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Reflecting on incidents: Barriers and tactics

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Abstract

Learning from incidents (LFI) is key for energy companies to become safer. Researchers from the Open University discuss what comprises effective LFI, barriers that can prevent LFI, and tactics companies can use to overcome those barriers.

Introduction

LFI is a common process in energy companies and involves the six steps shown in Figure 1 (Lukic, Littlejohn & Margaryan, 2014). In the LFI process, an incident is reported and investigated. A summary of the incident and key insights from the investigation, known as an incident alert, is communicated to all workers in the company. The assumption is that, by communicating about incidents, all workers can learn from an incident without directly experiencing something similar. However, to learn from incident alerts, employees must **reflect** on how the lessons learnt relate to their own work. Previous research has shown that workers are unlikely to reflect from just reading an incident alert: they must be supported in engaging with an incident and thinking how it applies to them (Margaryan, Littlejohn, & Lukic, 2018).

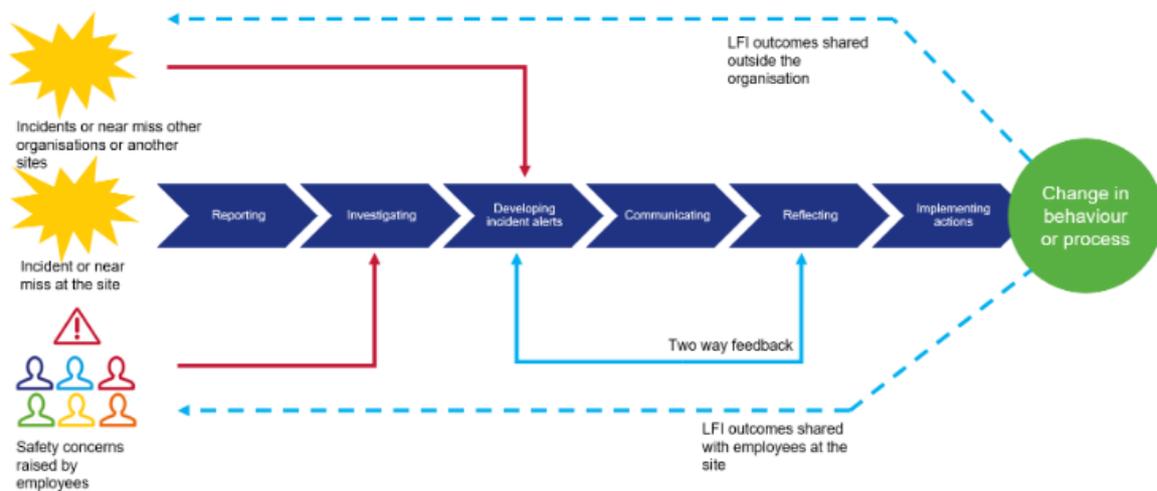


Figure 1: The LFI Process Model from the Energy Institute’s Hearts & Minds Toolkit

Over the past three years, the Open University has been carrying out research to understand how companies can support reflection on incident alerts, what barriers might prevent effective reflection, and feasible tactics companies can use to mitigate those barriers. We conducted 45 interviews with both front-line and middle managers from three energy companies to explore ideas and experiences of reflection in LFI.

How do people reflect on incident alerts?

There are three different ways reflection can occur following a worker receiving an incident alert:

- They may discuss the incident information with others, for example in a team meeting;

- They may take some time to think on their own about the implications of an incident alert on their own work;
- They may remember the incident alert when they encounter an unexpected situation.

According to our interview results, the most common type of reflection is discussing incidents with other people. Front-line workers reported this type to take place during regular team meetings, where the team leader presents updates from the incident reporting system or presentations from the HSE team. Middle management have similar discussions at their own catch-up meetings. Reflection in a group can be a powerful method, as discussion can benefit from the experiences of multiple people to understand how an incident is relevant to tasks.

Making time to reflect on an incident alert alone is less common than group discussion, mainly done by workers with computers who make reading and thinking about incident alerts part of their daily routine. When trying to solve a problem or decide the best course of action in an unexpected situation, workers consult a variety of resources, such as procedures or hazard information databases. Incident alerts are one resource that workers might find in a database (such as the EI's Toolbox website – www.toolbox.energyinst.org). Workers might also ask their colleagues about any incidents they have heard of to help make the best choices.

We identified four main barriers that could prevent workers from reflecting on incident alerts. Below is a summary of those barriers, including tactics to tackle each, as mentioned by people during the interviews.

Barrier 1: Information overload

Receiving too much information is a common barrier to reflecting on incident alerts. Workers felt that they received so much information on incidents that they had to decide what to prioritise and what to just glance through. This problem was made worse by receiving generic-seeming alerts. Workers in energy companies are often surrounded by carefully controlled hazards that could lead to large-scale incidents. Incidents that could happen anywhere, such as slipping on ice, can therefore seem trivial and irrelevant in comparison.

The tactics to deal with information overload cited during the interviews were to:

- Involve people with specialist knowledge in the process of deciding which incident alerts to send to which teams. For example, the HSE department might send an incident alert to the head of production, who would send it on to the teams he thought it was relevant to.
- Collect feedback on whether a team thinks an incident alert is relevant to them.
- Use incident trends and the results of audits to select incident alerts that connect to a common type of incident.
- Choose incidents based on the day's task rather than what has recently happened. Tools such as the EI's Toolbox website allow team leaders easily to search for relevant alerts. Computer programmes can also be used to show incidents relevant to specific equipment or hazards involved.
- Hold training events where several incident alerts related to a process are discussed.

Barrier 2: Inconsistent delivery of incident alerts

Incident alerts are presented to workers in inconsistent ways. Group discussions are the most common form of reflection on incident alerts, but its effectiveness depends on the facilitation skills

of the team leader. Some team leaders 'deliver' the information by just reading the incident alert aloud, creating limited opportunity for meaningful reflection. Others encourage active reflection by asking questions, such as 'what's the difference between this team and us?'

Beneficial tactics to deal with this issue mentioned during the interviews were to:

- Ensure the incident alerts are of high quality. This quality assurance requires knowledge and expertise in HSE, technical aspects of the incidents, and editing skills (e.g., how much information to include, the alert's layout, etc.). It is a good idea for alerts to be written by specialists in LFI with input from technical and learning specialists.
- Provide facilitation training for team leaders. Team leaders are usually appointed because of their technical skills, rather than their facilitation skills. The Energy Institute's Hearts & Minds Toolkit includes advice on how to design and facilitate several workshops to encourage reflection and learning (Margaryan, Littlejohn and Lukic, 2017).

Barrier 3: Cognitive biases

If I am involved in an incident, I will often think that the event happened due to the situation I was in. However, if the same incident were to happen to someone else, I would often think that the accident was caused by the personal characteristics of that person, such as incompetence. This difference is a well-known cognitive bias, i.e., a shortcut in how the brain processes information (Tetlock, 1985). This bias affects how workers think about an incident and therefore how they reflect on it. If a worker believes an incident was due to incompetence, they may dismiss the incident alert as irrelevant to them. This bias is a difficult barrier to overcome, especially when combined with information overload, causing workers to not deeply reflect.

Tactics for dealing with this type of cognitive bias usually requires encouraging people to think a bit deeper than they naturally do. Some examples expressed in the interviews were to:

- Ask workers to provide evidence for why an incident would not happen to them, e.g., presenting a bow-tie diagram to a team and asking which barriers would prevent the incident.
- Conduct informal audits of each other's work to see if everyone does the same procedure in the same way. Chances are the differences will cause everyone to think about which way is best, or if it does not matter.
- Receive presentations from people who were involved in incidents. Hearing the story behind what happened in an incident helps a worker imagine that they were there and understand the circumstances that led to the incident.

Barrier 4: Difficulty measuring learning

A major barrier to implementing LFI is measuring whether and how well workers are learning. Often companies assume that if fewer incidents are happening, then workers must be learning. However, the "swiss cheese model" of incident causation means that probability plays a role in whether incidents happen or not (Reason, 2000). Therefore, occurrence of incidents may not indicate poor LFI, but rather be because of 'bad luck' (particularly when the number of incidents is relatively low). Difficulties measuring if learning is happening or not mean that companies are unsure if their LFI system is encouraging reflection.

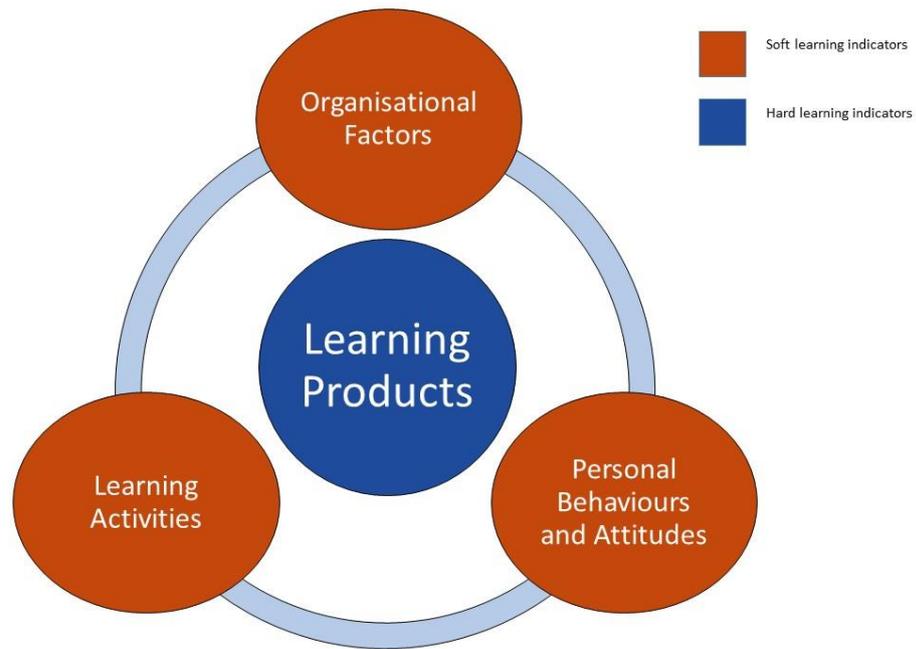


Figure 2: Types of learning indicators.

To address this issue, the Open University has created a 'Taxonomy of LFI Learning Indicators' that companies can use to broaden their metrics for learning. The taxonomy includes a number of 'learning products' as hard indicators of learning. These indicators are changes that should result from LFI, such as changes in procedures or improved knowledge of hazards. The taxonomy produced also includes indicators that are necessary to support people as they learn, called soft indicators. Examples include high-quality incident alerts and transparency of information. Figure 2 shows the types of different learning indicators. The Taxonomy of LFI Learning Indicators will be included in the next version of the EI's Hearts & Minds Toolkit LFI tools.

Conclusion

Reflecting on incident alerts can seem like a fuzzy concept but is essential for effective learning. There are a number of barriers common across the energy sector that can prevent reflection and stop successful LFI. However, there are already many examples of different tactics companies are using to help their workers to reflect on incident alerts.

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