



Major Hazards and Process Safety: The GB Regulator's Approach and Lessons Learned

**Judith Hackitt CBE FIChemE FREng
Chair, Health and Safety Executive**

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Topics to be covered

- The UK's safety regulatory regime
- The evolution of major hazards regulation
- Clarification of roles and responsibilities
- The need for continuous monitoring and improvement
- Tools, techniques and knowledge sharing
- Learning's from case studies, incidents and experience

About HSE



What's included in HSE's work?

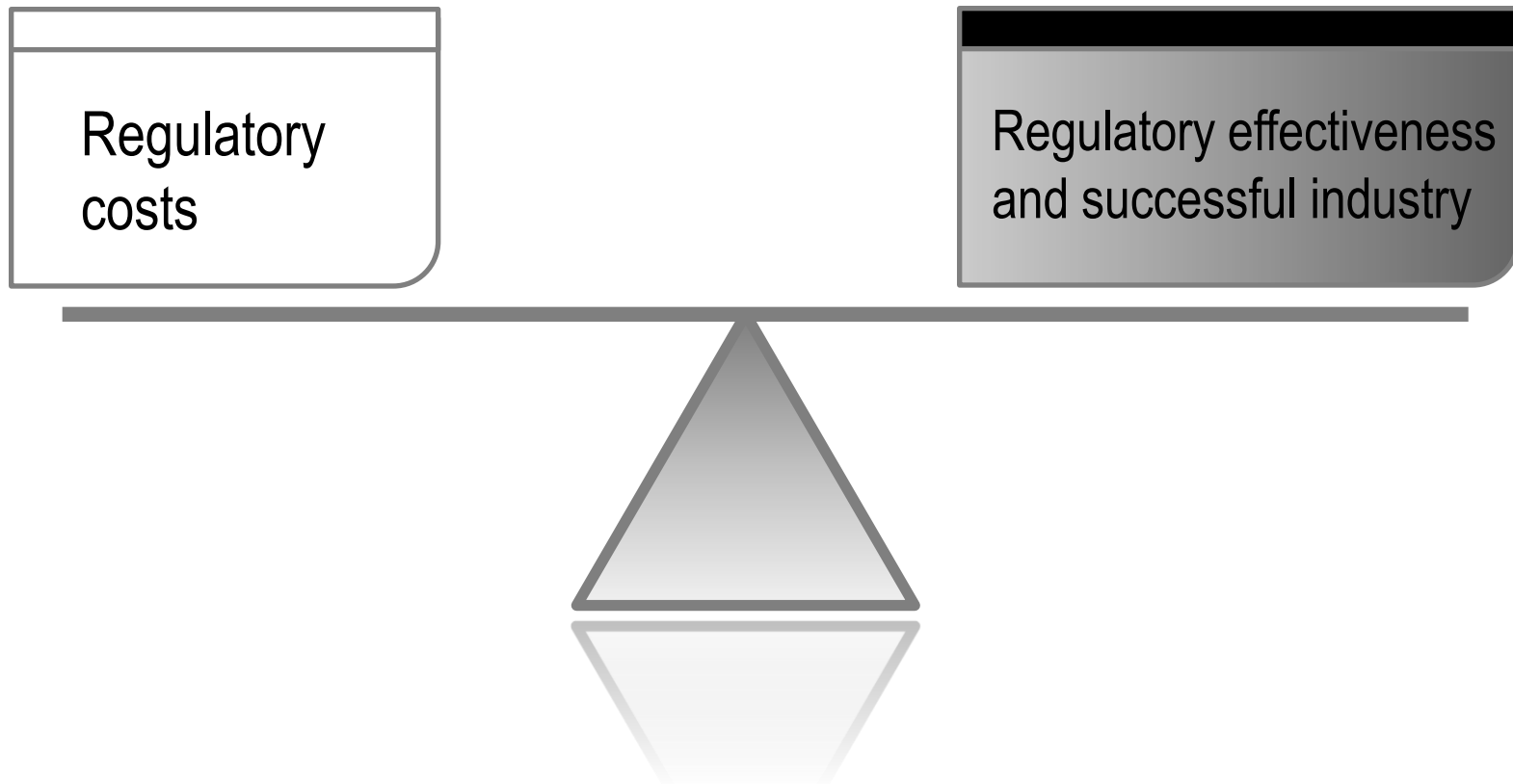
- Construction
- Offshore Oil and Gas
- Nuclear power
- Chemical plants
- Pipelines



Balancing Regulation and Economic development



The “Enabling Regulator”



Flixborough – a decisive moment for major hazards industries



28 workers dead ● 36 suffered injuries ● Fires burned for 10 days

Key health and safety laws and regulations for major hazard industries



- Health and Safety at Work Act 1974 (HSWA)
- Control of Industrial Major Accident Hazards Regulations 1984 (CIMAH)
- Control of Major Accident Hazards 1999 (COMAH) (amended 2005)
- Piper Alpha disaster led to complete overhaul of offshore oil and gas regulations

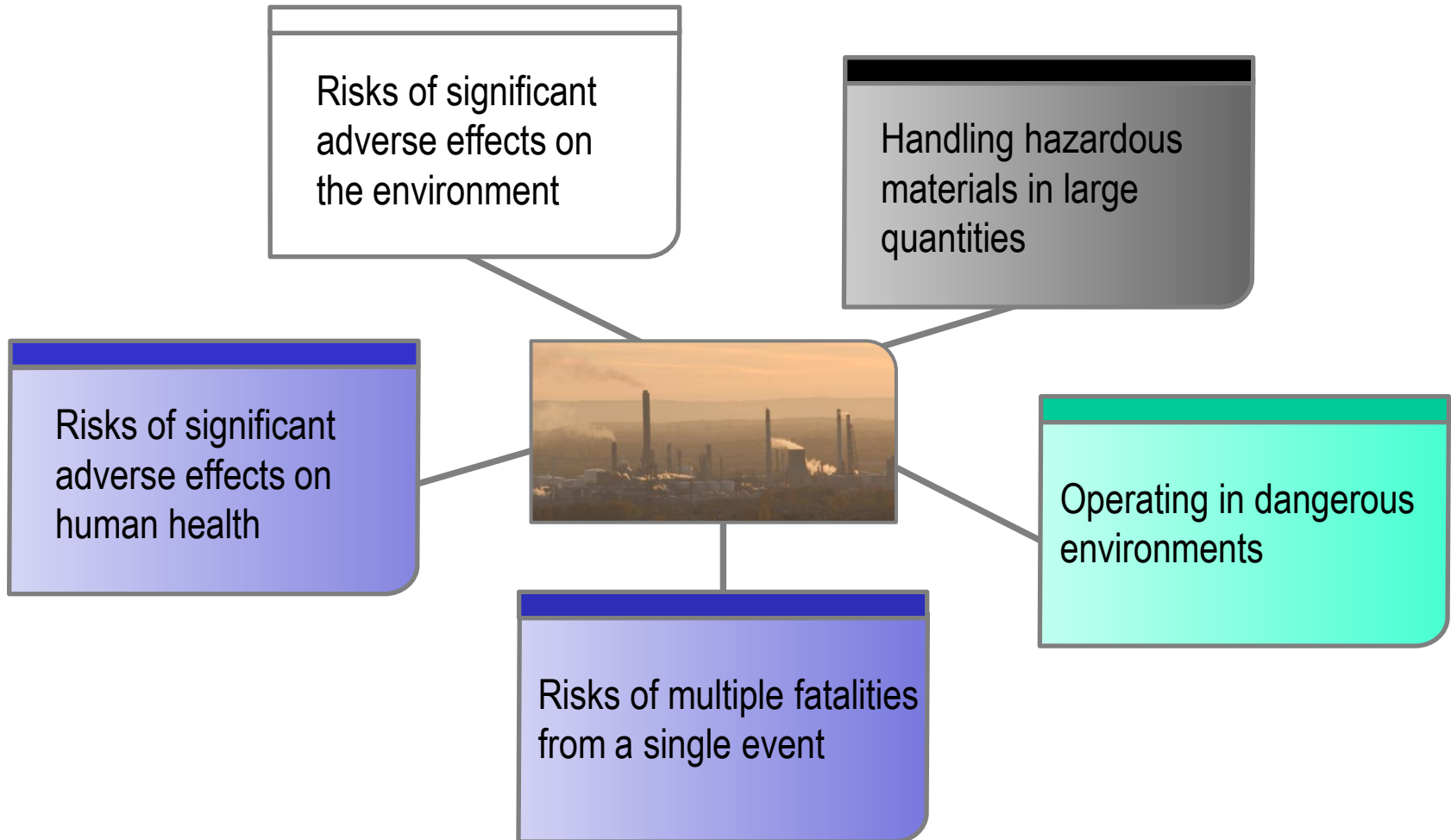


PIPER ALPHA – 1988

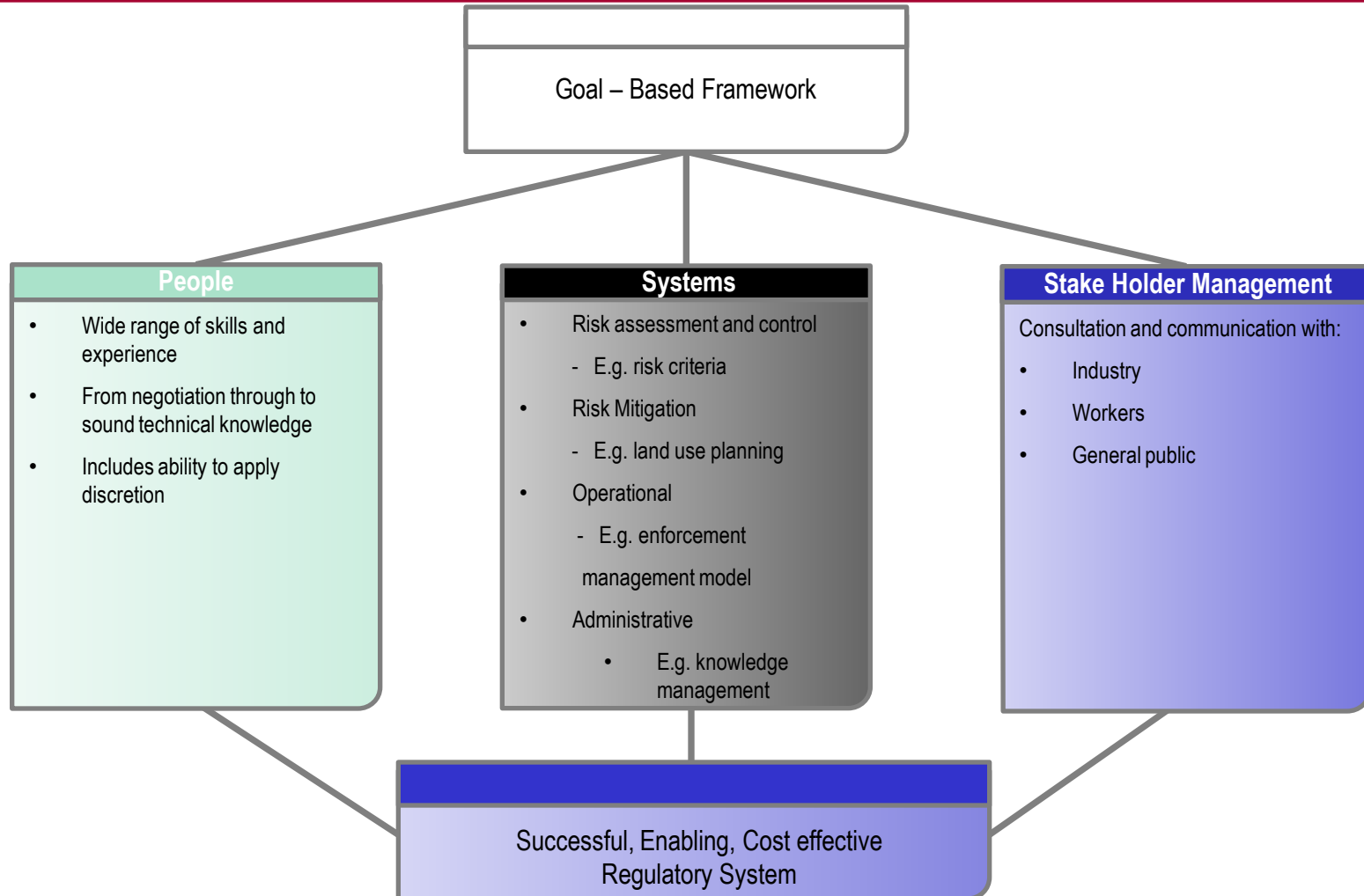
165 workers dead

59 survivors

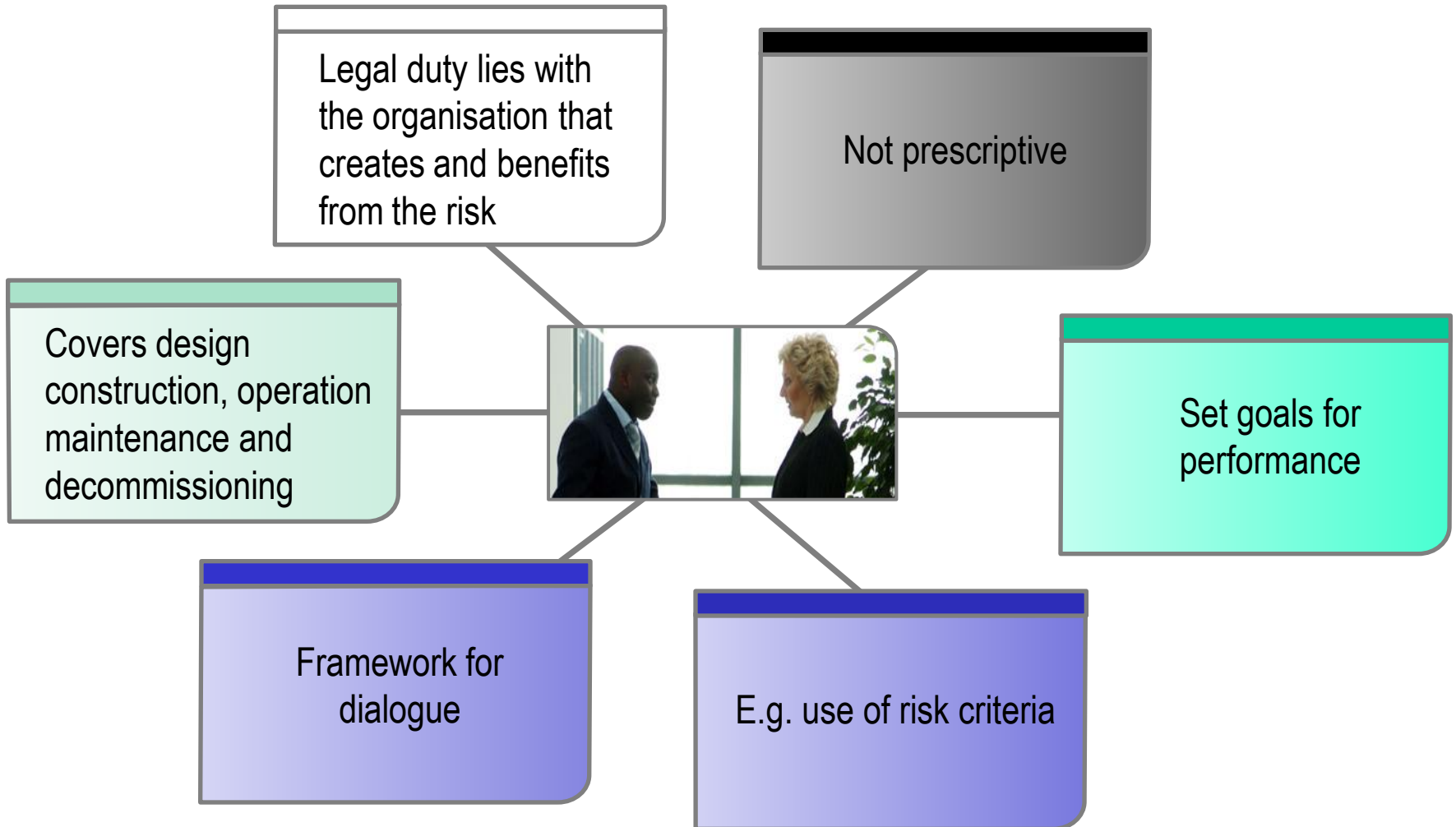
What are Major Hazard Industries?



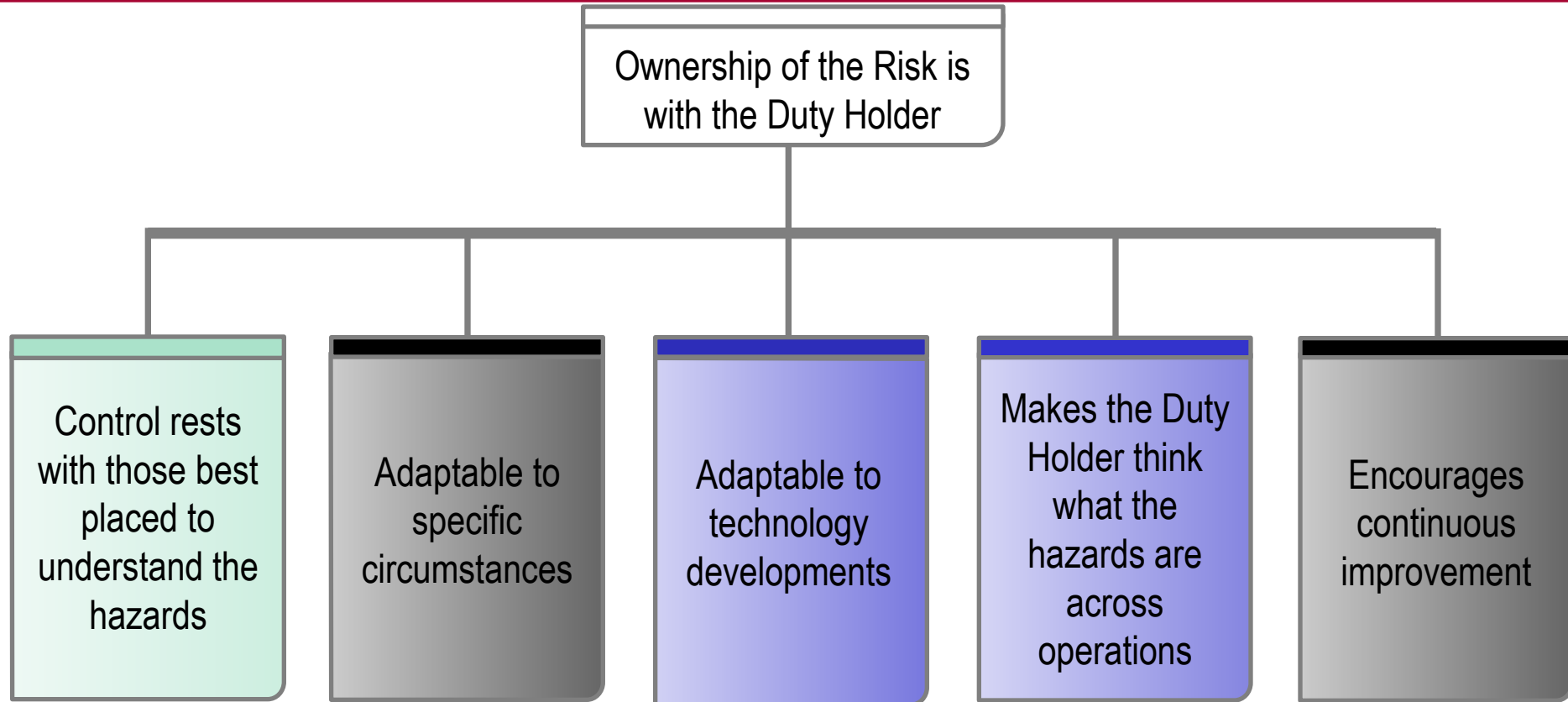
The Overall Approach



What is a Goal-Based System?



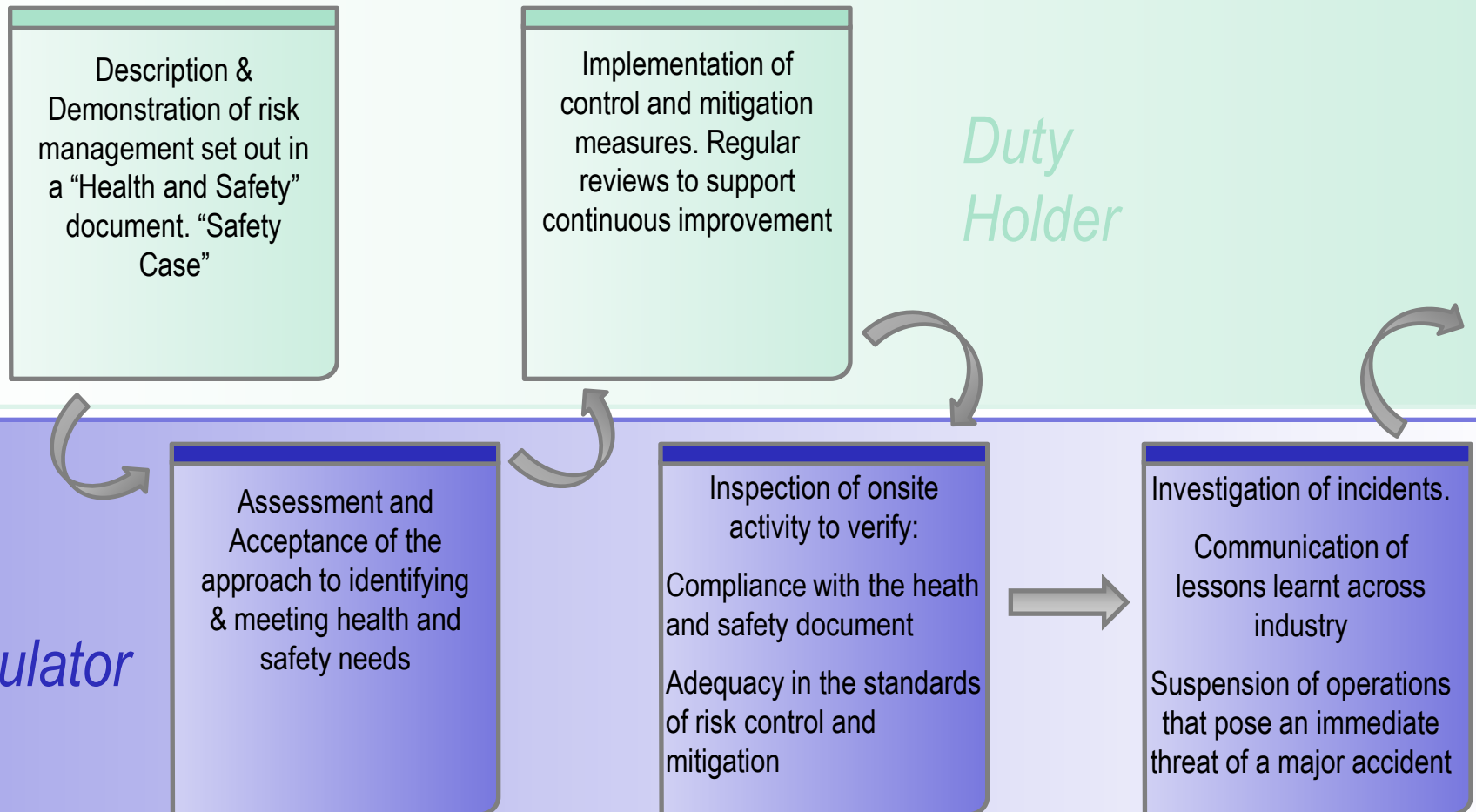
Why a Goal-Based System?



How it works in the UK



The role of the Duty Holder and the Regulator – Iterative Process



The Systems



Mitigation

- Land use planning methodology
- Emergency response

Operational

- Assessment criteria
- Inspection guides
- Investigation techniques
- Enforcement Management Model
 - Codifies Inspectors Discretion

Administrative

- Service standards and timelines
- Knowledge management

What have we learned

- Regulatory framework works well and is effective
- The vast majority of major incidents occur because of management not mechanical failure
- Focus on importance of process safety leadership
- Need for sustained commitment and continuous improvement
- Need for open dialogue with dutyholders to ensure they accept responsibility for managing risk and support and endorse the regulatory programme
- Risk Communication and Public Understanding of risk is very important



Case Study – Buncefield

Case Emphasises failure to:

- Understand major risk;
- Provide adequate focus;
- Provide resources or expertise to maintain safety critical barriers; and
- Respond to warning signs.



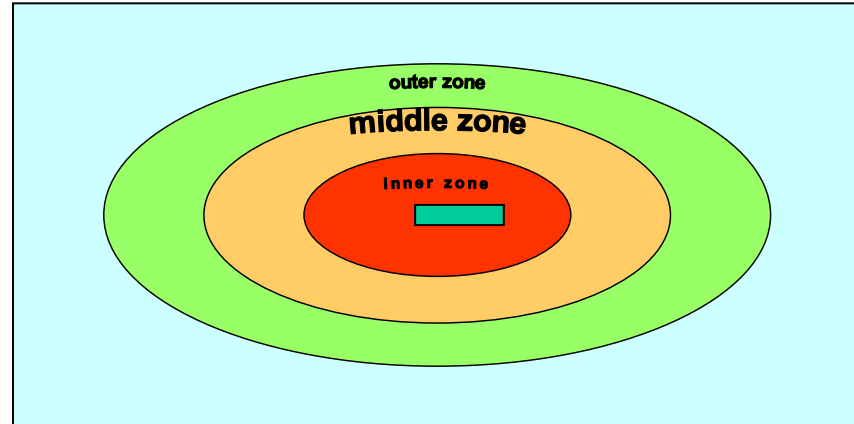
●Several explosions ●Fires burned for several days ●40 people injured

Process Safety Leadership

- Continuous measurement and management of the right things
- Understanding and respecting the nature of the process(es) and their limitations
- Importance of plant and equipment's condition
- Understanding design considerations and safety critical features
- Development of a meaningful assurance system

Risk Communication and Land Use Planning

- HSE's role:
 - Advising on the siting of new installations
 - Considering offsite impact potential and setting consultation distances
 - advising on proposed developments within consultation distances
- Essential for business and regulators to be able to communicate risk to stakeholders
- Impacts can be between businesses as well as on the public



AZF Ammonium Nitrate Plant, Toulouse, France (2001) where 29 people were killed, 34 badly injured and the surrounding area was badly devastated

Summary

- The safety case approach to managing risk at major hazards installations is effective
- The process has evolved and strengthened over 25 years
- Rules, standards and systems are important but people are absolutely key
- Risk management knowledge and competence is a fundamental requirement for all engineers.
- We are very keen to share our knowledge and experience and to learn from others

Thank you for your attention

Judith Hackitt

Chair HSE

23 February 2012