*” and conform in the future to the following six Principles: **S H A P E D**

- *Succinct;*
- *Home-grown;*
- *Accessible;*
- *Proportionate;*
- *Easy to understand; and*
- *Document-lite.*

21. **Fifth, it is not what you can see but what you can’t see – that lurks below the surface – that often matters the most.** Beware plain sailing and being caught by something unexpected just below the surface. Good, regular data collection and analysis are vital to safety. Only in this way can you analyse trends, patterns and hidden dangers. I was impressed by the advances in pre-emptive Human Factors (HF) reporting using Human Factors Maintenance Error Management Systems ((M)EMS) The great advantage of HF M(EMS) is that it encourages a pro-active reporting and trend analysis culture which focuses attention on the ‘below the waterline’ near-misses, which, if openly and honestly reported in sufficient numbers, provide valuable information and visibility of potential issues *before* an incident or accident occurs. This changes fundamentally the approach of hazard management from reactive to pro-active.

22. **Sixth, as Franklin D. Roosevelt said, “Rules are not necessarily sacred, principles are”⁵**; and I highlighted four of paradigm importance in Chapter 20 in my Report: **Leadership, Independence, People (not just Process and Paper) and Simplicity.**

- (a) Leadership: **Principle of Leadership: There must be strong leadership from the very top, demanding and demonstrating by example active and constant commitment to safety and Airworthiness as overriding priorities.** I quote in my Report the following: “*In hindsight, the Panel believes that if [the Chief Executive] had demonstrated a comparable leadership and commitment to process safety, that leadership and commitment would likely to have resulted in a higher level of process safety performance in BP’s U.S. refineries.*” (Report of BP U.S. Refineries Independent Safety Review Panel, January 2007 led by ex-US Secretary of State, James Baker III).
- (b) Independence: **Principle of Independence: There must be thorough independence throughout the regulatory regime, in particular in the setting**

⁵ (Franklin D. Roosevelt, 1882-1945)

of safety and airworthiness policy, regulation, auditing and enforcement. As the great Legal Advisor to CAA, Rupert Britton, said to me and I quote in my Report, *“It is important that that regulation is truly independent of operation.”*

- (c) *People (not just Process and Paper):* **Principle of People: There must be much greater focus on People in the delivery of high standards of Safety and Airworthiness (and not just on Process and Paper).** Whatever elaborate Processes and Paper requirements are in place, it is People who ultimately have to ensure they take care, pay attention, think things through and carry out the right tasks and procedures at the right time and exercise caution where necessary. As Defence Nuclear Safety Regulator, Commodore Andrew McFarlane, said to me and I quote in my Report: *“Safety is delivered by people, not paper”*.
- (d) *Simplicity:* **Principle of Simplicity: Regulatory structures, processes and rules must be as simple and straightforward as possible so that everyone can understand them.** Byzantine organizational complexity (exacerbated by continuous organisational change), fragmentation of Airworthiness duties and responsibilities, and prolixity and obscurity of regulations, are recipes for disaster. Complexity is normally the enemy of Safety and the friend of Danger. A safe system is generally a simple and stable system. As Director of Engineering, British Airways, Garry Copeland said to me and I quote in my Report: *“We believe hugely in simplicity and stability”*.

23. **Seven, fostering a strong and effective Safety Culture is vital to reducing accidents.** My favourite definition is that of International Nuclear Safety Advisory Group: *“Safety culture is that assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, safety issues receive the attention warranted by their significance”*. Safety should be treated as part of the business, not separate from it. There is much to be learned from the work of NASA and the US Joint Planning and Development Office who have adopted Professor James Reason’s four-part approach to creating an “Engaged” Safety Culture which includes four elements:

- **A Reporting Culture:** an organisational climate where people readily report problems, errors and near misses.
- **A Just Culture:** an atmosphere of trust where people are encouraged and even rewarded for providing safety-related information; and it is clear to everyone what is acceptable and unacceptable behaviour.
- **A Flexible Culture:** a culture that can adapt to changing circumstances and demands while maintaining its focus on safety.
- **A Learning Culture:** the willingness and competence to draw the right conclusions from its safety information and the will to implement major safety reforms.

To this I have added a fifth – and I believe vital – element:

- **A Questioning Culture:**1 It is vital to ask “*What if?*” and “*Why?*” questions. Questions are the antidote to assumptions, which so often incubate mistakes.

6. The role of Leadership is critical in building a Safety Culture.

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