

Aviation Safety Management

Bruce Byron

Expectations

- ‘Safety’ - The state of being safe; freedom from the occurrence or risk of injury, danger, or loss (Absolute safety)
- Absolute safety – highly unlikely
- Practically, ‘Safety’ is defined by outcomes - bad things happening
- No transport activity is likely to achieve ‘absolute’ safety

The Reality

- Try to reduce the likelihood of bad things happening
- Try to reduce the consequences if something does go wrong
- = Risk Management

Risk Management in Aviation

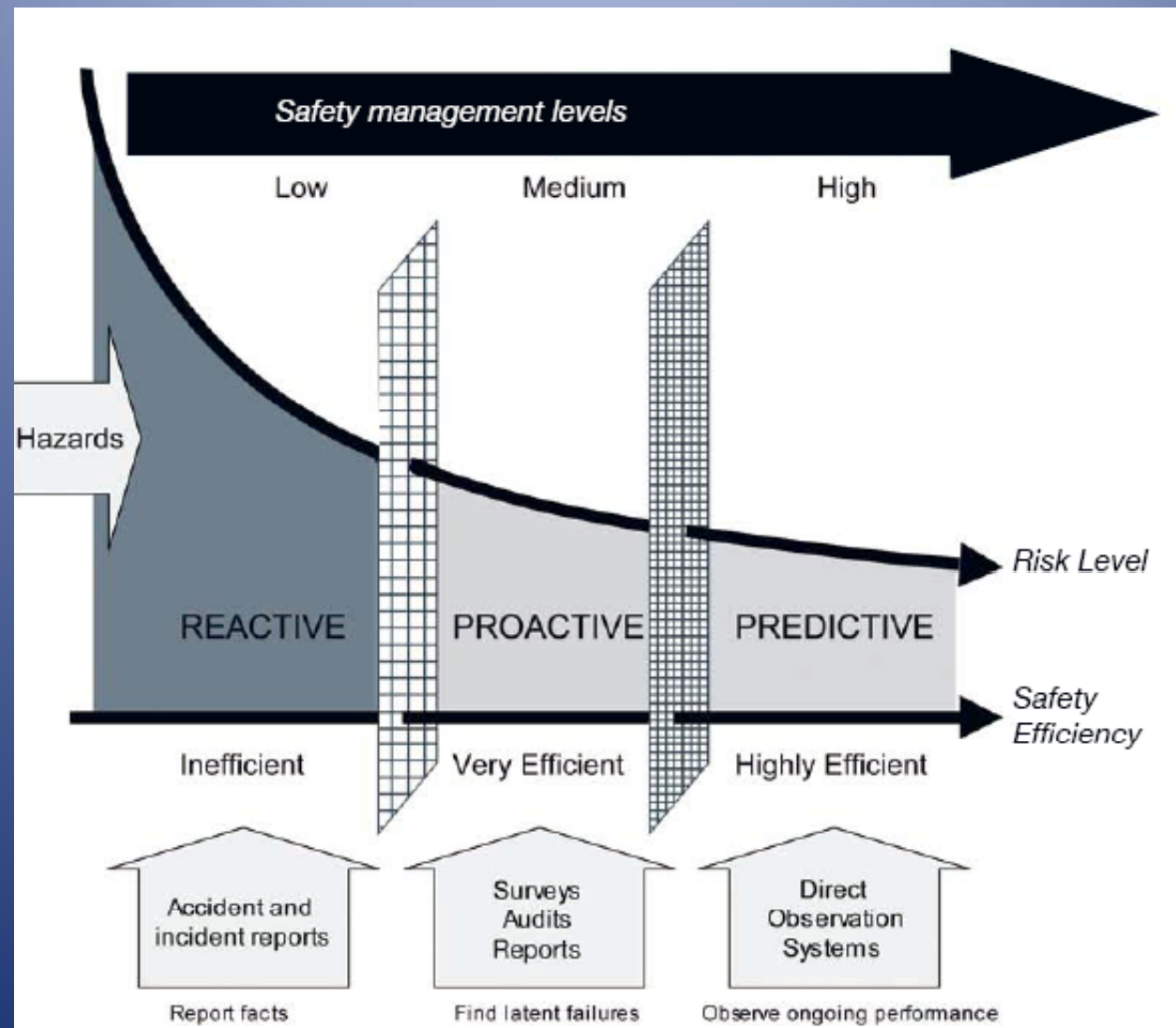
- AS/NZS ISO 31000:2009 Risk Management – Principles & Guidelines
- International Civil Aviation Organisation (ICAO) Safety Management Manual (SMM)
- The 'As Low as Reasonably Practical' (ALARP) Concept – in effect, a compromise

So, in Aviation – ‘Safety’ is -

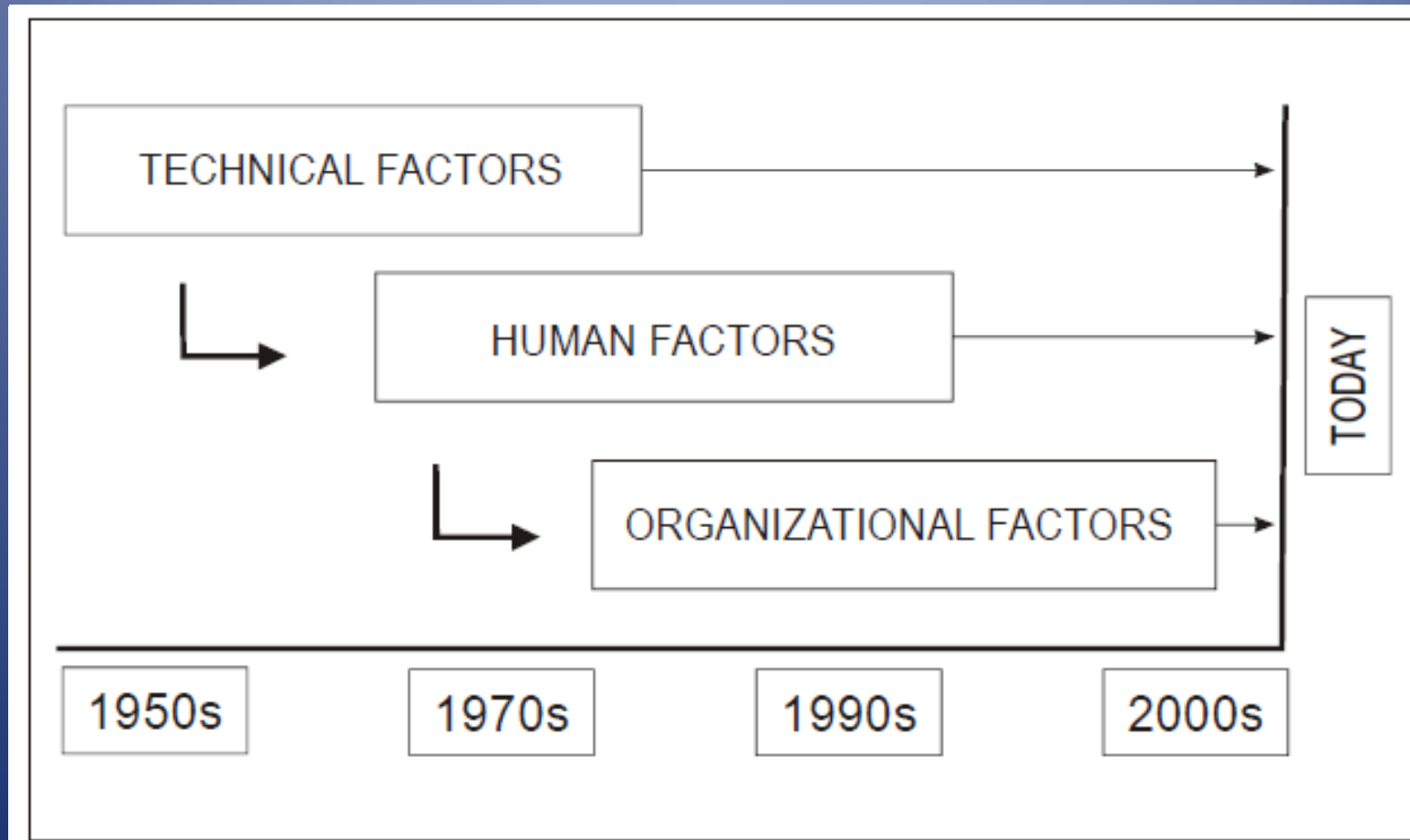
- The state in which the possibility of harm to persons or of property damage is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and safety risk management (ICAO).
- That’s the theory!

Safety Management and Risk

Maurino amended by Byron 2007



Evolution of Safety Focus in Aviation



Understanding Why Things go Wrong

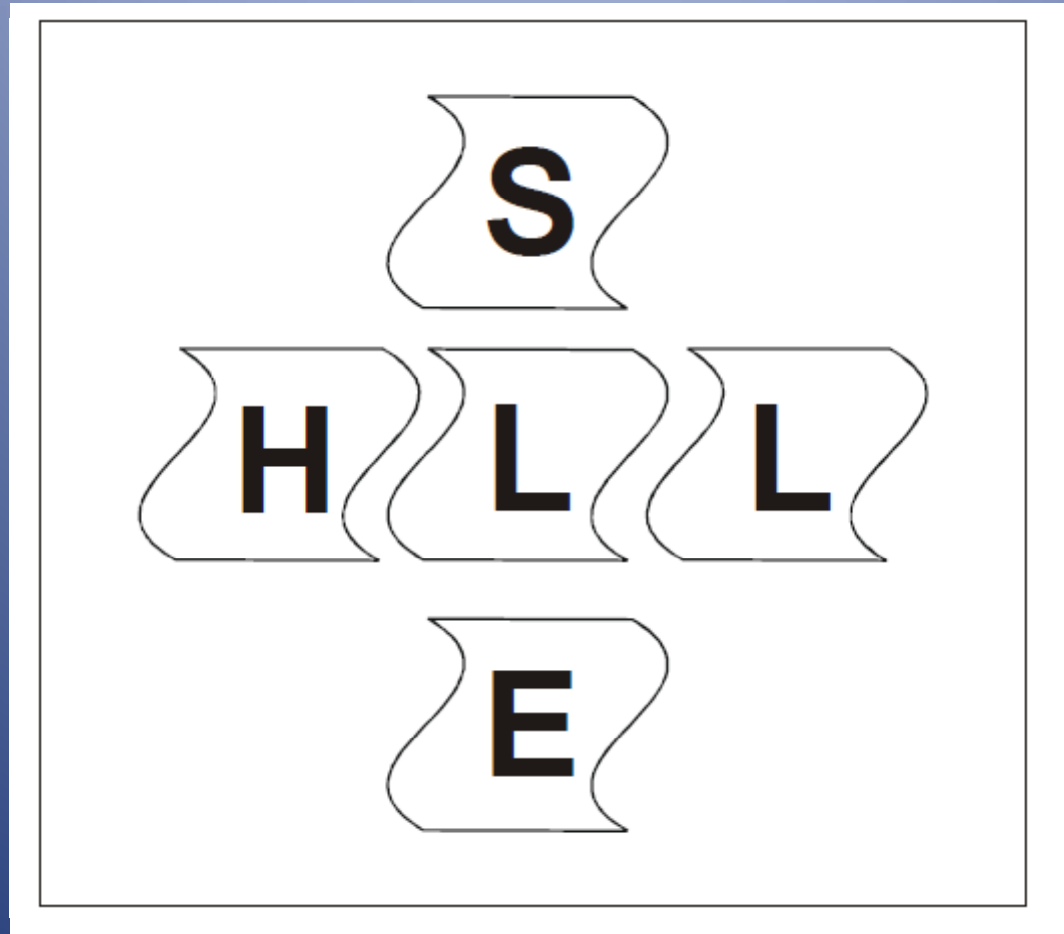
- Technical Factors (design, maintenance, equipment failure, suitability for the job)
- Human Factors (relationship of operator to other elements in the system)
- Organisational Factors (regulations, rules, procedures, training)

Human Factors - Errors & Violations

- Errors
 - Slips & lapses (execution)
 - Mistakes (the plan)
- Strategies for Errors
 - Reduction, capturing & tolerance
- Violations
 - Situational
 - Routine & Organisation induced

Understanding HF Relationships

The SHELL Model – Frank Hawkins 1984

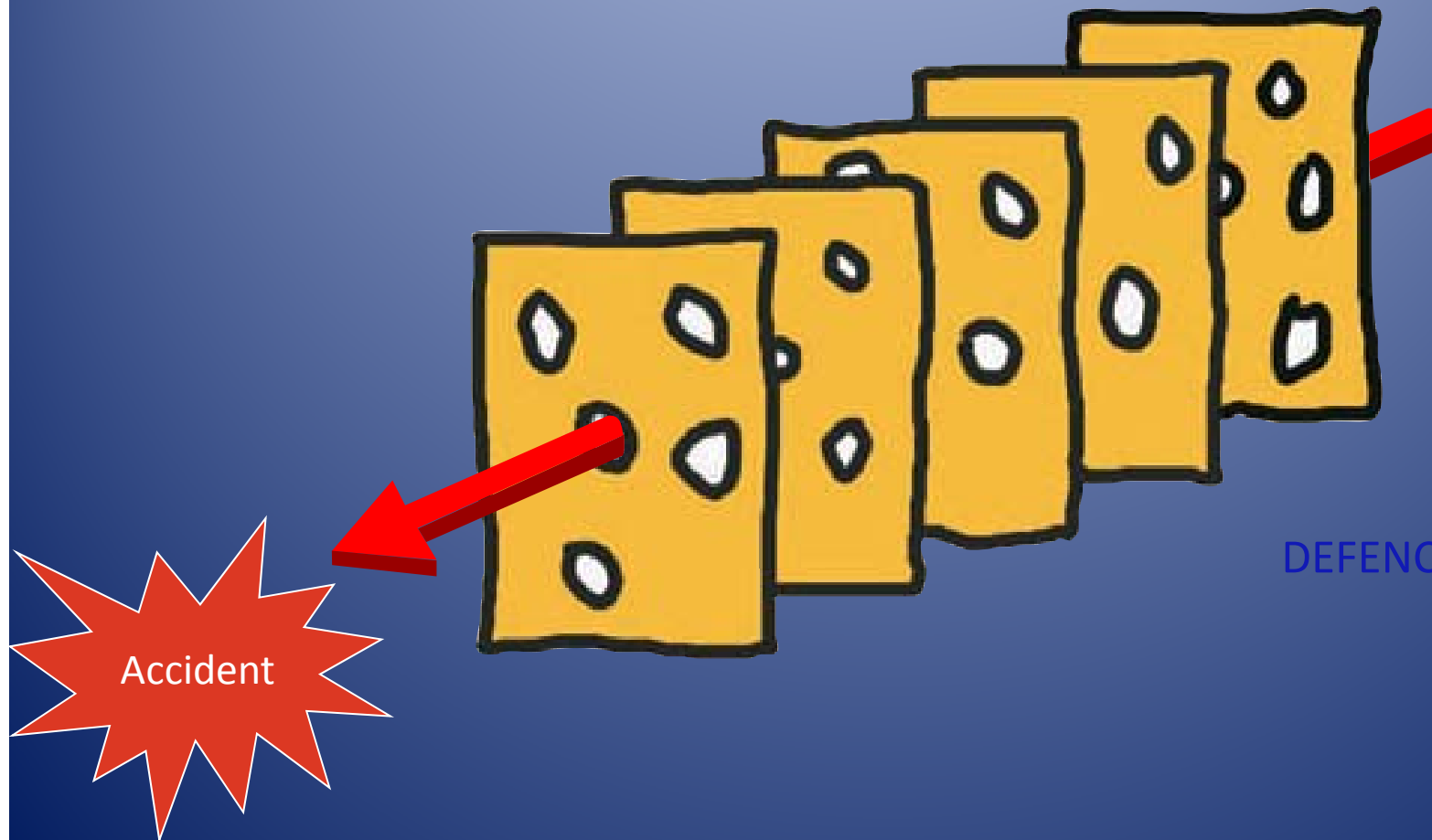


Accident Causation

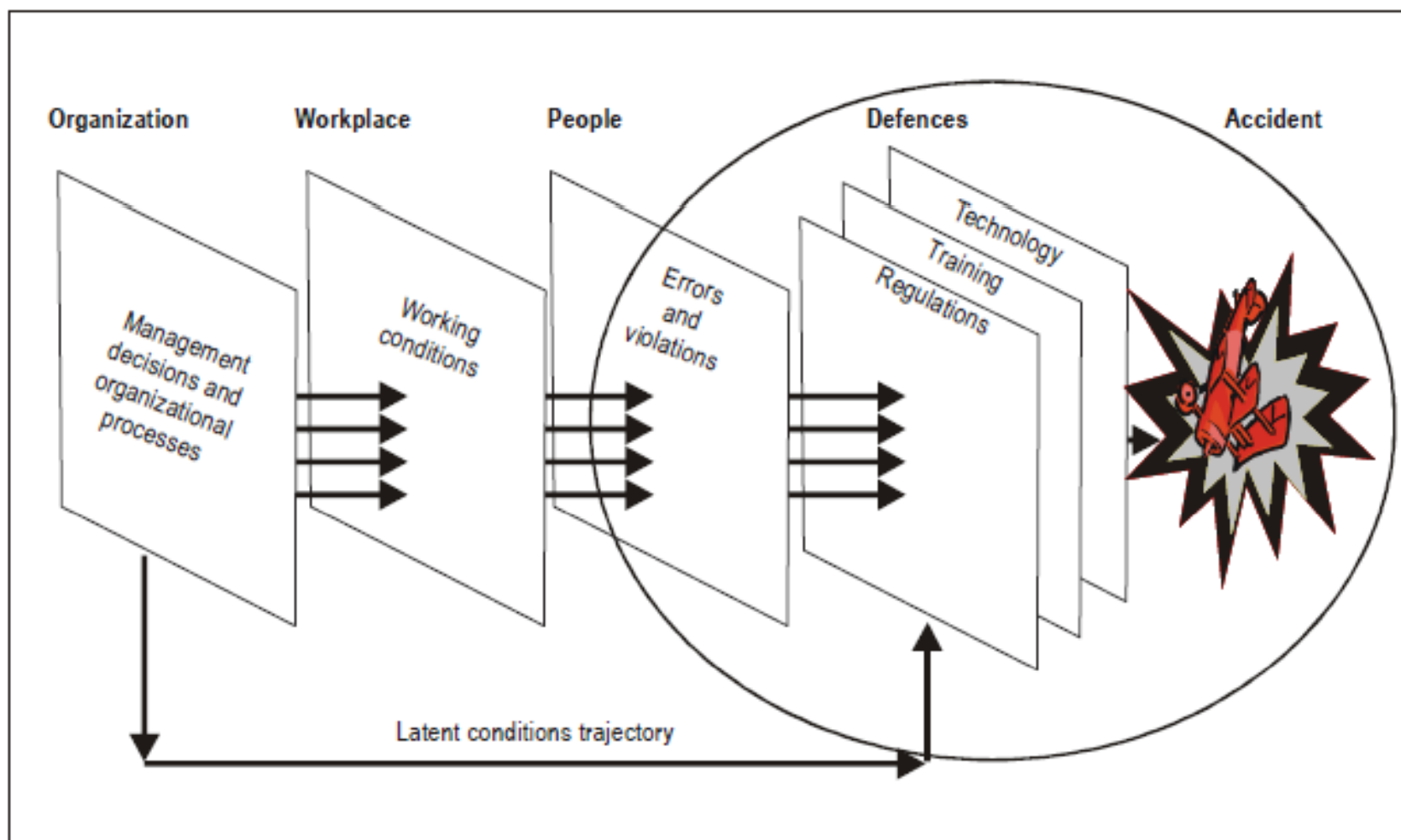
The Swiss Cheese Model – James Reason

POSSIBLE FAILURE

DEFENCES



The Swiss Cheese Model -2



Safety Culture

- An over-used term in aviation
- Assumes you have it or not (switch on or off!)
- Really boils down to attitudes & behaviours
- The attitude of business owners, directors & CEO
- The behaviours of management
- The behaviours of front line people

Safety Culture – How do you get it?

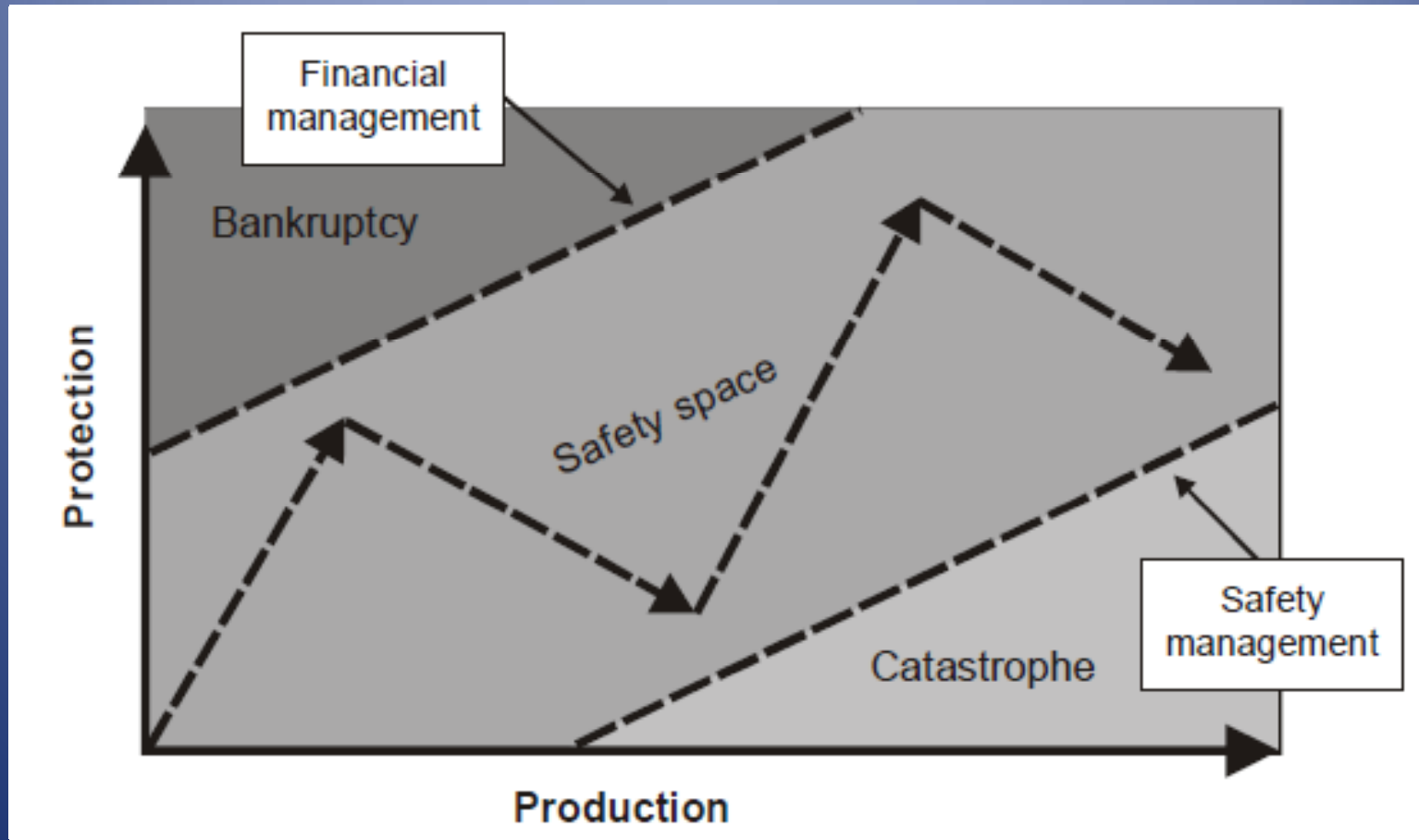
- Policy
- Training
- Open reporting
- Communication
- Staff engagement & surveys
- Sharing information
- Transparency

Bruce's View

- Very careful consideration must be given to the:
 - What
 - How, and
 - Who
- Of managing safety.

Managing Safety – What ?

The Safety Space – James Reason



Managing Safety – How?

- Identify Hazards
- Assess risks
- Make decisions
- Training
- Outcome based rules - simple
- Implement a safety culture
- Information is King

Managing Safety – Who ?

- Operators?
- Safety Theorists?
- Compromise
 - An eye on the detail
 - An eye on the big picture
- The Operational Egoist will send you to an inquiry or court
- The Safety Fanatic and the Technical Enthusiast will both send you broke