Risk management and the limitations of measurement

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> "William cooked a hotdog for his lunch on a gas burner. It could not be cooked over a campfire because this has been banned under health and safety regulations." *Times* 29 July 2007, article on visit of Prince William to Scout Jamboree.

Risk, everywhere and however small, must now be managed. It is widely acknowledged at the highest level that it is not being done well. Tony Blair when Prime Minister observed that

> "We are in danger of having a wholly disproportionate attitude to the risks we should expect to run as a normal part of life"[1]

Bill Callaghan, head of Britain's Health and Safety Commission, is also unhappy:

> "I'm sick and tired of hearing that 'health and safety' is stopping people doing worthwhile and enjoyable things when at the same time others are suffering real harm and even death as a result of mismanagement at work ... [People should] focus on real risks – those that cause real harm and suffering – and stop concentrating effort on trivial risks and petty health and safety."[2]

This sentiment shared by Rick Haythornthwaite, Chair of the Better Regulation Commission:

> "Enough is enough – It is time to turn the tide"[3]

Gordon Brown is also concerned. On June 28 2007, the day after he became Prime Minister he announced:

> "The Government believes that policy making would benefit considerably from a fuller and more rounded consideration of public risk. I have asked the Better Regulation Commission, building on its report 'Risk, Responsibility and Regulation', to devise a structure and approach that ensures that this ambition is embedded in real policy action, even when facing pressures to react to events."

So what is it that is to be managed? And how? And by whom? "Risk" typed into Google is rewarded with hundreds of millions of hits. A bit of sampling discovers numerous unnecessary and often acrimonious arguments amongst people attaching different meanings to the same word, "risk", and shouting past each other. The Venn diagram in Figure 1 can help to clear away some of the confusion.

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[1] Tony Blair, Future Challenges: Living with risk, May 2005, IPPR, http://www.ippr.org/events/archive.asp?id=1497&fID=44

[2] Bill Callaghan, Chair of the Health and Safety Commission - 22 August 2006 http://www.hse.gov.uk/press/2006/c06021.htm

[3] Rick Haythornthwaite, "whose Risk is it Anyway? Better Regulation Commission, October 2006 http://www.brc.gov.uk/upload/assets/www.brc.gov.uk/risk_res_reg.pdf

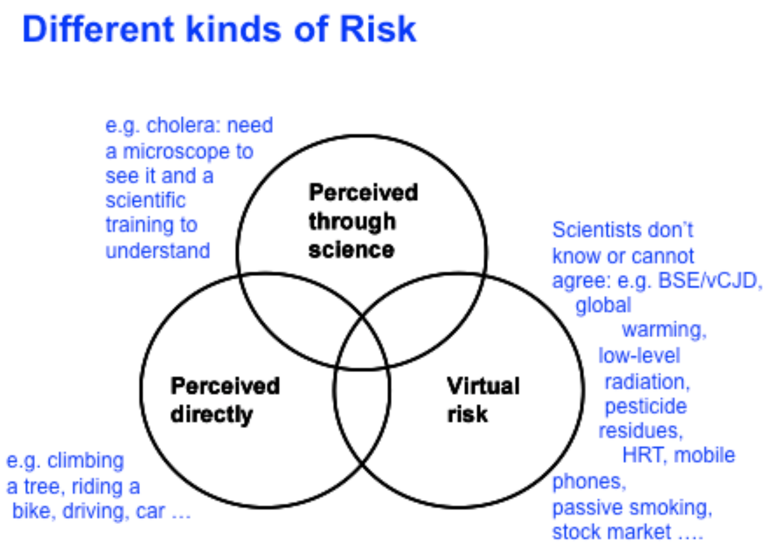
What is to be managed?

First there are *directly perceptible risks* that we all manage in our everyday lives using *judgement*. We do not attempt a formal probabilistic risk assessment before we try to cross the street. Some combination of instinct, intuition and experience usually gets us safely to the other side.

The next circle, *risk perceived through science*, dominates the realm of institutional risk management. Here we find scientists with microscopes, telescopes and computers; and analysts – epidemiologists, statisticians, actuaries, and people who combine all these attributes called risk managers.

The third circle, *virtual risk*, involves everyone. In this circle, as in the first, we are thrown back on judgement – instinct, intuition and experience. If science cannot settle an issue, people are liberated, both individuals and institutional risk managers, to argue from, and act upon, beliefs, convictions, prejudices or superstitions.

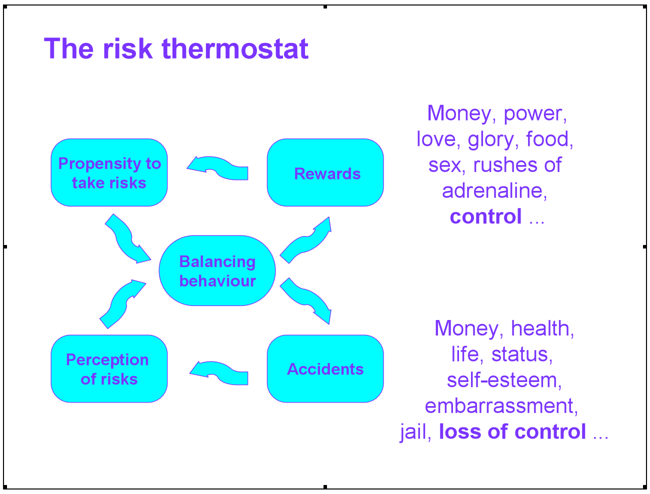
Figure 1



And how?

Figure 2 presents the *Risk Thermostat*. Every risk manager has a propensity to take risks. This propensity might be likened to the setting of a thermostat. A propensity to take risks leads to risk taking behaviour, which leads, by definition, to accidents (lower right hand corner): to take a risk is to do something that has a probability of an adverse outcome. Through surviving non-fatal accidents, reading about them, seeing them on television, or being warned by mother we acquire a perception of risk (lower left hand corner). The model postulates that an imbalance between rewards and perceptions leads to behaviour that seeks to restore the balance.

Figure 2.



And why do we take risks? There are rewards (top right hand corner). And the magnitude of the reward influences the propensity to take risks.

This process, known as *risk compensation* is described at length elsewhere[4]. Two important features of the process described by Figure 2 should be noted here. First, in the real world accidents are inevitable. The only way to get accidents down to zero, is to get risk taking down to zero, and that precludes the possibility of rewards. Second, it is a conceptual model not an operational one into which numbers can be fed to produce decisions. The “balancing behaviour” in the model is a form of cost-benefit analysis without the £signs and frequently without numbers. The “rewards” and “accidents” come in too many incommensurable forms. “Control” and “loss of control” are emphasised because whether a risk is seen as voluntary or imposed has a powerful influence on the individual risk manager’s perception of its significance.[5]

And by whom?

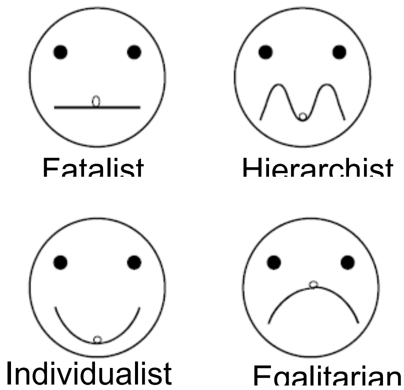
Different people, and different institutional risk managers, vary in their perceptions of the dangers and the rewards of risk taking. If I am late for dinner and see my bus approaching on the other side of the road, for the reward of catching the bus I will risk shorter gaps in the traffic when crossing the road. But the institutional risk manager’s job is usually specified in a way that prohibits contemplation of the rewards of risk taking. The institutional risk manager’s job specification usually requires him to reduce risk; his judgements about safety and danger must not be compromised by, or corrupted by, contemplation of the rewards of risk.

[4] See *Risk*, J. Adams, UCL Press 1995.
[5] See “7/7: *What* kills you matters – *not* numbers ”, Social Affairs Unit, http://www.socialaffairsunit.org.uk/blog/archives/000512.php

Institutional risk managers hence commonly display “bottom loop bias” They try to make it more difficult for me to dodge traffic in order to catch my bus by installing pedestrian railings. And in London they have banished the open-platform Routemaster bus, that used to offer me the chance of running and leaping aboard if I really didn’t want to be late for dinner.

We are all risk managers and we vary in our perceptions of the dangers and rewards that govern our risk-taking behaviour. Figure 3 presents a cartoon version of a typology of perceptions that has been more fully described elsewhere[6]. It can help to locate many of the participants in debates about risk, and to shed some light on the drivers of the current epidemic of excessive risk aversion highlighted at the beginning of this essay. It has been variously called a “typology of rationalities”, a “typology of social solidarities”, a “typology of perceptual filters” and “a typology of ethical filters”. [7]

Figure 3. A Typology of Risk Perceptions



Egalitarians in many risk debates are environmentalists, urging us to obey and respect nature and tread lightly upon it. They advocate the precautionary principle, and insist that if you cannot prove something is safe you should assume it’s dangerous. They tend to focus on the bottom loop of Figure 2.

Individualists are much more optimistic – if you can’t prove it’s dangerous assume it’s safe. They tend to be top loopers, focused on the rewards of risk taking. In this quadrant we find hedge fund managers, racing car drivers, CEOs of profitable companies and gamblers. They expect to win more than they lose.

Fatalists, perhaps most of people most of the time, have little control over the forces that buffet their lives: single mothers on welfare, asylum seekers and inhabitants of refugee camps, and the growing numbers who don’t bother to vote because the Government always gets in and never does anything for them. Their risk

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6 See J. Adams, “Risk and Morality: three framing devices”, Chapter 4, in Risk and Morality, Richard Ericson & Aaron Doyle (editors), University of Toronto Press, 2003.
http://john-adams.co.uk/wp-content/uploads/2006/risk_and_morality_in_press.pdf

7 See J. Adams (with Michael Thompson) “Taking Account of Societal Concerns about Risk: framing the problem”, Research Report 035 Health and Safety Executive, 2002.
http://www.hse.gov.uk/research/rrpdf/rr035.pdf

management strategy is to duck if they see something about to hit them, and buy lottery tickets.

The *Hierarchists* are the institutional risk managers. They make the rules and enforce the rules. They have become highly risk averse. Prominent amongst them are

- Knee jerk legislators; dog bites boy results in the Dangerous Dogs Act; a fatal canoeing accident leads to the Adventure Licensing Authority.
- Purveyors of guidance about how to comply with the legislation. Here we find the Health and Safety Executive and the FSAs (the Financial Services Authority and the Food Standards Agency) and a not-so-small army of so-called" independent" regulators appointed by governments – all focused on the bottom loop of Figure 2.
- Enforcers of the laws, regulations and guidance. The purveyors of guidance such as the HSE and the FSAs are also enforcers, supported by the police, coroners, and courts.
- Compliance managers. These are the people in schools, hospitals, and every place of business and government, who draft and enforce the protocols that ensure strict compliance with the laws, regulations and guidance.

The Individualist response to all this bottom-loop risk management is usually to denounce it as a manifestation of "the Nanny State" and to complain about the loss of personal liberties and the suffocation of enterprise by over regulation. But in this corner are also found entrepreneurial no-win-no-fee lawyers and insurance companies whose activities serve to reinforce those of the Hierachists.

Reinforcement also comes from the Egalitarian quadrant. Single-issue pressure groups such as the Royal Society for the Prevention of Accidents, the Consumers Association, and environmental groups such as Friends of the Earth all routinely complain that insufficient is being done to protect us.

And finally the forces of globalisation and hypermobility[8] are swelling the numbers of Fatalists who mistrust, and feel powerless to resist, the increasingly remote and anonymous powers that govern their lives.

It is difficult to see where effective résistance to these trends might come from. The last Conservative Government in Britain identified the threat and established The Deregulation Task Force to resist it. Under Labour it became The Better Regulation Task Force. This became The Better Regulation Commission, and now we have The Better Regulation Commission and The Better Regulation Executive. And yet the tide that the Chair of The Better Regulation Commission seeks to turn rises inexorably.

The risks that the modern risk manager now seeks to minimise are less and less those of accidents, physical or financial, but more and more those of compliance failure: failure to keep up-to-date with flood of new laws, regulations and Brussels

[8] See J. Adams, "Hypermobility: A Challenge to Governance" In *New Modes of Governance: Developing an Integrated Policy Approach to Science, Technology, Risk and the Environment,* Lyall, C. and Tait, J. (Eds) Ashgate, Aldershot, 2005. http://john-adams.co.uk/wp-content/uploads/2006/hypermobility%20for%20new%20modes%20of%20governance%20in%20press.pdf

directives, and failure to put in place and enforce protocols, with all the right boxes ticked that will demonstrate, if something goes wrong, that it wasn't his fault.

It's anxious work. In undertaking it the modern risk manager should strive to avoid behaving like the drunk who looks for his keys not where he dropped them, but under the lamppost because that is where it is light. The realm of risk susceptible to scientific, quantitative management appears to be shrinking, while the realm that must be navigated with compass of *judgement* grows ever larger.

Figure 4. Risk management: where are the keys?