The role of risk assessment

and the need for a sense of proportion

THREE FRAMING DEVICES

Corporate Risk Group
Programme for
Cadbury Schweppes and Diageo
30 April 2003
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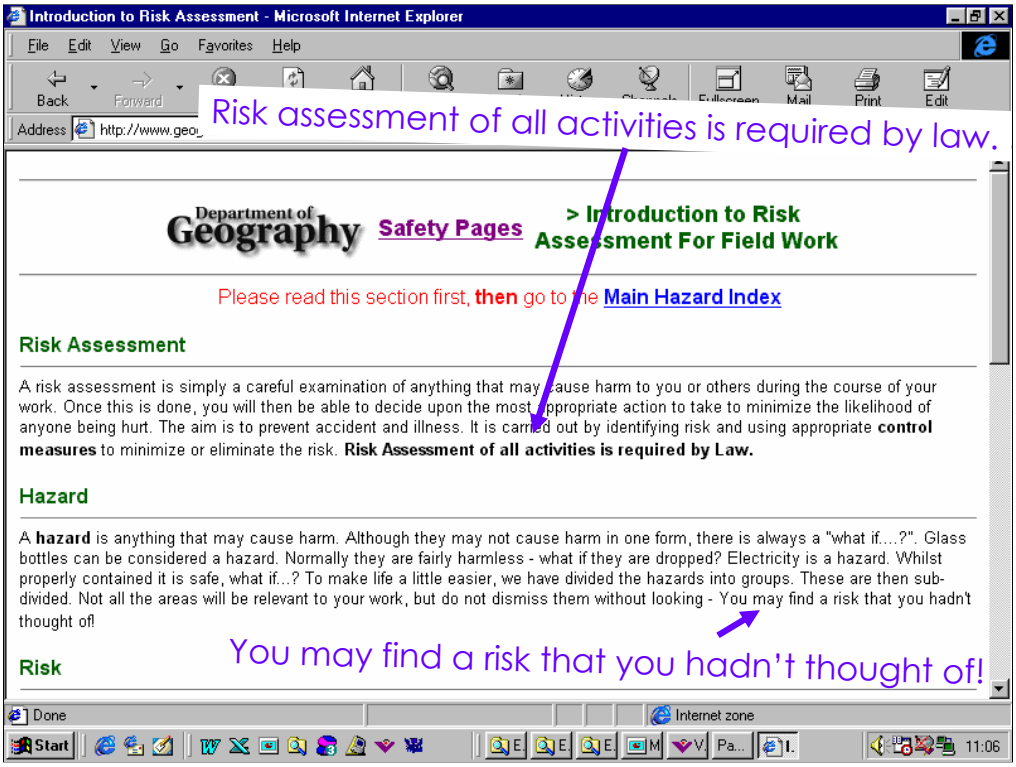
•All risk is subjective. “Risk” is a word that refers to the future, and that exists only in the imagination.

•Risk assessment involves speculating about this future, about things that could go wrong, and about ways of preventing them.

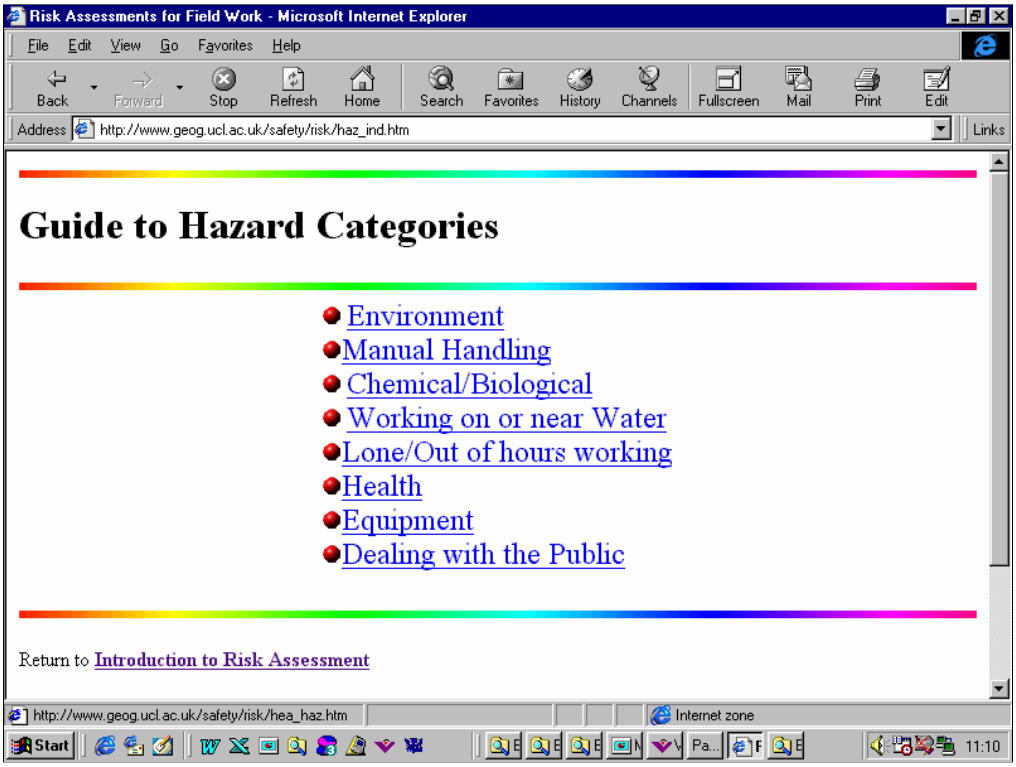
•In recent years, in government and throughout the worlds of commerce and industry there has been an explosion in the numbers of risk assessments undertaken and a remarkable increase in the thoroughness and comprehensiveness that they attempt.

•The risk assessment epidemic has not spared the very safe world of education in which I work. I offer an example from the website of my own department at UCL.



We must now produce risk assessments for all our final year students working on dissertations.

Our web site explains – in 69 pages - how this should be done.


Risk Assessments for Field Work - Microsoft Internet Explorer
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Address http://www.geog.ucl.ac.uk/safety/risk/haz_ind.htm
Links
Guide to Hazard Categories
Environment
Manual Handling
Chemical/Biological
Working on or near Water
Lone/Out of hours working
Health
Equipment
Dealing with the Public
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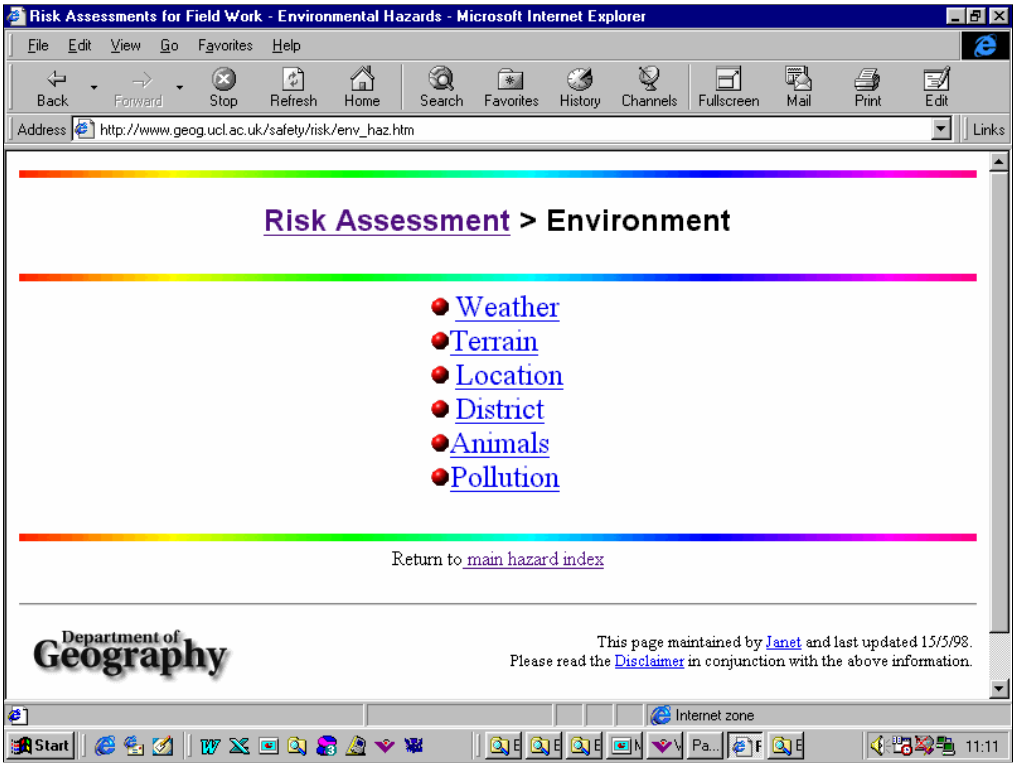
Risk Assessments for Field Work - Environmental Hazards - Microsoft Internet Explorer
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Links
Risk Assessment > Environment
Weather
Terrain
Location
District
Animals
Pollution
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Department of Geography
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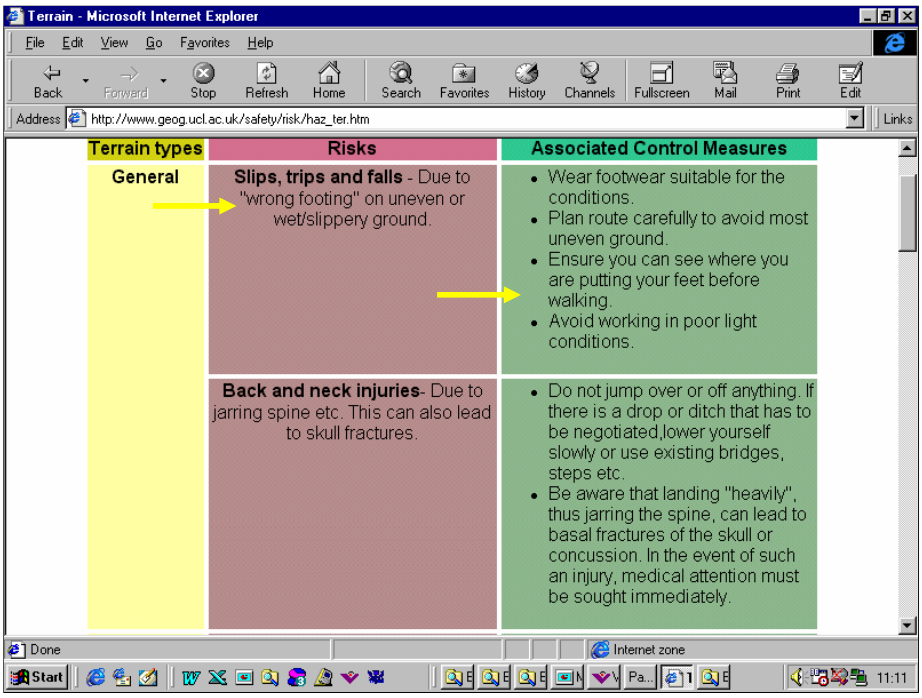
Terrain - Microsoft Internet Explorer
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Address http://www.geog.ucl.ac.uk/safety/risk/haz_ter.htm
Links
Terrain types
Risks
Associated Control Measures
General
Slips, trips and falls - Due to "wrong footing" on uneven or wet/slippery ground.
Wear footwear suitable for the conditions.
Plan route carefully to avoid most uneven ground.
Ensure you can see where you are putting your feet before walking.
Avoid working in poor light conditions.
Back and neck injuries- Due to jarring spine etc. This can also lead to skull fractures.
Do not jump over or off anything. If there is a drop or ditch that has to be negotiated,lower yourself slowly or use existing bridges, steps etc.
Be aware that landing "heavily", thus jarring the spine, can lead to basal fractures of the skull or concussion. In the event of such an injury, medical attention must be sought immediately.
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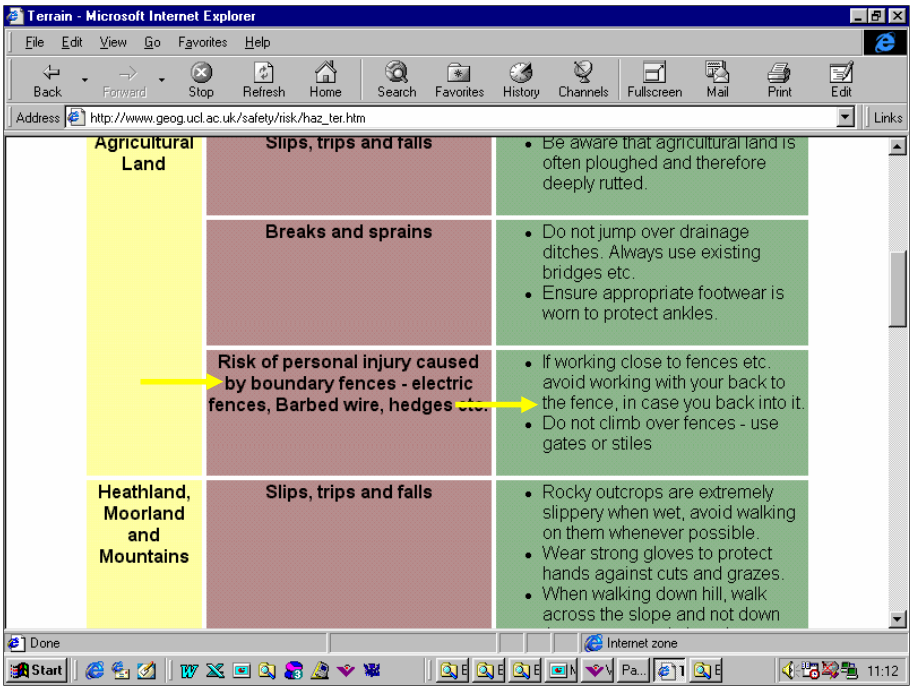
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Address http://www.geog.ucl.ac.uk/safety/risk/haz_ter.htm
Links
Agricultural Land
Slips, trips and falls
Be aware that agricultural land is often ploughed and therefore deeply rutted.
Breaks and sprains
Do not jump over drainage ditches. Always use existing bridges etc.
Ensure appropriate footwear is worn to protect ankles.
Risk of personal injury caused by boundary fences - electric fences, Barbed wire, hedges etc.
If working close to fences etc. avoid working with your back to the fence, in case you back into it.
Do not climb over fences - use gates or stiles
Heathland, Moorland and Mountains
Slips, trips and falls
Rocky outcrops are extremely slippery when wet, avoid walking on them whenever possible.
Wear strong gloves to protect hands against cuts and grazes.
When walking down hill, walk across the slope and not down
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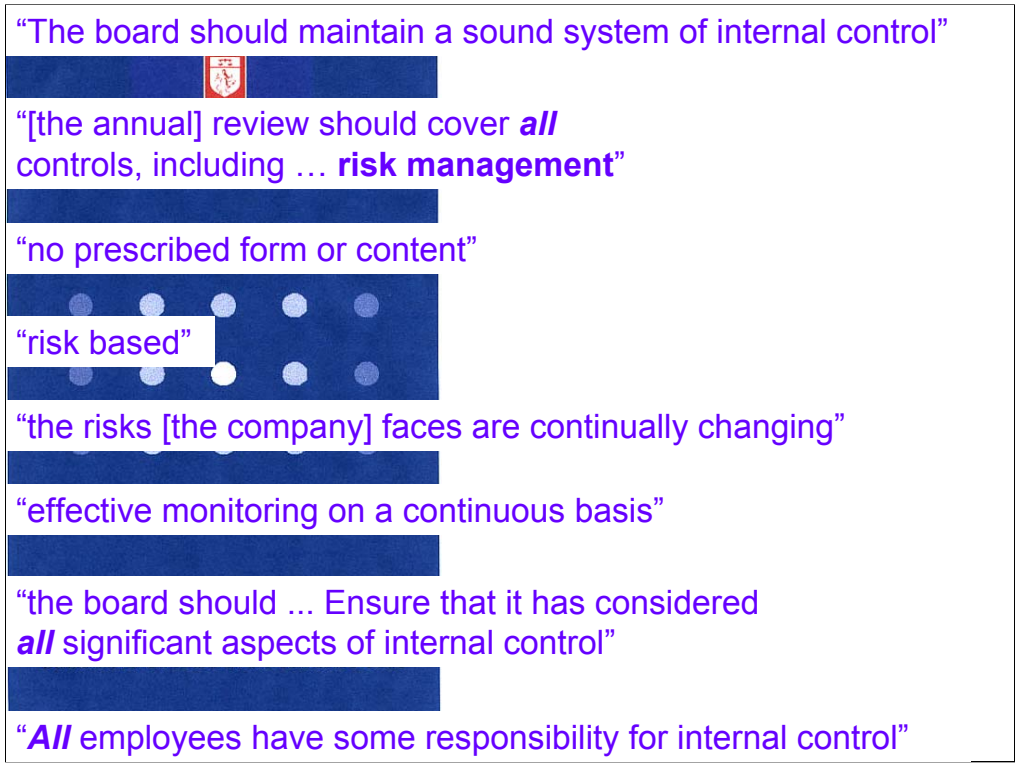
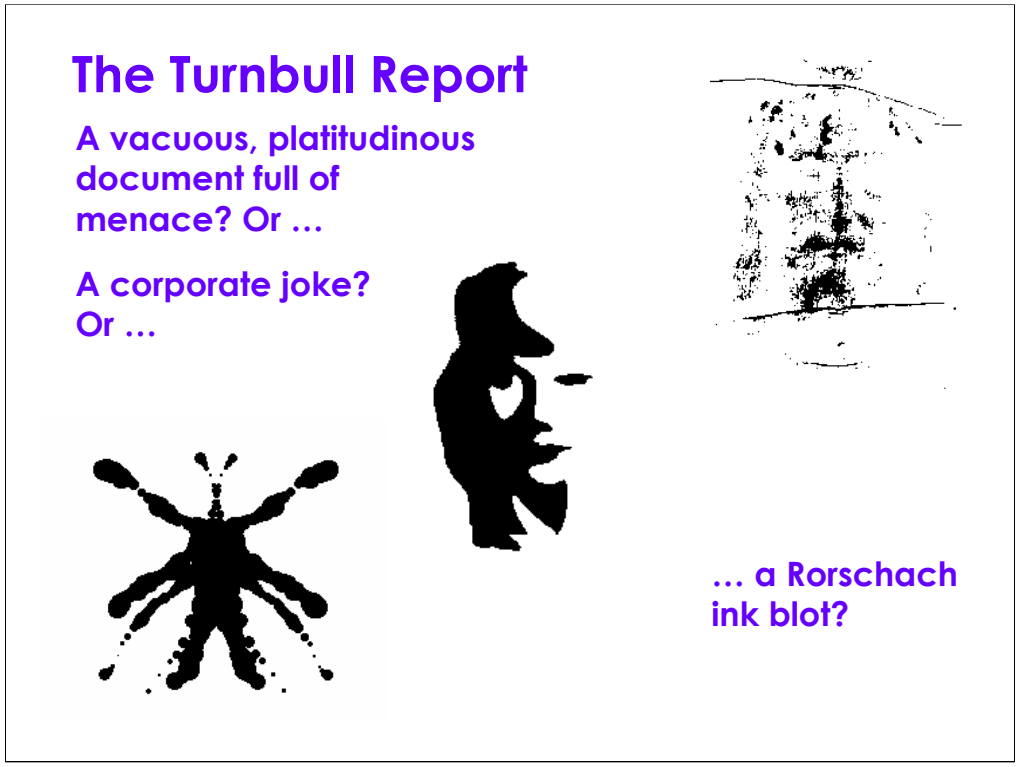


What is driving this growth of risk assessment?

The open-endedness of the risk manager's job is emphasised by the Turnbull Report – a document to which most corporate risk managers in Britain now pay obeisance. Internal control embraces risk management – and ALL employees have some responsibility for it. All 36000 in Cadbury Schweppes. All 71500 in Diageo.

And all SIGNIFICANT risks must be considered. The view that you cannot judge whether a risk is significant or not until you have considered it leads the anxious to the conclusion that ALL risks must be assessed.



The main message that many people are taking away from the Turnbull Report is that if something goes wrong, someone is going to get the blame – and it better not be me. And that the best defence against this danger is a document (a risk assessment) in your filing cabinet that demonstrates your prudence.

When I first read the Turnbull Report I noted its requirement for impossible-to-achieve comprehensiveness, its unhelpful lack of specific guidance, and implicit warnings, and described it as "a vacuous, platitudinous document full of menace." Its message was "Be careful, or else!"

Since then I have observed the enormous amount of activity generated under the banner of Turnbull, and now am inclined to describe it as a Rorschach Ink Blot. The Rorschach Ink Blot is a tool used in projective personality tests. The person being tested is shown an ambiguous image (the ink blot) and asked to describe what they see. Different risk managers see different things – they project different risk-management compliance requirements on to Turnbull.

Both Diageo and Cadbury Schweppes have contemplated the Turnbull ink blot

- "An ongoing process, in accordance with the guidance of the Turnbull Committee on internal control has been established for identifying and managing risks faced by the group. … **It should be recognised that such systems can only provide reasonable not absolute assurance against material misstatement or loss**." Diageo Appendix B

- And Cadbury Schweppes has a "Turnbull Rollout Plan" based on its Business Risk Review Process that has identified 122 different types of risk that it is committed to assessing in order to comply with its interpretation of the Turnbull Guidance.

Each of the 122 "types of risk" - ranging from earthquake to fraud - identified as facilitation tools for Cadbury Schweppes' Business Risk Review Process has the potential to spawn numerous risk assessments.

The Diageo caveat that they cannot provide an absolute assurance against misstatement or loss is characteristic of the cautionary notices that are now proliferating everywhere.

A door to a BBC studio. I could not work out a way of exercising the caution that was being urged upon me.

A notice in Russell Square tube station that I pass frequently on my way to College.

A warning printed on Sainsbury's shopping bags. Definitely good advice.

Such notices serve the same purpose as juju charms. The people posting them presumably rely on them to ward off lawyers. I suspect that they are equally efficacious.

• When considering the task of managing risk it is important to be clear about the kind of risk one is dealing with.

• I suggest that it is helpful to distinguish **three categories**

•**Directly perceptible perceptible risk -** eg climbing a tree, riding a bike, driving a car. This category of risk is dealt with instinctively and intuitively. You don't conduct a formal probabilistic risk assessment before you cross the road.

•**Risk perceived through science -** e.g. cholera, you need a microscope to see it and a scientific training to understand what you are looking at. Where historic accident data can plausibly projected into the future, actuarial science can inform risk management

•**Virtual risk -** the scientists just don't know, or reputable scientists disagree. This is the realm of risk culturally constructed. If science cannot settle an issue it is wonderfully liberating - people, including scientists, are freed to argue from their established beliefs, prejudices and superstitions.

A successful risk manager

Risk management is

- a balancing act
- instinctive
- intuitive
- modified by culture

• This is an example of primordial management of a directly perceptible risk

• Anyone who has ever been in the presence of a toddler learning to toddle will be under no illusions about being in the presence of a serious risk managment exercise.

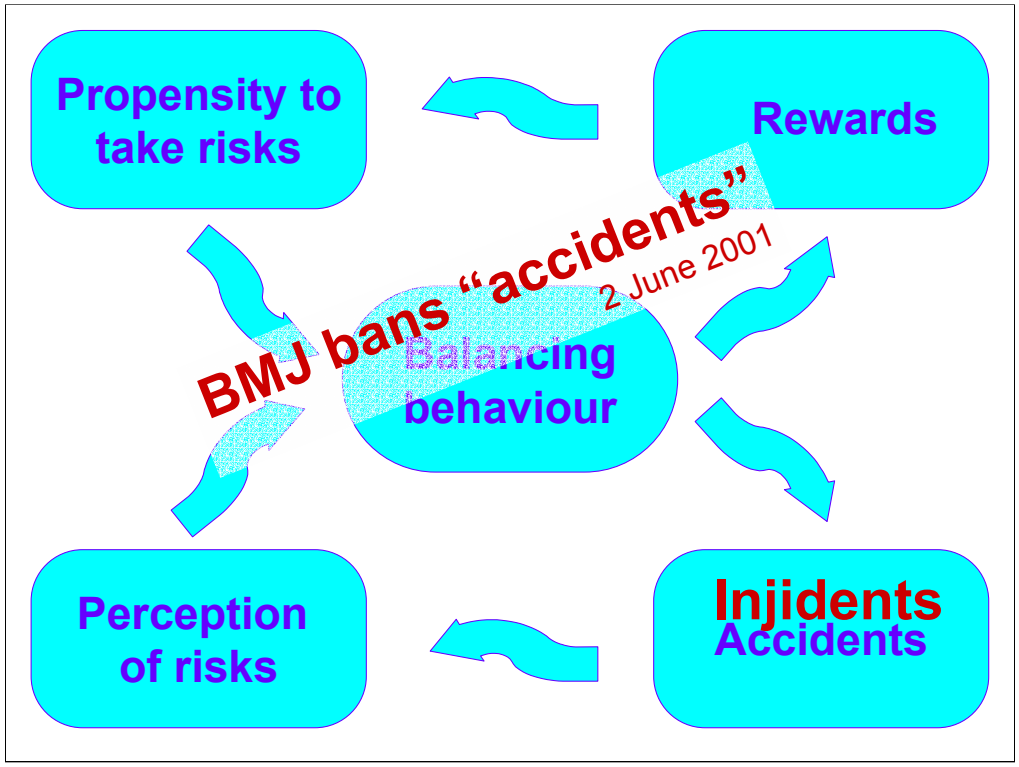
• This picture illustrates a number of attributes of risk management

• **It is a balancing act** - in this case a physical balancing act - but more generally an act in which the rewards of an act are balanced against the potential adverse consequences

• **It is instinctive** - successful risk management has been rewarded by evolution

• **It is intuitive** - we do not undertake a formal probabilistic risk assessment before we cross the road - or toddle across the room

• it is behaviour that is **modified by culture**. This little fellow is clearly performing before an appreciative audience. Desired behaviour is being reinforced.



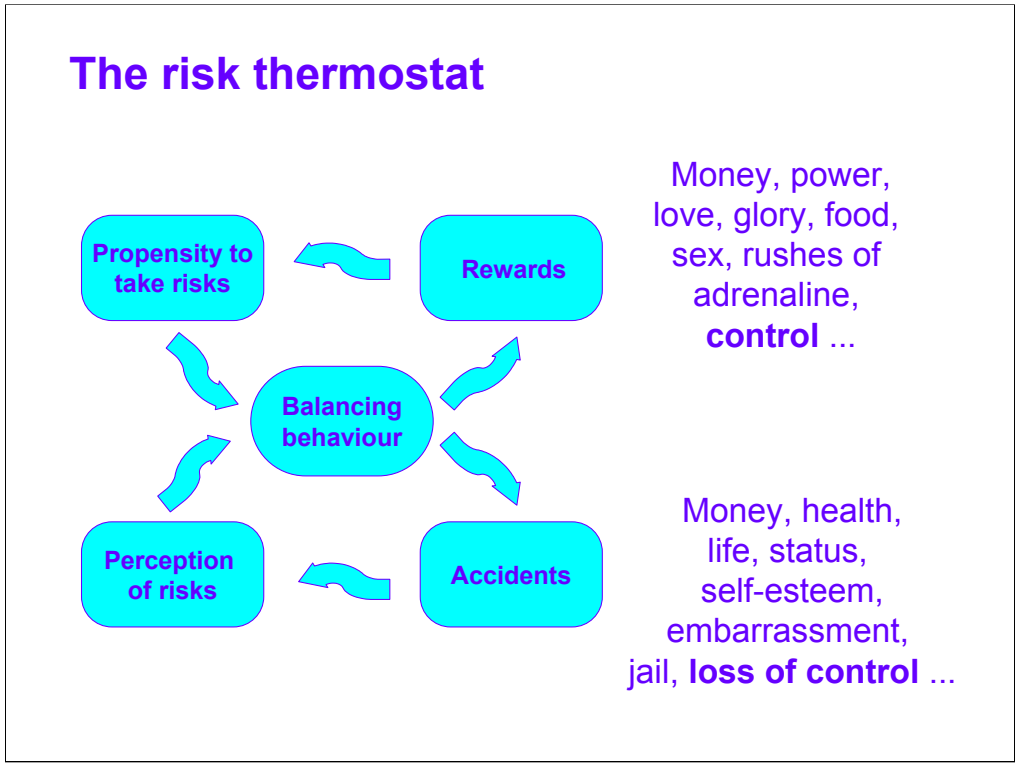
A more abstract version of what is going on in the previous slide.

Managers of railways, or the Navy, or the mental health services, or pharmaceutical companies do not have the option of zero risk - zero accidents. In the real world zero risk is not on offer.

The only way they can achieve zero accidents is by going out of business.

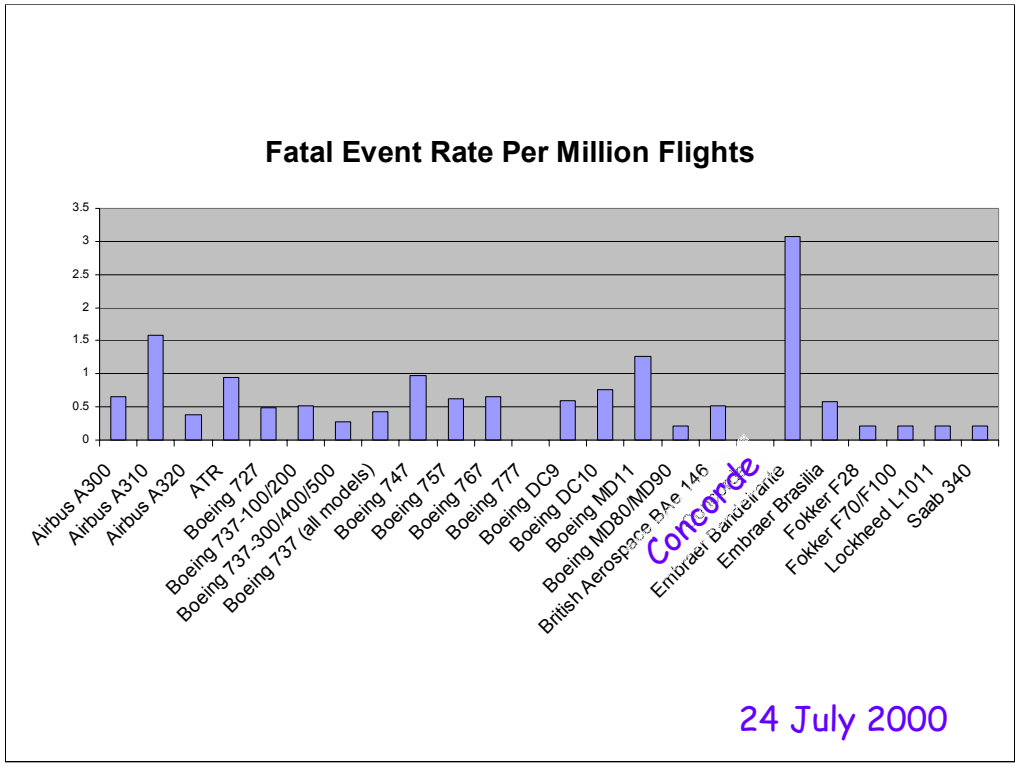
This model of risk management strikes some as an unacceptably radical idea. In June 2001 the BMJ proclaimed in an editorial that henceforth the use of the word "accident" would not be permitted in its pages, saying that the word suggested something unavoidable, "However, most injuries and their precipitating events are predictable and preventable. That is why the BMJ has decided to ban the use of accident."

What word should they use in its place? "The English language may simply fail us here." They suggest "injident" – injury producing incident.



Sadly, for would-be scientific managers of risk, this model is conceptual, not quantitatively operational. The Accident and Reward boxes contain too many incommensurable variables.

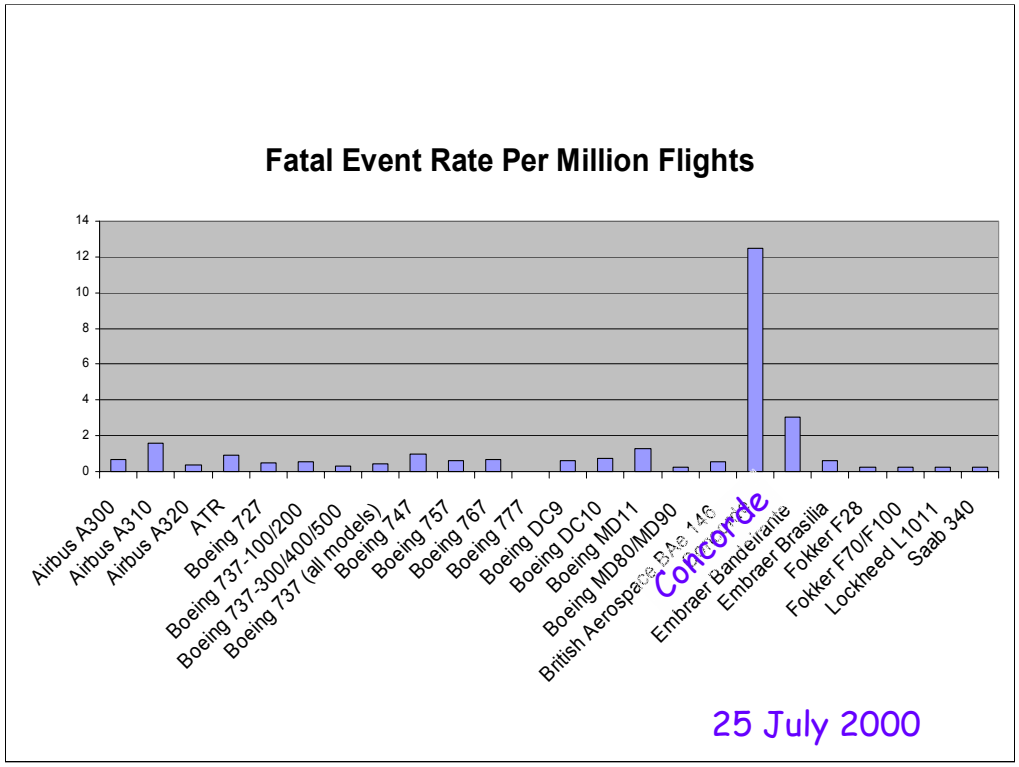
Perhaps the most important variable is whether a risk is seen as voluntary or imposed. This distinction influences enormously the way in which the risks and rewards are perceived. Consider the debate about mobile phones. In this debate the risk associated with the handsets is usually held to range from small to negligible. The radiation dose associated with the base stations is orders of magnitude less – unless one is up the mast with an ear to the transmitter. Yet billions of people are queuing up all around the world to take the (voluntary) handset risk, and almost all the opposition is focused on the base stations which are seen as impositions.



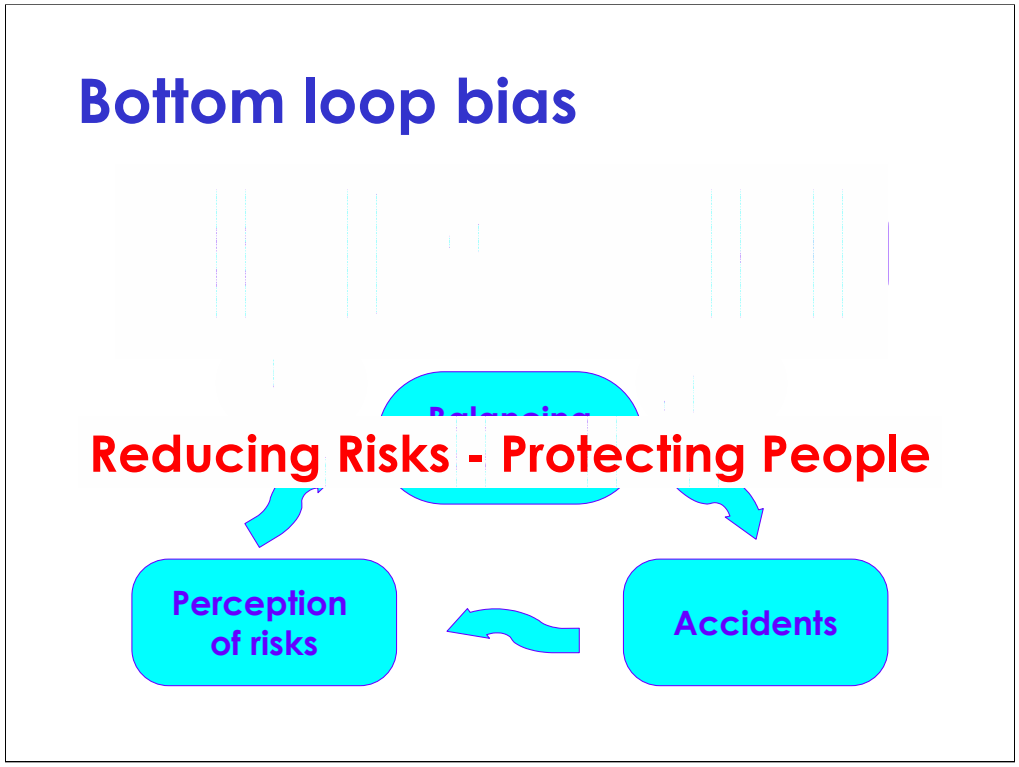
Risk perceived through science

Most scientific/quantitative risk analysis depends on large and stable actuarial data bases. Aside from a relatively small number of examples, such as life insurance or motor vehicle insurance, these data bases do not exist.

Consider the suddenness with which Concorde went from being one of the world's safest planes to the most dangerous.



25 July 2000 was the day of the Concorde crash in Paris.



Institutional risk management.

Two prominent features of most institutional risk management are

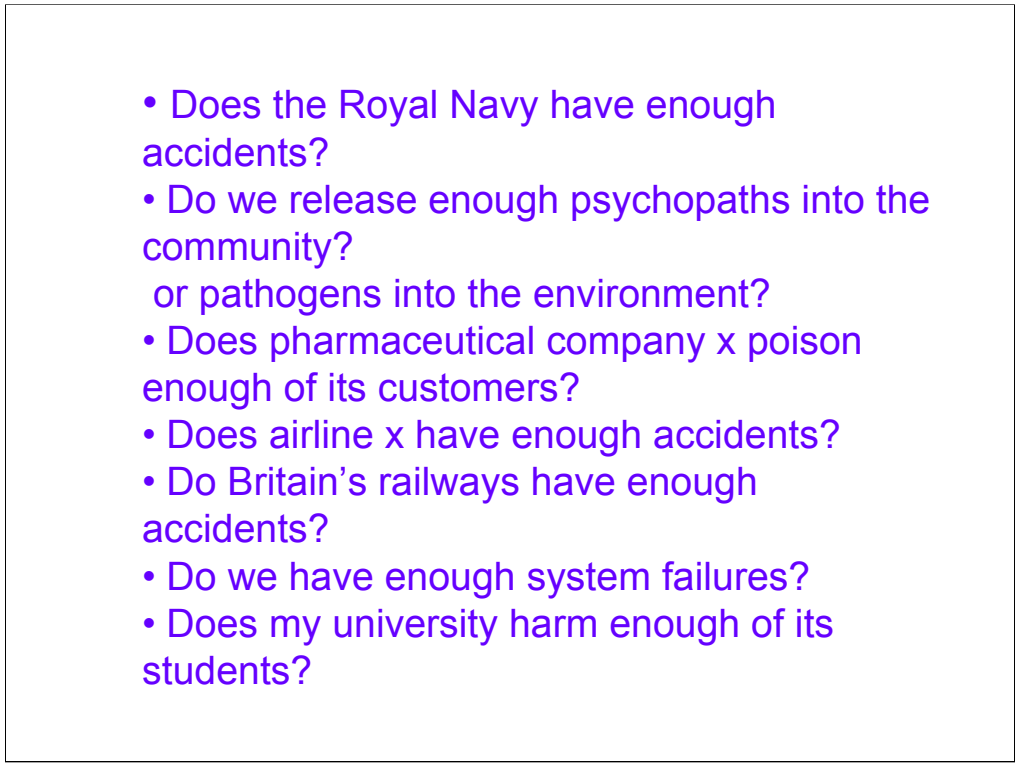
•It strives for "objectivity" – which, as we shall see, it usually strives for in vain, and

•It suffers from "bottom-loop bias"

If I am crossing the road to catch an approaching bus I perform the risk management balancing act in my head. The gaps in traffic that I will risk depend on how urgently I want to catch the bus – will I be late for dinner? – and how fearful I am of being hit.

When risk management becomes institutionalised the specification of the risk manager's job usually focuses solely on risk reduction. Judgements about what is safe or dangerous – they are told – should not be corrupted by contemplation of the rewards of risk taking.

"Reducing Risks – Protecting People" is the mantra of the Health and Safety Executive – Britain's pre-eminent risk manager.



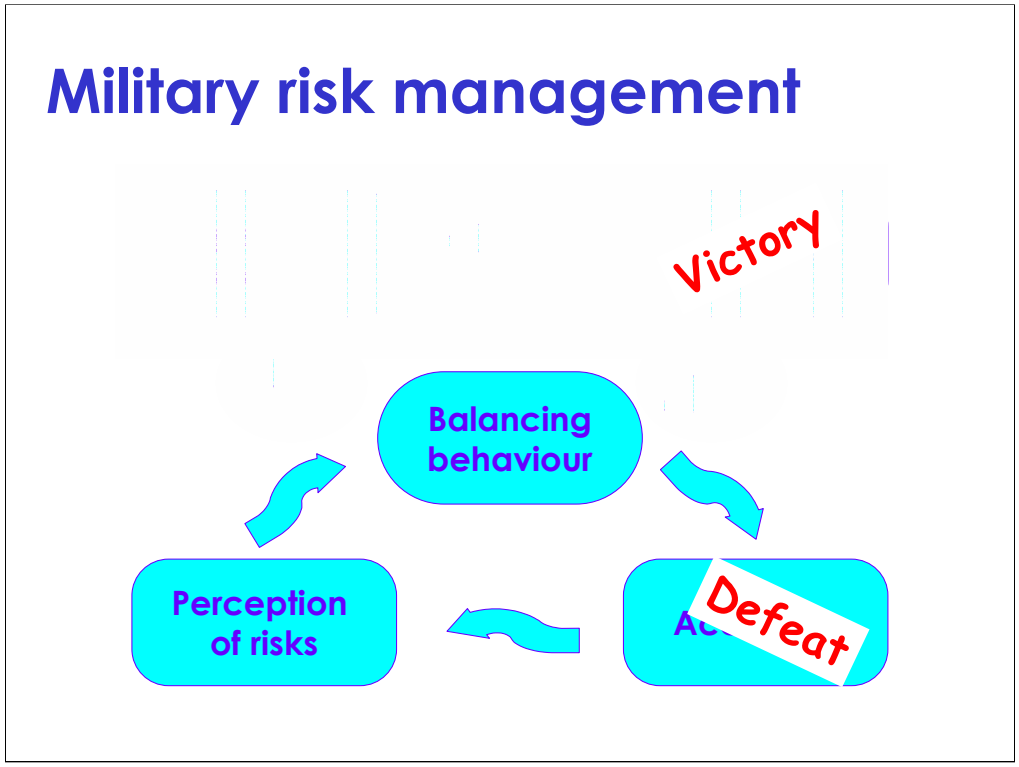
I have given a version of this talk to a variety of audiences at conferences and workshops. In it I explore the costs of excessive risk aversion. Depending on the audience, different questions have been posed.

These questions all call attention to a neglected aspect of risk management – the costs of excessive risk aversion.

A navy that seriously aspired to zero risk would not be a credible fighting force.

If those responsible for the treatment of DPSDs (people with Dangerous and Severe Personality Disorders) were determined never to run the risk of releasing a dangerous person, they would keep locked up many harmless people.

etc



In civilian life too it is important not to lose sight of the larger objective – especially when confronting virtual risks.

For subsequent workshops for the Navy I revised my slide describing bottom loop bias.

A virtual risk: vCJD from BSE?

"I have worked in this field for 25 years … did I go out and eat lamb chops, did I go out and eat lamb brain, sheep brain? The answer was 'no', but it was not based on scientific criteria, it was based on just emotion. … At a scientific level I cannot give you a scientific basis for choosing or not choosing beef, because we do not know the answers."

Nobel Laureate Stanley Prusiner

BSE Inquiry, 6 June 1998 *(www.bse.org.uk)*

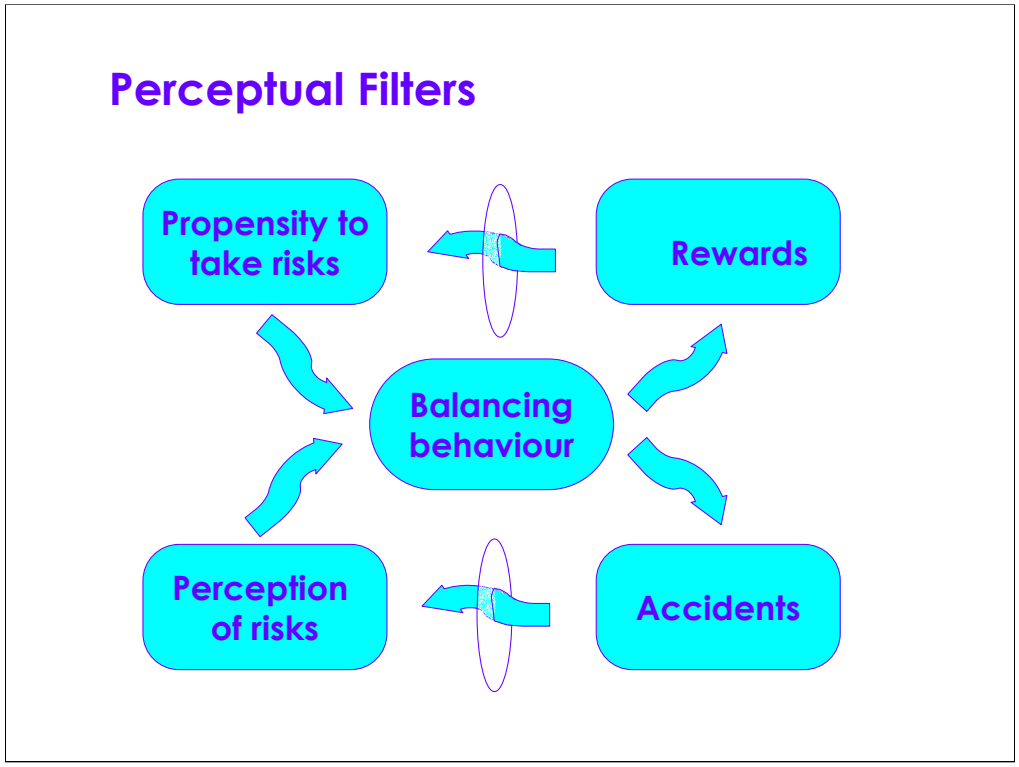
Virtual risk – an example

•Stanley Prusiner, by virtue of his Nobel prize for his work on prions, arguably outranks all the other scientists in the debate about BSE and vCJD.

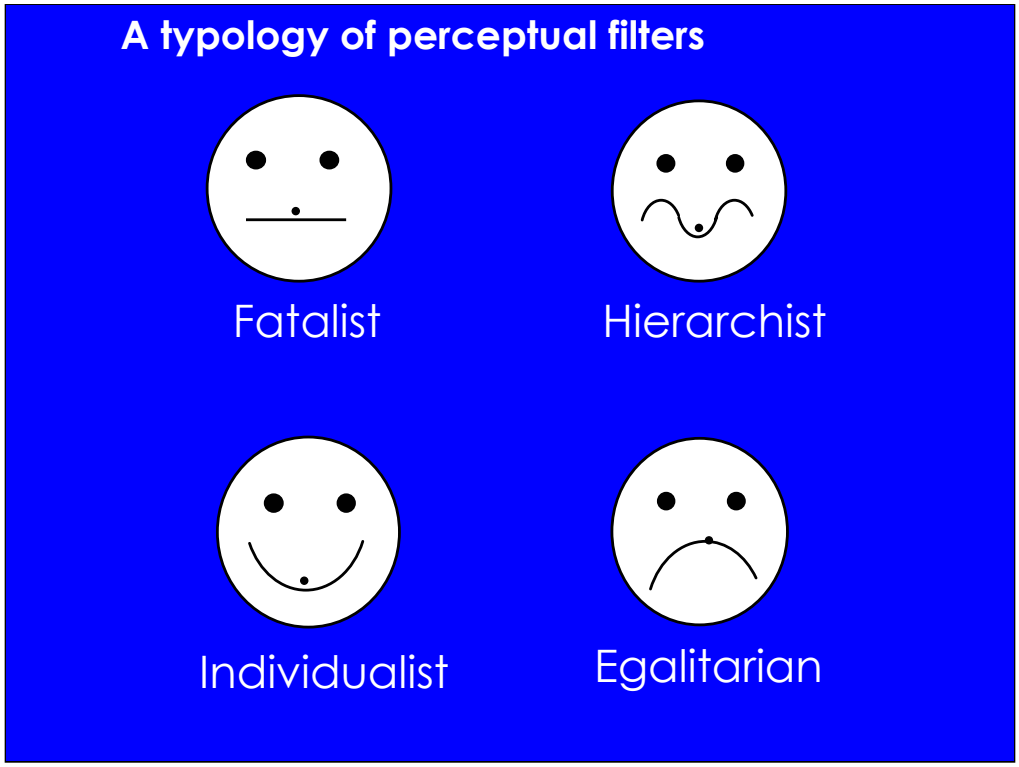
•In his evidence to the Government's BSE inquiry he declared himself unconvinced by the evidence so far produced that a connection had been established between BSE and vCJD.

•He was asked if he had changed his diet since learning of BSE. This is what he said.

•For me, that fact that he has been unable to establish a connection after 25 years looking is reason enough to put it a long way down my personal list of things to worry about. For Prusiner, the possibility seems to be reason enough not to eat lamb.



Prusiner's risk thermostat and mine have different perceptual filters. The weaker the scientific understanding of a risk the greater becomes the influence of these filters.



• These are caricatures, but nevertheless recognizable types that one encounters in debates about threats to the environment. With a little imagination you can begin to see them as personalities.

•The **individualist** - optimistic, confident, pragmatic - a gambler because you are likely to win more than you lose. Not much concerned about threats to the environment. Believes in devolved *individual responsibility* for risk management. **If you can't prove it's dangerous, assume it's safe.**

•The **egalitarian** - or environmentalist - treads lightly on the earth and invokes the precautionary principle at every turn. **If you can't prove it's safe assume it's dangerous.**

•**Fatalists** - have little control over their lives - ***que sera sera***

•**Hierarchist -** here we find the institutional risk managers; big business, big government, big bureaucracy. They employ all the people in white coats to work out where the critical thresholds lie, and economists to devise optimal strategies for living within them.

• The **Hierarchist** sees nature as something to be exploited for his benefit; the **Egalitarian** sees nature as something to be obeyed and respected and interfered with as little as possible; the **Hierarchist** sees risk as a management problem. And the **fatalist** ducks if he sees something about to hit him

• They are certainly recognisable in the debate about BSE. Lets look at a few examples in the form of quotations that I have abstracted from the debate.

Egalitarian

- Feeding dead sheep to cattle, or dead cattle to sheep, is “unatural” and “perverted”.
- “It is the full story of the beginnings of an apocalyptic phenomenon.”
- “Great epidemics are warning signs, symptoms of disease in society itself.”

• The egalitarian sees BSE as punishment for unnatural, hubristic methods of industrial agriculture.

• The last two quotations come from the foreword to Richard Lacey’s book on BSE

• The problem is embedded in an apocalyptic societal context.

• **If you cannot prove beef is safe, assume it is dangerous.**

Individualist

- "The precautionary principle is favoured by environmental extremists and health fanatics. They feed off the lack of scientific evidence and use it to promote fear of the unknown."
- "It is clear to all of us who believe in the invisible hand of the market place that interference by the calamity-promoting pushers of the precautionary principle is not only hurtful but unnecessary."

• The individualist views industrial agriculture as a boon to mankind, and CJD as an extremely rare disease whose connection with BSE is unproven.

• Hostile to regulation. Publish everything you know and let the shopper decide.

• **If you cannot prove beef is dangerous, assume it is safe.**

Hierarchist

- "We require public policy to be in the hands of elected politicians. Passing responsibility to scientists can only undermine confidence in politics and science."
- "I have not got a scientific opinion worth listening to. My job is simply to make certain that the evidence is drawn to the attention of the public and the Government does what we are told is necessary."

• In the case of BSE the hierarchy lost control and was acutely embarrassed.

• BSE and vCJD became hot potatoes, to be passed on to someone else as quickly as possible.

• The first quotation is from a scientist.

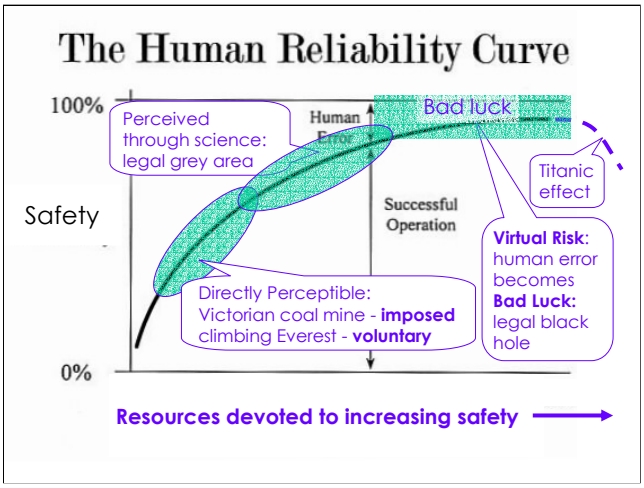
•The second quotation is Stephen Dorrel explaining to Parliament that he was only obeying orders.

Fatalist

"They should shoot the scientists, not cull the calves. Nobody seems to know what is going on."

- "**Charles won't pay for Diana's briefs**" Main headline in *The Sun* on 21.3.96, the day every other newspaper in the country led with the BSE story

- A dairy farmer on the verge of bankruptcy.
- The Sun is **the** fatalists' newspaper it knows what is truly important.



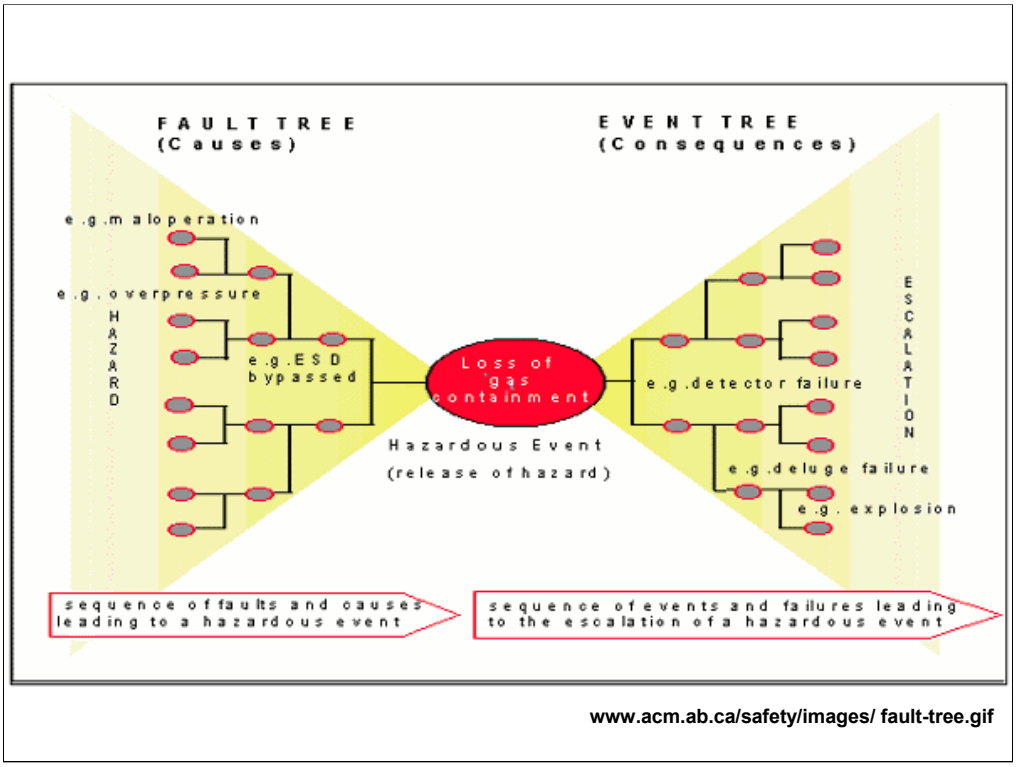
This graph has been taken from the risk management manual of a major airline. It can be elaborated to illustrate the different types of risk that I have introduced.

•It proposes, plausibly, that no matter how much is spent in pursuit of safety, 100% safety is not attainable. Yet, labelling the area above the curve "human error" suggests that whenever something goes wrong it must be someone's fault.

• My embellishment of the curve suggests that however many fool-proof and fail-safe devices are provided, so long as there is a residual dependence on human vigilance and common sense, the curve might turn down. The "Titanic Effect" refers to the problem of over-confidence in technological safety measures.

• The smoothness and precision of the curve implies an unrealistic degree of accuracy and objectivity with respect to the safety response achievable with safety measures. In practice the response is usually highly uncertain.

• Questioning people within any institution commonly reveals a wide range of disagreement about where on the curve the institution lies.



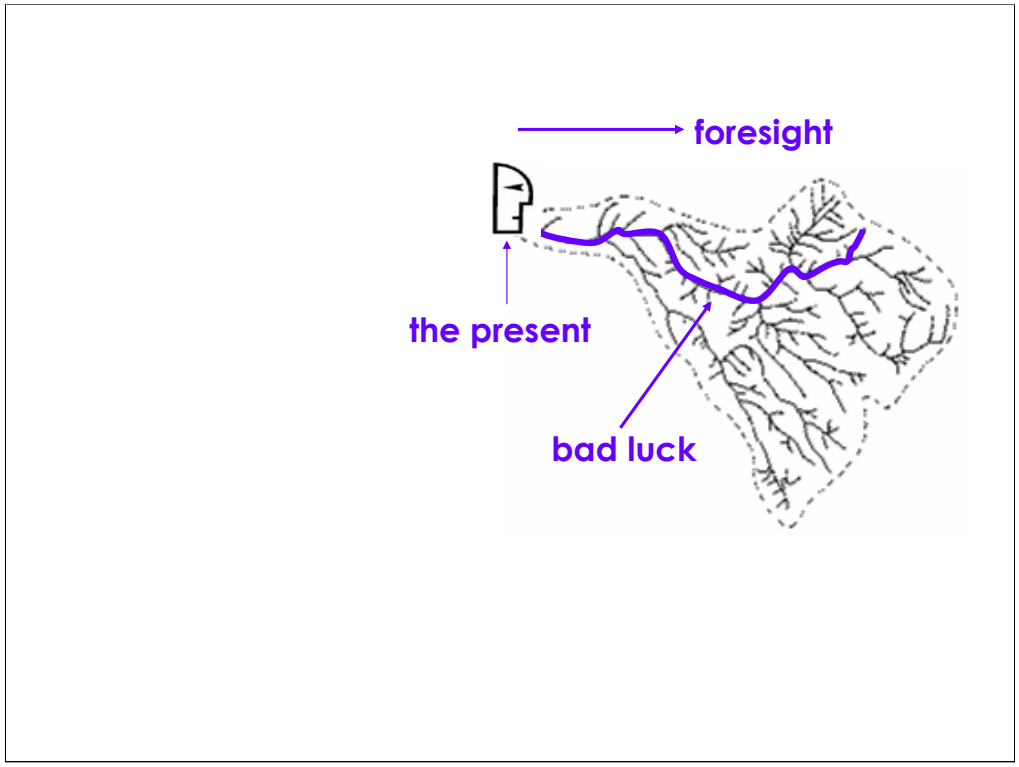
www.acm.ab.ca/safety/images/ fault-tree.gif

Fault trees and event trees are favourite tools in the quantitative risk assessor's tool box.

They set out clearly and systematically what is known about particular risks.

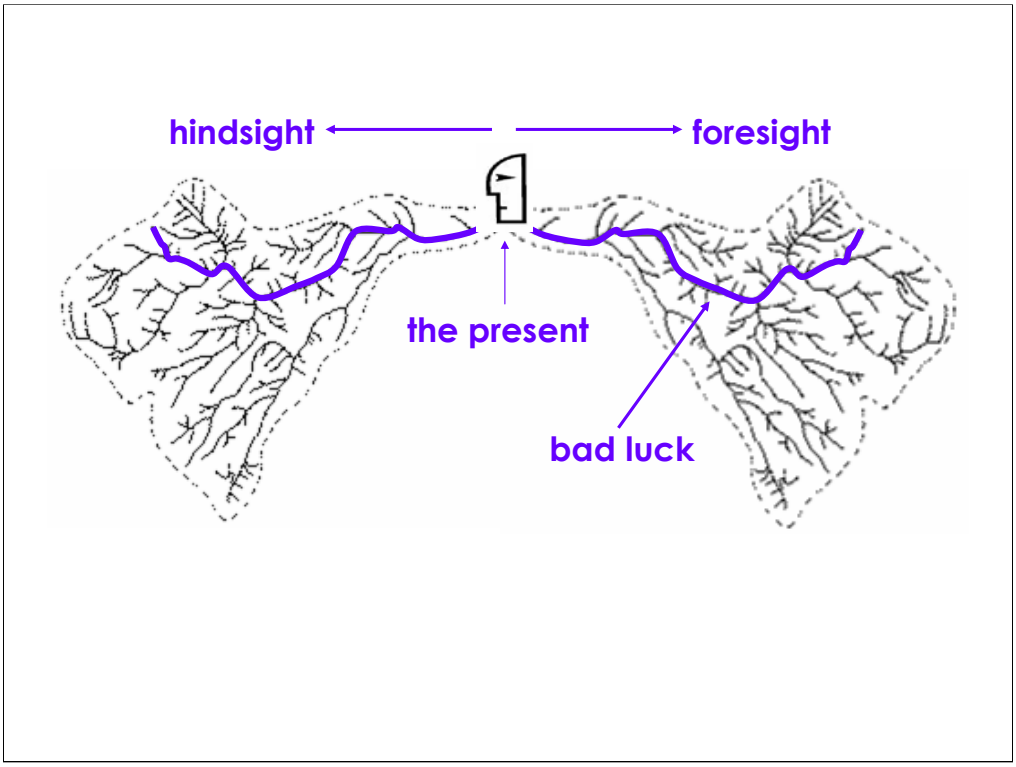
They can be a useful first step in setting out what you think you know – so long as you are not seduced by the probabilities on the right-hand side of the page. The Channel tunnel fire that closed the tunnel for six months shortly after it opened should have happened, according to the event tree analysis produced for the project's safety assessment, about once every 100 thousand years.

The problem with event trees is that they are simplistic. They require feeding with probabilities that are often wild guesses. The real world is infinitely more complicated.

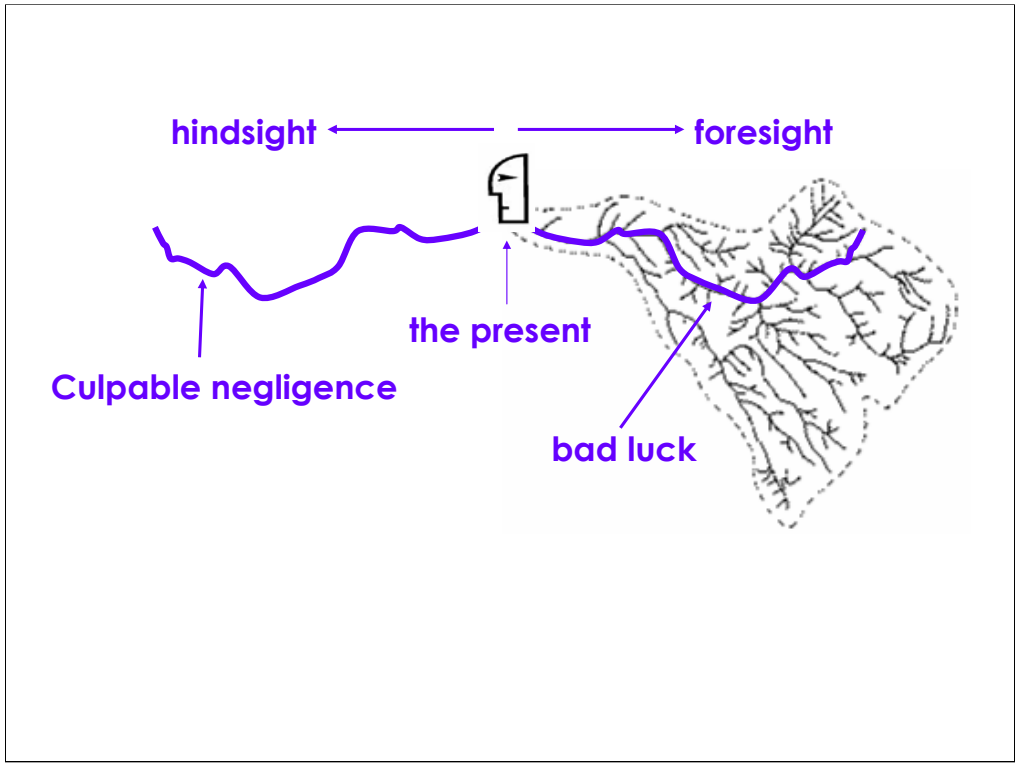


Nevertheless they can serve as a useful metaphor for the way in which we cope with risk. We peer into the future through the dense foliage of the real-world event tree and, if we think we see a risk worth taking, we go for it.

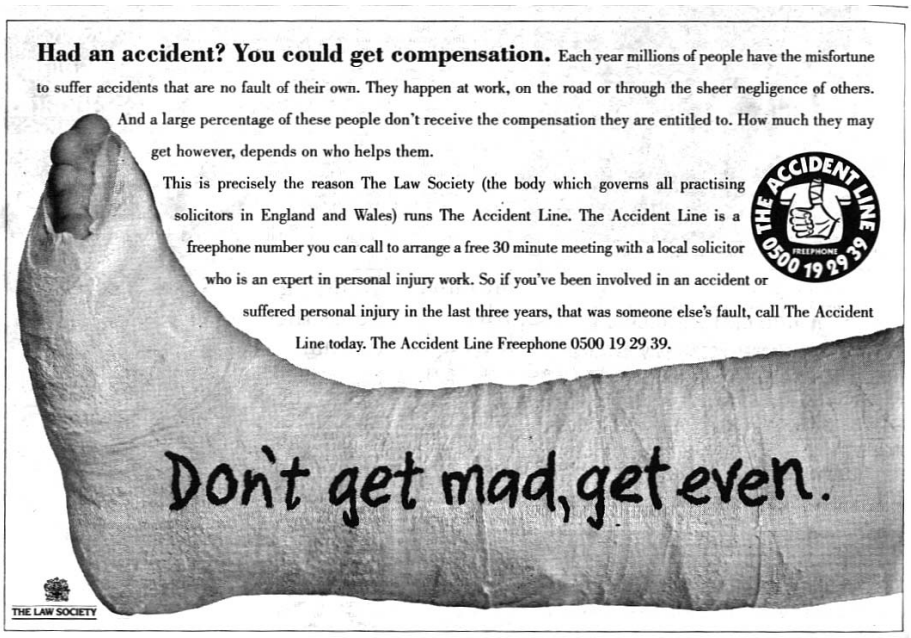
But occasionally something nasty that we perceived as a highly unlikely event happens. We are victims of bad luck.



But our bad luck, with the benefit of hindsight, looks very different. Hindsight transforms the event tree into a fault tree.

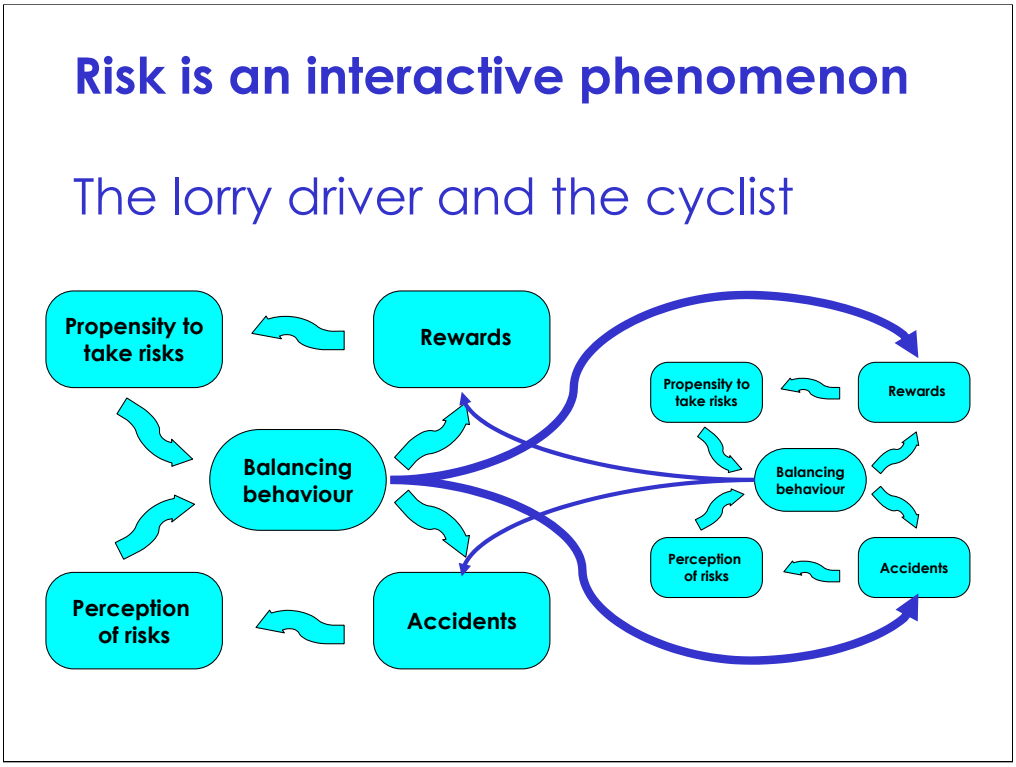


We end up in court confronted by a QC armed with a machete that he uses to chop away all the other branches of the fault tree. He leave only one branch that leads back to the original stupidity, and what looked like a risk worth taking becomes culpable negligence.

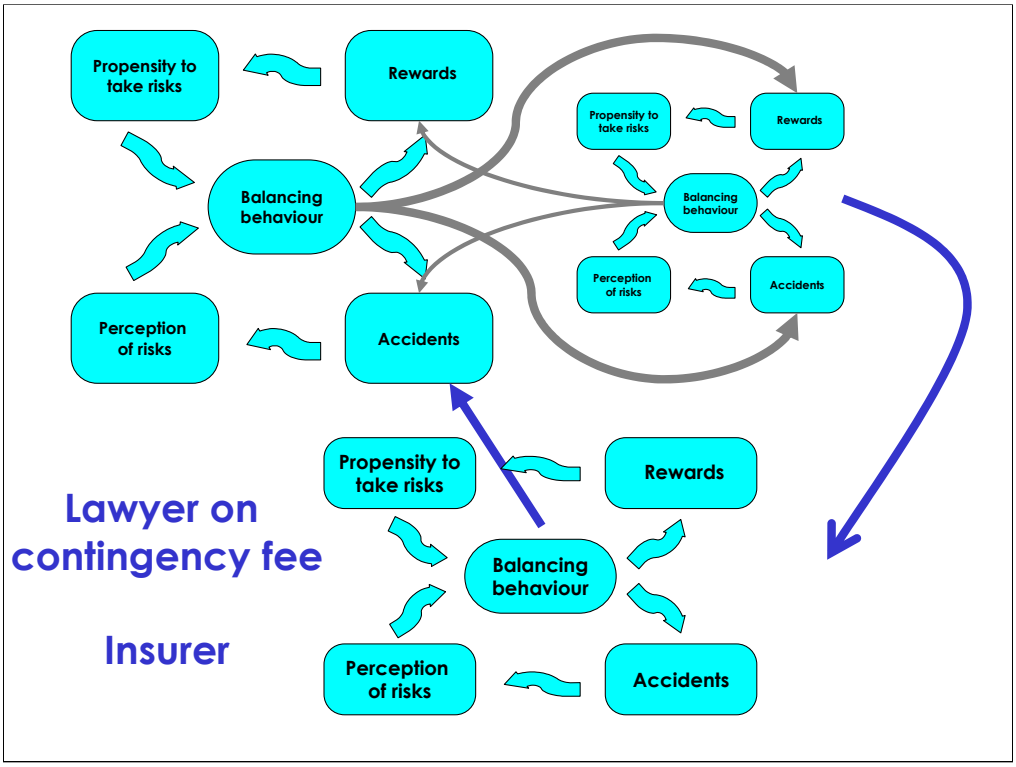


The Evening Standard, 3 March 2000

The growing blame culture is accompanied by, and encouraged by, a growing culture of litigation and compensation. This is an advertisement that was placed in the national press not by a back-street, ambulance-chasing firm of solicitors, but by the Law Society.



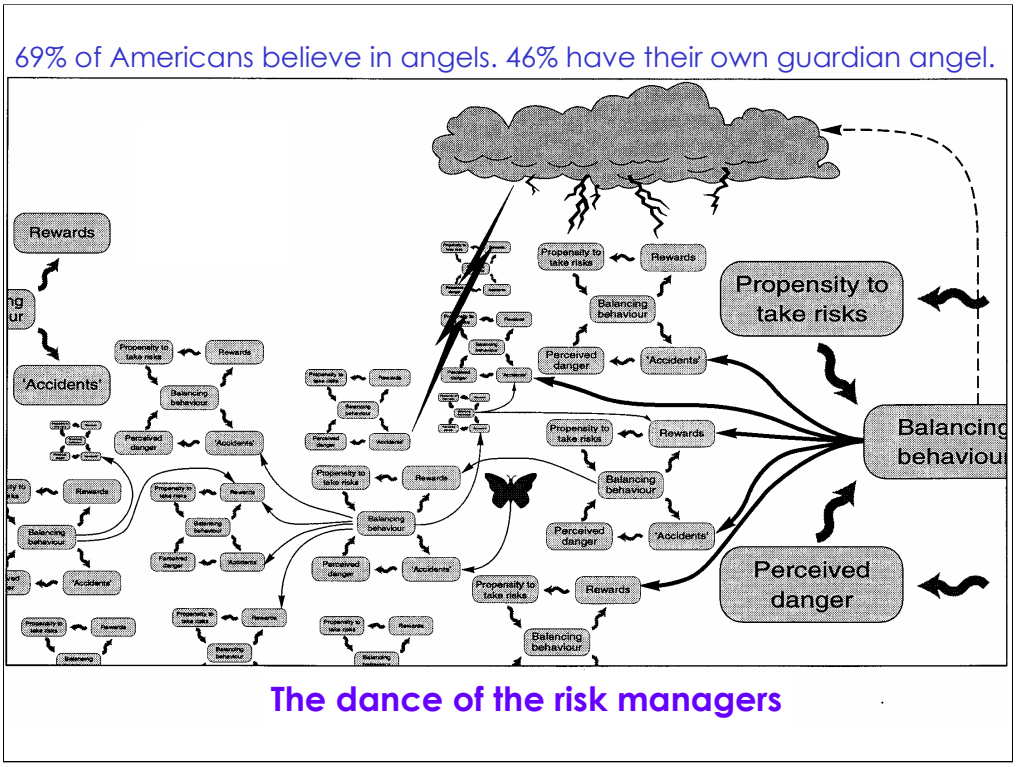
Risk is a reflexive phenomenon - our behaviour changes our environment and our environment affects our behaviour.



Increasingly important actors in this reflexive world are the lawyer and the insurer.

Most (all?) of the increased demand for risk assessments appears to be driven by the fear of having a legal accident. The perceived risk of legal liability for failure to comply with nebulously framed regulations is creating a new style of management with its own acronym APM (Ass Protection Mode).

The risk assessments generated by this style of management have little to do with reducing accidents, and everything to do with ensuring that when the music stops the manager has a chair.



The world now contains more than 6 billion risk managers.

They range form presidents with fingers on buttons to little children chasing balls across streets. And they interact with each other, commonly in ways that the actuaries have not captured.

The risk managers' problem is further complicated by natural hazards that are difficult/impossible to predict (earthquake and flooding are two risk types identified by Cadbury Schweppes) and by the Beijing Butterfly who flutters about leaving chaos in its wake.

A further, increasingly important complication, is the role of God. When I first produced this diagram, after discovering an opinion poll that revealed that 69% of Americans believed in angels I added one as a joke. The joke now seems less funny.

American pilots in prayer as they take off for a mission – the troops all pray that the same faces will return

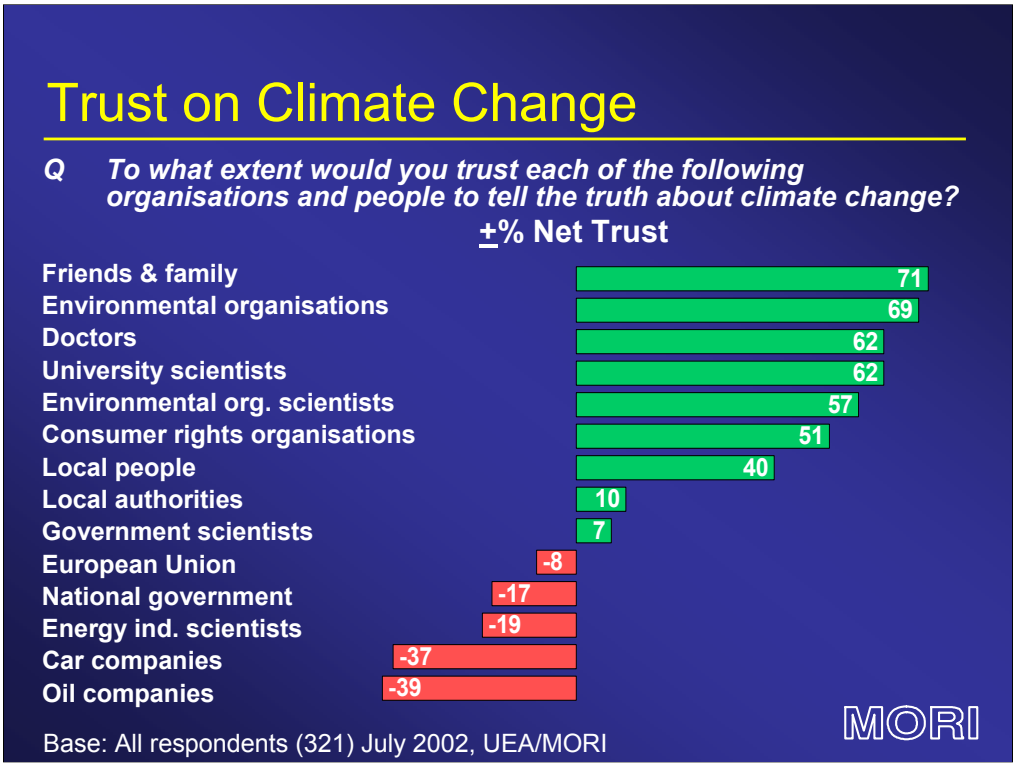
AK47 rifles resting on his prayer mat

Conflicting views about whose side God is on appear likely to pose increasingly difficult problems for the risk managers of large multi-national companies.

The importance of trust

In the presence of virtual risk what one believes depends on whom one believes and whom one believe depends on whom one trusts.

For government and big business the message from opinion polls is worrying. They are the generators and the regulators of the big risks, and command very low levels of trust.



While the most trusted to tell the truth (or not lie) are those least likely to have access to reliable information. This negative correlation between knowledge and trust is helping to fuel the paranoia that greets every new virtual risk.

After Turnbull comes Higgs

Guidance on the implementation of the Guidance

- The board is **collectively responsible**
- The board's role is to provide … **effective controls** which enable risk to be assessed and managed.
- induction [of new directors] should cover … the company's **major risks** and risk management strategy,
- Non-executive directors should satisfy themselves that they have **appropriate information** of **sufficient quality** to make sound judgements
- Non-executive directors should **satisfy themselves** that systems of risk management are **robust and defensible**;
- Non-executive directors must **constantly seek** to establish and maintain their own **confidence** in … the **adequacy** of financial controls and risk management
- The review should [at least annually] cover **all** controls, including … risk management.
- [The annual evaluation of the board should ask] What has been the board's contribution to ensuring **robust and effective** risk management?
- [The annual **performance evaluation** of the non-executive director should ask] What has been their contribution to development of strategy and to risk management?

The Higgs Report, Like the Turnbull Report, is a Rorschach Ink Blot.

Both might be described as paranoid responses to this paranoia.

Although purporting to offer guidance about how to manage risk, they are themselves virtual risks.

Reactions to them reveal the perceptual filter through which they are perceived.

Turnbull and Higgs are essentially hierarchist exercises.
Compliance with the rules is the hierarchist's first duty.
Occasionally, if things are not running smoothly, it may be necessary to revise the rules.

The egalitarian seeks justice for the little people – all those who have been mis-sold pensions or been ripped-off by the corporate fat cats. They will be generally supportive, while arguing that the proposed reforms do not go far enough.

- "a corporate joke"
- Views I received in response to consultation generally argued that the risk-rewar[…] alance was becoming less favourable a[…] rinciple **non-executive director**[…], particularly as the tim[…] asing.
- simply e[…] insurance, while it **m**[…]**e of directors**, w[…]k and paradoxic[…] re would be **more to gai**[…]**king action against directors**.

Non-execs spurn Higgs

By Antonia Senior

ONE in two non-executive directors will not seek reappointment if the Higgs proposals into the structure of British boardrooms become binding, a study has found.

A survey of non-executive directors at FTSE 250 companies found that 70 per cent of non-executives do not want to see the recommendations by Derek Higgs implemented without substantial changes.

The survey, commissioned by Norton Rose, the City law firm, raised fears that Mr Higgs's intention to "widen the gene pool" of non-executive directors could backfire if people are reluctant to accept the role. The non-executives are concerned that the Higgs code would force them to become "corporate policemen".

The growing evidence that non-executives are as reluctant as executive directors to accept the Higgs proposals will fuel a rift between shareholders and companies over the proposed corporate governance code.

The National Association of Pension Funds, meanwhile, urged the Financial Reporting Council to "stand firm" on implementing Higgs. But the CBI, a vocal critic of the Higgs review, said that the code needed redrafting and recommended a series of changes. It called for company chairmen to retain the right to head the nominations committee.

More than half the non-executive directors surveyed by Norton Rose said that the proposed enhanced role for senior independent directors would lead to a split in board unity.

Times 17.04.03

The Government is sensitive to its lack-of-trust problem and anxious about what to do about it. It has commissioned an ink blot by the Cabinet Office Strategy Unit that appears likely to rival Turnbull and Higgs in its potential to generate unhelpful APM risk assessments.

Three conclusions for risk managers

Whether you see yourself as an individualist, hierarchist or egalitarian

1. Guard your reputation zealously. Trust is quickly and easily lost and slowly and laboriously gained,
2. Keep track of what you are spending on safety – include "opportunity costs" – and ask what you are getting for it, and
3. Occasionally, if you are on the flat part of the curve, be a fatalist and

try turning your back on a fence

Some references

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Risk, John Adams, available from Amazon

Sars
a very expensive virtual risk

A notifiable disease?
What should be notifiable? What is Sars?
CDC website describes it as a “respiratory illness of unknown etiology” and defines a probable case as “pneumonia or respiratory distress syndrome without an identifiable cause” AND in someone who within 10 days of onset of symptoms has been in an area with “documented or suspected community transmission of Sars”.
The coronavirus? - cannot be found in 60% of Canadian "Sars cases" and has been found in healthy controls. And that the average of death of Canadian Sars victims is 74. Sars appears like other forms of pneumonia to kill mostly the old and vulnerable.
Frank Plummer, the man who did the Canadian research says “I think everyone is under huge pressure to get stuff out, and the journals are bugging people for papers. And some people are slapping things together. My position is I remain to be convinced.”

Last Sunday Britain's "5th Sars case" was interviewed on Radio 4 and said that after 9 days in hospital she had been discharged without the diagnosis having been confirmed.

Of the 31678 fatalities attributed to pneumonia in Britain in 2001 31351 (99%) were described as "Pneumonia, organism unspecified". It remains unclear to me what specific symptoms are supposed distinguish Sars from all the other non-specific pneumonias. If Sars is nothing more than pneumonia plus contact history, but there is no agreed set of symptoms for classifying the up-stream contacts, then the basis for the fears currently doing such enormous economic damage appears rather elusive.

Tailpiece if time