

2008-

“Risk assessment: a frightening new weapon in the battle
against commonsense“

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Version 1.1: 25/Nov/2008

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A road map

- A short and very tedious guide to risk
- Detecting risk managers in the wild
- How to do a risk assessment so you don't get asked again



Definitions

- **Risk** is when you don't know what will happen but you do know the probabilities
- **Uncertainty** is when you don't even know the probabilities



The eternal conflict

The study of risk is an eternal struggle between:-

- Those who wish to quantify it
- Those who feel it cannot be quantified

A mathematician's view of risk



If R is the Risk, F the Frequency and C the Consequence:

$$\mathbf{R = F \times C}$$

So unlikely catastrophic events have a similar risk to very frequent but unimportant events.

Mathematician's always seek to quantify risk.

A real risk practitioner's view of risk



It is fundamentally impossible to quantify risk because of:-

- Failure to take account of risk compensation, (people compensate for greater safety by taking more risks.)
- Problems of measurement



Risk Compensation

“Mandatory seat-belt legislation has saved lives.”

“The legislation produced no net-saving of lives. It redistributed the burden of risk to the most vulnerable *outside* vehicles, (Adams (1996)).”

Problems of measurement - A genius's view of risk



“The risk of the end of the universe is definitely less than 1 in 10^5 .”

Risk factor from the Large Hadron Collider, CERN.

“If a guy tells me that the probability of failure is 1 in 10^5 , I know he's full of crap.”

Richard P. Feynmann, Nobel Laureate commenting on the NASA Challenger disaster.



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Detecting risk assessors in the wild



<http://www.flickr.com/photos/fraserspeirs/4090224>, student canteen at Brunel University

Detecting risk assessors in the wild



- Aug 2008: Maritime and Coastguard Agency discipline boat crew for saving teenage swimmer by using a recently repaired boat awaiting a seaworthiness certificate. (The MCA locked the boat away pending enquiries.)
- Nov 2008: Maritime and Coastguard Agency ban the use of flares in sea rescues because they could cause 'considerable injury'. Rescue teams have been told to use 'safer' alternatives like torches.



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Doing risk assessments so you don't get asked again



- Step 1: Insist on using $R = F \times C$ in your assessment. This will panic Human Resources.
(People go into Human Resources to avoid nasty things like multiplication.)
- Step 2: Put “end of universe” as risk number 1
(Rationale: $R = F \times C$. Since the end of the universe has an infinite consequence C , then no matter how small the frequency F , the Risk is also infinite)
- Step 3: Wait for call from Human Resources



References

Adams, J (1995) "Risk", UCL Press, ISBN 1-85728-068-7

Papers freely downloadable from:-
<http://www.leshatton.org/>