

Transition and Transformation: A target for the explosives sector in the 2020s

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Overview

- Put the 'sectors' recent history into context.
- Look to the opportunities and threats that HSE considers relevant to the explosives sector.
- Identify the objectives of Transition and Transformation.
- Suggest actions for individuals and organisations to deliver Transition and Transformation.

Recent History

- Defence – maintaining limited capability and largely aging munitions and ordnance (with a drive for IM on ‘high value’ systems)
- Civil – Step change in technology with the use of emulsions and ANBI
- Internal Security
 - Ubiquity of information
 - Broadening range of materials of interest
- Pyrotechnics
 - Fireworks - market fragmentation
 - Ubiquity of safety devices
- Market penetration by innovative SMEs

The threats we (have) face(d)

- Downsizing
 - Geopolitics
 - Defence
 - Extractive industries
- Offshoring
- Lack of coordination
- Changed approaches to chemicals in the environment.

The threats we (have) face(d)

- Loss of:
 - Competence
 - Capability
 - Capacity
 - Facilities
- Loss of control

The opportunities we have

- Recognition of the Threats
 - National Energetics Science and Technology Strategy
 - Centre of Excellence in Energetic Materials
 - Sector Skills Strategy Group
 - Explosives Threat Governance Group

The opportunities we have

- New technologies
 - Flow synthesis
 - Resonant Acoustic Mixing
 - Additive Manufacture
 - Non-formulation based enhanced terminal effects
- Recognition of strategic national need
 - Defence
 - Net Zero
 - Extractive industries

Transition and Transformation

- The drivers:
 - Capability
 - Capacity
 - Commercial/Value for money
 - Regulatory
 - Health
 - Safety
 - Environment
 - Moral

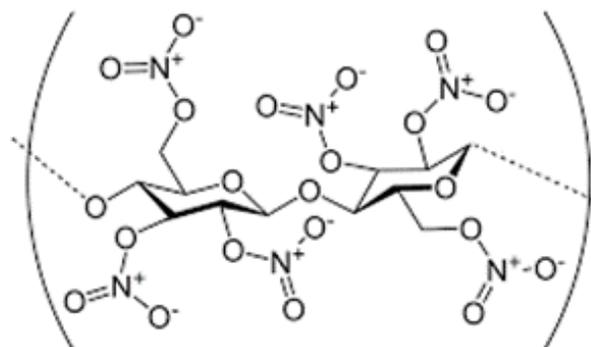
The drivers – Accident Triangle

Industry	Fatal	Major	>3 day
Explosives	1	9	30
Agriculture	1	18	90
Deep Mining	1	50	100
Manufacturing	1	140	550
All HSE Sectors	1	213	808

Underlying Risks to Address

- Failure to recognise or understand the scope of the ‘system’, the properties of the material(s) and the capabilities of the people.
- Failure to recognise the potential consequences of a hazard.
 - Baxendale’s Razor
 - What are you going to use it for?
- Failure to identify & implement good practice in both design and operation.
- Failure to maintain designed standards.

Inherent properties or inherent hazards?



Where do we want to be at Fulmination 32?

- Comfortable with [Engineering Council \(engc.org.uk\)](http://engc.org.uk) guidance on risk
- Intelligent customers/suppliers
- Defaulting to less sensitive materials
- Practising inherent safety and reducing the unit risk
- Removing people from the hazard where possible
- Producing and/or Using products that meet agreed standards

Where do we want to be at Fulmination 32?

- Seen as world leaders in our key fields
- Operating with a strong set of teeth in healthy gums
- Routinely working effectively across organisational boundaries where we can
- Operating to common standards
- Attractive to the brightest and the best
- In control of a capability that meets our strategic needs

Actions for organisations

- Engage across the sector
 - Trade Associations
 - Professional Bodies
 - Cross-cutting bodies
 - Standards setting
 - Conferences
- Develop a learning culture
- Recognise and invest in the opportunities
- Identify prioritise and retain key competencies and capabilities

Actions for individuals

- Understand the limits of your competence and prejudice
- Identify and take the opportunities for CPD
- Contribute and encourage others to contribute
- Learn from those who have chosen to address the challenges
- Acknowledge the need for an output, outcome or product

Questions & Discussion

