New guidance on reporting, investigating and learning from incidents, accidents and events

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About The Energy Institute

The Energy Institute (EI) is the chartered professional membership body for people who work across the world of energy. We exist to create a better energy future for our members and society by accelerating a just global energy transition to net zero.

Technical and Innovation programme: publishes 50+ good practice guidelines each year, 1200 resources available from the EI website. Covering 3 broad areas:

toolbox.energyinst.org

Toolbox is a web app for sharing lessons learned from incidents and near misses

900+ incidents
100+ videos

Toolbox is 100% free to use

No login required

Available in multiple languages

Our partners:

ENERGY SAFETY CANADA

EPSC

International Association of Oil & Gas Producers

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Safer Together

Learning from Incidents, Accidents and Events (2016)

- Energy Institute published *Learning from incidents, accidents and events first edition 2016*
- Best practice has moved on
- Regulators suggest there is a need for:
  - More **rigorous** analyses to get to **underlying factors**
  - Clearer **prioritisation** of incidents & near-misses
  - Better integration of **human & organisational factors** into investigations.
  - Better **sharing** & **analysis** of lessons and themes
  - Systematic application & follow-up of **actions**.
  - A shift toward a **learning culture**.
  - Tracking of **trends** in incident recurrence, causes, adherence to investigation procedures, and implementation of recommendations.

Development of Second Edition

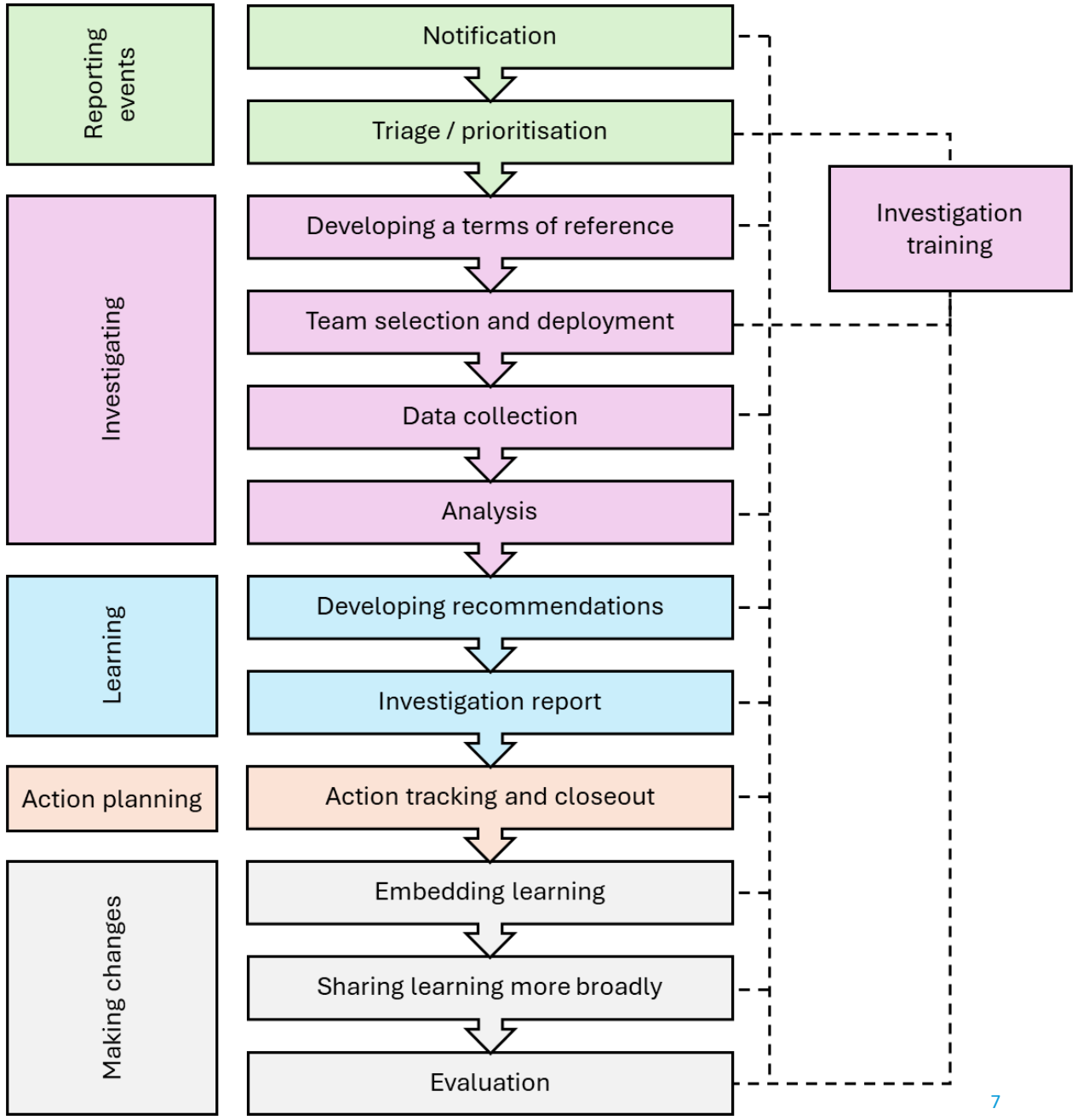
- Focus groups (21) with representatives of over 50 global organisations
- Wide range of sectors
  - Energy, Construction, Rail, Mining, Defence, Food and drink, Industry bodies, Regulators, Specialist investigation agencies
- Research
- Guidance developed
- Peer reviewed by industry stakeholders, including expert investigators

The team

- Authored by the Keil Centre
- Overseen by EI Learning from Incidents Committee (LFICOM)
- A team effort
- First-hand investigation experience – collectively around **150 years**
  - specialist investigators
  - human factors
  - trainers in investigation methods and tools
  - investigation systems specialists

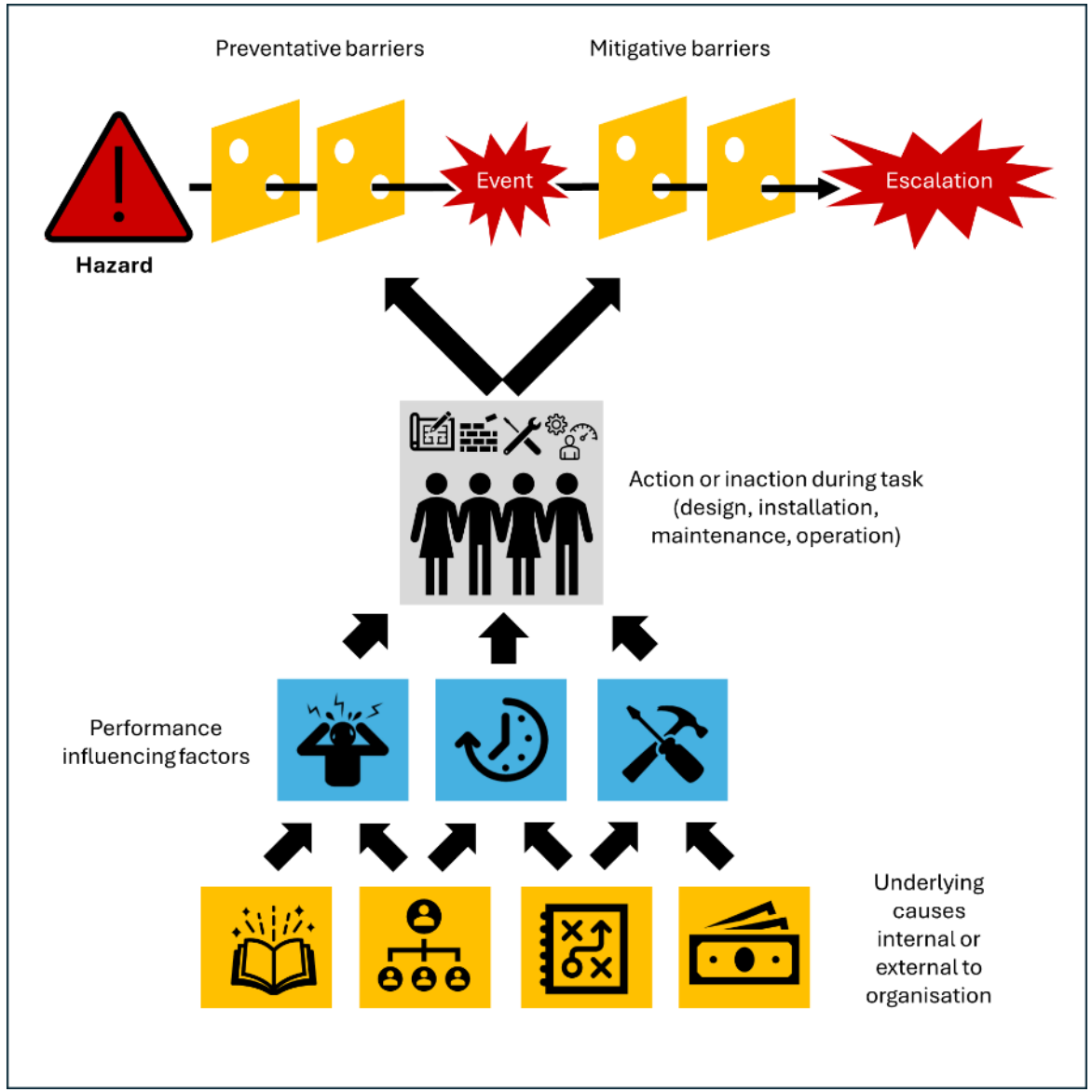
What does the guide cover?

- **The learning from events process**
- Sub-divided into 5 stages:
  - Reporting events
  - Investigating
  - Learning
  - Action planning
  - Making changes
- Guidance is written across 14 chapters

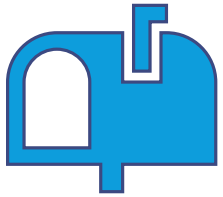


1. Introduction

- Events arise from multiple, layered causes – not a single factor.
- Hazards are inherent in operations. Barriers aim to control them.
- **Barrier failures** often link to human actions or decisions.
- Causes are classified as:
  - **Immediate** (visible actions)
  - **Performance Influencing Factors** (e.g. workload, time pressure)
  - **Latent organisational issues** (e.g. poor management, cost-cutting)



2. Notification



Reporting system:

- Clear, accessible, simple to use

Training

- What to report and when?

Culture

- Psychological safety, just culture, encouraging speak-up

Feedback

- ‘Thank you’, what happened as a result of the report?

Monitoring and evaluation

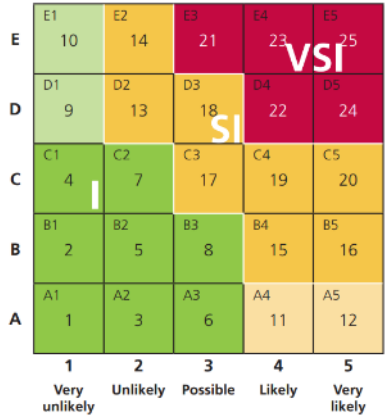
- Using meaningful KPIs to track reporting, beware of meaningless targets

2. Triage / Prioritisation

- Not every incident can be investigated, and not to the same level of depth.
- Triage means prioritisation of incidents, e.g.
  - **actual and potential** consequences
  - **likelihood** of recurrence or escalation.
  - **learning potential**
- Helps determine level of investigation
  - **Low:** Supervisor/line manager investigation
  - **Medium:** Team-based with HSE advisors
  - **High:** Independent senior-led investigation

Example Consequences

Fatalities, major fire-explosion, gas leak
Permanent disability, fire, minor gas leak
Lost time injury, RIDDOR reportable
Medical treatment injury, minor fire
First aid treatment, limited plant damage



Question 2

What was the effectiveness of the remaining barriers between this event and the most credible accident scenario?

Effective	Limited	Minimal	Not effective
50	102	502	2500
10	21	101	500
2	4	20	100
1			

Question 1

If this event had escalated into an accident outcome, what would have been the most credible outcome?

		Typical accident scenarios
Catastrophic Accident	Loss of aircraft or multiple fatalities (3 or more)	Loss of control, mid air collision, uncontrollable fire on board, explosions, total structural failure of the aircraft, collision with terrain
Major Accident	1 or 2 fatalities, multiple serious injuries, major damage to the aircraft	High speed taxiway collision, major turbulence injuries
Minor Injuries or damage	Minor injuries, minor damage to aircraft	Pushback accident, minor weather damage
No accident outcome	No potential damage or injury could occur	Any event which could not escalate into an accident, even if it may have operational consequences (e.g. diversion, delay, individual sickness)

4. Terms of reference

- A ToR is the investigator's **'license to operate'**
- **Standard template** information should include:
  - permissions to investigate
  - protection of evidence
  - Confidentiality
- Additional information for specific incidents, e.g.:
  - Budget
  - Timeline
  - Stakeholders (incident owner, involved parties, unions, regulators, etc.)
  - **What question is the investigation is trying to answer?**

What question is the investigation is trying to answer? And why it matters

Real example: A patient dies from septicaemia following an operation. What is the investigation focusing on?

'Why did the patient die?' (implies blame on the surgeons) vs.
'Why was there bacteria in the operating theatre?' (a focus on the system)

5. Investigation training

- What sort of investigators do you have in your organisation?
  - **Full-time investigators** – few, large organisations only
  - **Part-time investigators** – most investigators in most organisations
- Incidents are (ideally) rare, so how to maintain skills?
- **Investigation skills are not all investigation-specific:** get investigators involved in non-safety investigations (e.g. supply chain failures, software glitches)

Low severity (e.g. minor damage, near-miss)

Medium-severity (e.g. minor injuries, moderate damage)

High-severity (e.g. major injuries, fatalities, significant damage)

Basic competency level
- Knowledge of basic human performance principles, human performance and human factors.
- Capability to identify and report immediate hazards and risks.
- Ability to collect basic information.
- Detailed knowledge of investigation methodologies such as the sequential models.
- Supervisors leading minimal level investigations aiming to manage leading low-level investigations.
- **All participants**: frontline personnel, supervisors, subject matter experts, safety auditors, safety committee members, safety managers, safety directors.

Intermediate competency level
- Detailed knowledge of investigation methodologies such as epidemiological models, barrier-based approaches, or checklist-based techniques.
- Ability to conduct interviews.
- Medium-level understanding of human performance and human factors.
- Ability to analyse data and evidence and determine immediate and underlying causes (PIF).
- Ability to lead investigation teams.
- Capability to write investigation reports and propose corrective actions.
- **Lead:** Line manager level leading medium-level investigations.

Advanced competency level
- Mastery of methodologies such as epidemiological models, barrier-based approaches, or checklist-based techniques.
- Ability to conduct interviews.
- Ability to lead investigation teams and coordinate with multiple departments.
- Capability to conduct complex analyses of human and organisational factors.
- Experience implementing continuous improvement programmes based on investigation findings.
- **Lead:** Experienced investigator leading high-level investigations.

Specialist competency level
- Experience in training and mentoring other investigators.
- Ability to develop and review investigation policies and procedures.
- Capability to conduct high-complexity incident investigations and present findings to senior management.
- Knowledge of systemic models.
- **Team experts:** senior consultants, human factor experts required for medium and high-level investigations.

6 Team selection and deployment

- Investigations usually done in teams, 4-5 people
- Include **diverse perspectives**—technical, operational, human factors, legal.
- Ensure **team independence** from the incident's operational management.
- Don't expect your part-time investigators to do their normal day job during the investigation

Trauma awareness and support

- Train investigators to **avoid triggering traumatic memories** in witnesses.
- Monitor investigators for **secondary traumatic stress (STS)**.
- Limit exposure to traumatic material (e.g. photos, audio, CCTV).
- Provide access to **psychological support** and coping strategies.

7 Data collection

Scene control and data preservation

- Secure the scene promptly to prevent contamination or loss of evidence.
- Collect **witness statements** as early as possible to avoid memory distortion.

Interviewing good practices

- Use **cognitive interview (CI)** techniques for direct witnesses.
- Apply the **PEACE methodology**

Bias awareness and mitigation

- Hindsight bias
- Confirmation bias
- Actor-observer bias
- Outcome bias

Types of data to collect

Photographic data:

- Capture wide-angle and detailed shots.
- Include scale references (e.g. ruler, hand).
- Document operator-added labels or adaptations.

Physical data:

- Handle fracture surfaces carefully.
- Store samples under appropriate conditions.
- Label and isolate all collected items.

Documentary data:

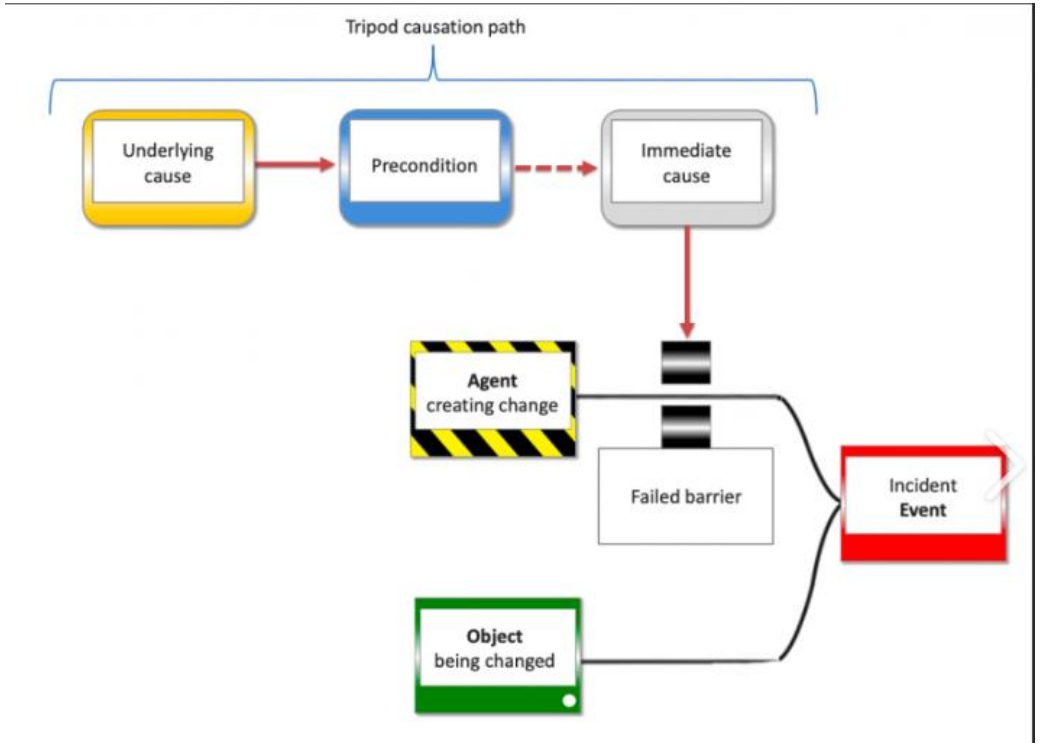
- Gather logs, procedures, maintenance records, site maps.

Human data:

- Interview eyewitnesses, operators, SMEs, and responders.

8 Analysis

- There are many analysis tools available
- Match the method to the event's complexity and available data.
- Consider:
  - **Sequential models** (e.g. 5 Whys, fault trees).
  - **Epidemiological models** (e.g. Swiss cheese, Tripod).
  - **Barrier-based models** (e.g. bowtie, Tripod Beta).
  - **Systemic models** (e.g. STAMP, FRAM, AcciMap).
  - **Cognitive models** (e.g. GEMS, SHELL, TRACEr).
  - **Safety-II / Resilience engineering** (e.g. FRAM, RAG, learning teams).



Preparation before analysis

Do the majority of the investigation before using analysis tools

9 Developing recommendations

- Ensure recommendations are **based directly on investigation findings**.
- Use the **incident timeline** to test whether the recommendation would have interrupted the event sequence.
- Prioritise recommendations based on:
  - Risk severity
  - Barrier reinstatement urgency
  - Hierarchy of controls
- Involve the right stakeholders
- Ensure **ownership and accountability** for each recommendation

Engage leaders using a causal learning workshop

10 Investigation report

Report planning and preparation

- Tailor the report to the **intended audience** (e.g. internal staff, regulators, public).

Writing style and clarity

- Use **short sentences** (ideally <12 words).
- Avoid jargon and overly complex language.

Communication and feedback

- Share **early findings** promptly to prevent rumours and speculation.
- Ensure **feedback loops** with stakeholders and affected teams.

Legal and confidentiality considerations

- Use **neutral language** to avoid blame or speculation.

11 Action tracking and closeout

Common pitfalls to avoid

- ❖ Actions not implemented due to lack of resources.
- ❖ Actions closed without verification.
- ❖ Overwhelming backlog of actions.
- ❖ Poorly worded actions that don't address root causes.
- ❖ Lack of stakeholder engagement in action development.

Good practices for success

- ✓ Engage stakeholders early in the action planning process.
- ✓ Use **risk-based prioritisation** to focus on high-impact actions.
- ✓ Combine related actions into **workstreams** to reduce complexity.
- ✓ Provide **training and guidance** on writing effective actions.
- ✓ Integrate action tracking into **management performance reviews**.

- Allocate **resources and budget** to support implementation of actions
- Use **clear wording** so it's obvious when an action is complete
- Track actions using a **formal system** (e.g. action tracking database)
- Monitor **progress and barriers** to implementation
- Verify that actions are **fully implemented and effective**
- Confirm that actions have led to **sustained improvements**

12 Embedding learning

Organisational learning strategy

- Address both **individual and organisational learning**.
- Memorialise lessons in the **management system**, not just in people's memories.

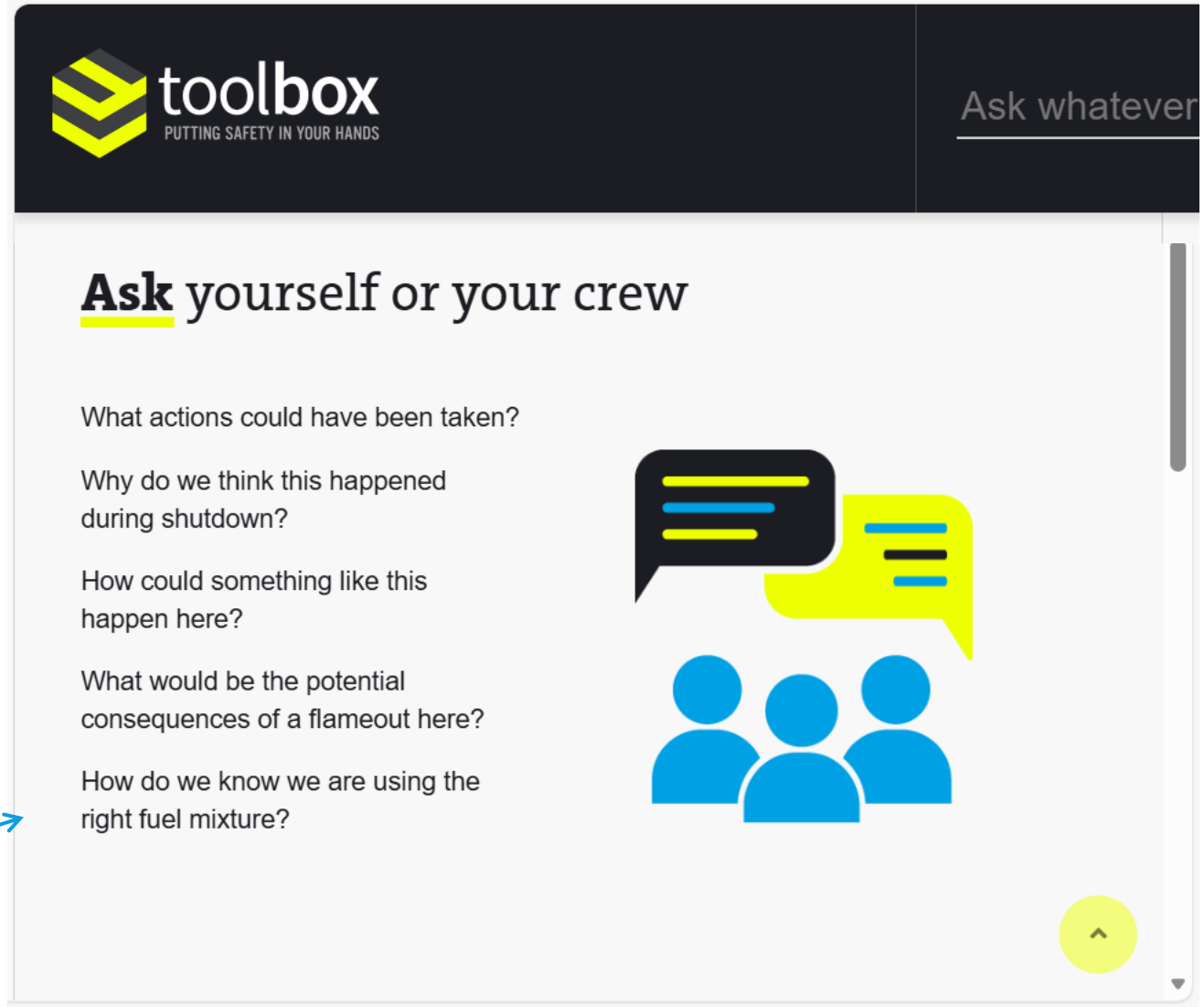
Embedding learning in management systems:

- Training programmes.
- Risk assessments.
- Operating procedures.
- Safety documentation.

- Avoid 'quick fixes' that don't address systemic issues.
- Avoid **safety clutter**—only implement meaningful changes.

13 Sharing learning more broadly

- Extend learning to external stakeholders and industry peers.
- Use top-down reviews (e.g. quarterly HiPo reviews) to identify broader lessons
- Share lessons via:
  - Industry workshops.
  - Regulator briefings.
  - Safety forums.
  - Professional bodies.
- But, recognise that **sharing is not learning**—ensure reflection and contextualisation.



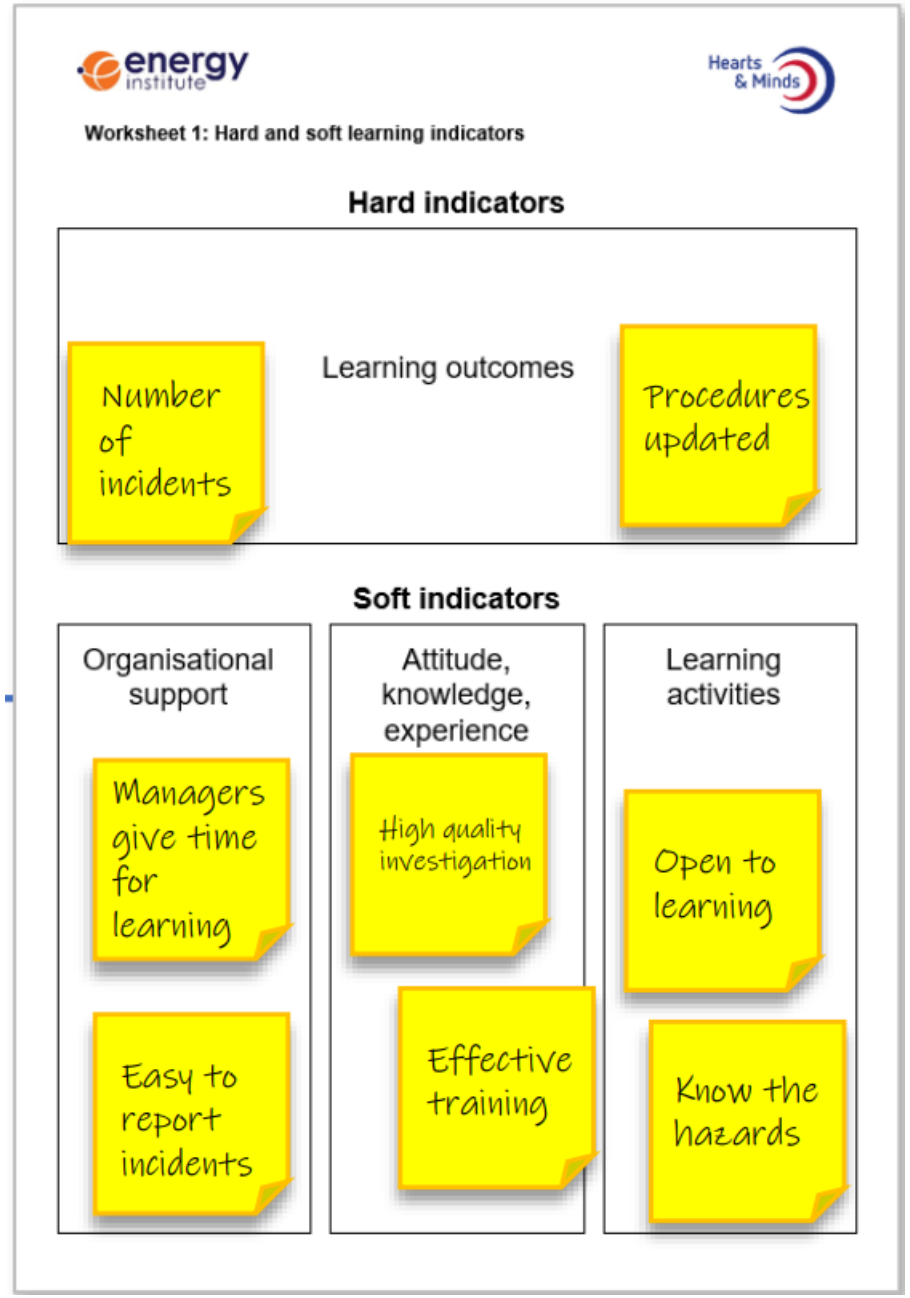
14 Evaluation

- Establish **investigation review panels/boards** to review findings and ensure quality.
- Identify trends and themes (consider statistical and AI tools).

Track **KPIs** for:

  - Action status (open, closed, overdue).
  - Investigation completion times.
  - Investigator training and assessment.
  - Quality of analysis and effectiveness of actions.

- Avoid KPIs that incentivise superficial compliance or data omission.
- **How do you know you've learned?** Consider 'Hard and 'Soft' KPIs, and what these actually tell you about learning.



Conclusion

- EI 3295 *Reporting, investigating, and learning from incidents, accidents and events* (Available Q1 2026)
- Nearly 200 pages!
- Not intended to be read cover-to-cover
  - Practical guidance in each section on a specific phase of the lifecycle
  - Checklists provided for each section
- Will replace the 2016 guidance
- Price?

Price: £0, €0 and $0

Thank you!

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