Improving safety culture through Hearts and Minds

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www .energyinst.org

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Hearts AND Minds

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1. Introduction to the Energy Institute

About the Energy Institute (EI) (1)

- **The Energy Institute (EI) is a chartered professional membership body for the global energy industry**
- **Serves society with independence, disseminating knowledge, skills and good practice towards a safe, secure and sustainable energy system.**
- **Licensed by:**
  - the Engineering Council to award Chartered, Incorporated and Engineering Technician status,
  - the Science Council to award Chartered Scientist status, and
  - the Society for the Environment to award Chartered Environmentalist status.
- **Professional development, training, events**
- **Technical work programme funded by EI Technical Partner Companies**
  - Standard and guidelines for health, safety, environment and quality.

About the Energy Institute (EI) (2)

- **20,000 individual EI members**
- **350 company members**
- **35 Technical Partners**

BG Group
BP Exploration
BP Oil UK Ltd
Centrica
Chevron
ConocoPhillips
Dana Petroleum
DONG Energy
EDF Energy
ENI
E.ON UK
ExxonMobil International
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Saudi Aramco
Scottish Power
SGS
Shell E&P
Shell Oil Products Ltd
SSE
Statoil
Statkraft
Talisman Energy
Total E&P UK plc
Total UK Ltd
Valero
Vattenfall
Vitol
World Fuel Services

Hearts and Minds toolkit

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EI is the publisher of the Hearts and Minds safety culture toolkit

http://www.energyinst.org/heartsandminds

2. Background to Hearts and Minds

Safety performance plateau

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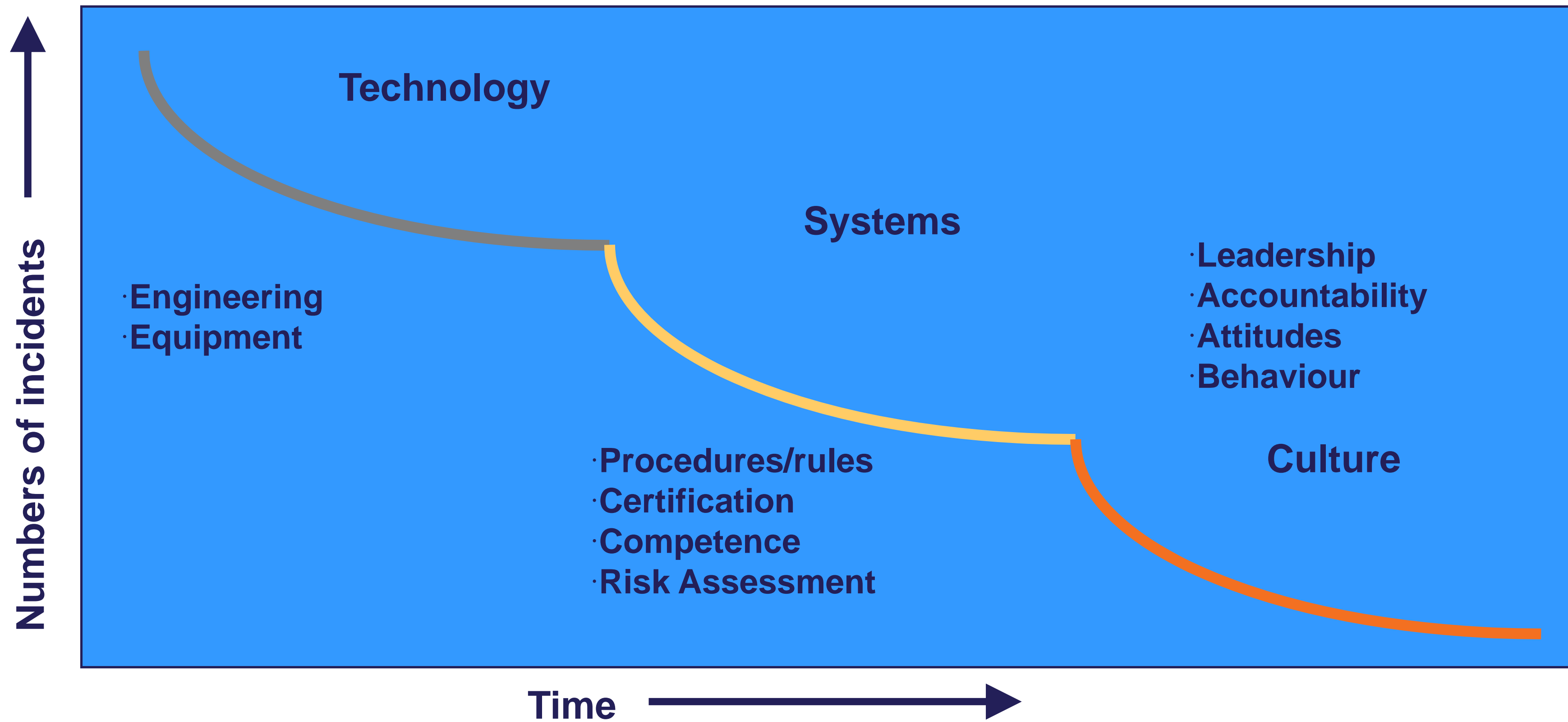

What is safety culture?

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- “The product of individual and shared values, attitudes and patterns of behaviours which determine the proficiency of and the commitment to, an organization’s Operations Management”.
- Individual and group behaviours which are accepted and reinforced in the organisation.
- “The way we do things around here”
- “What we do when no one is looking”
- **Safety culture** is the beliefs, behaviours and practices around managing ‘safety’.

Understanding culture

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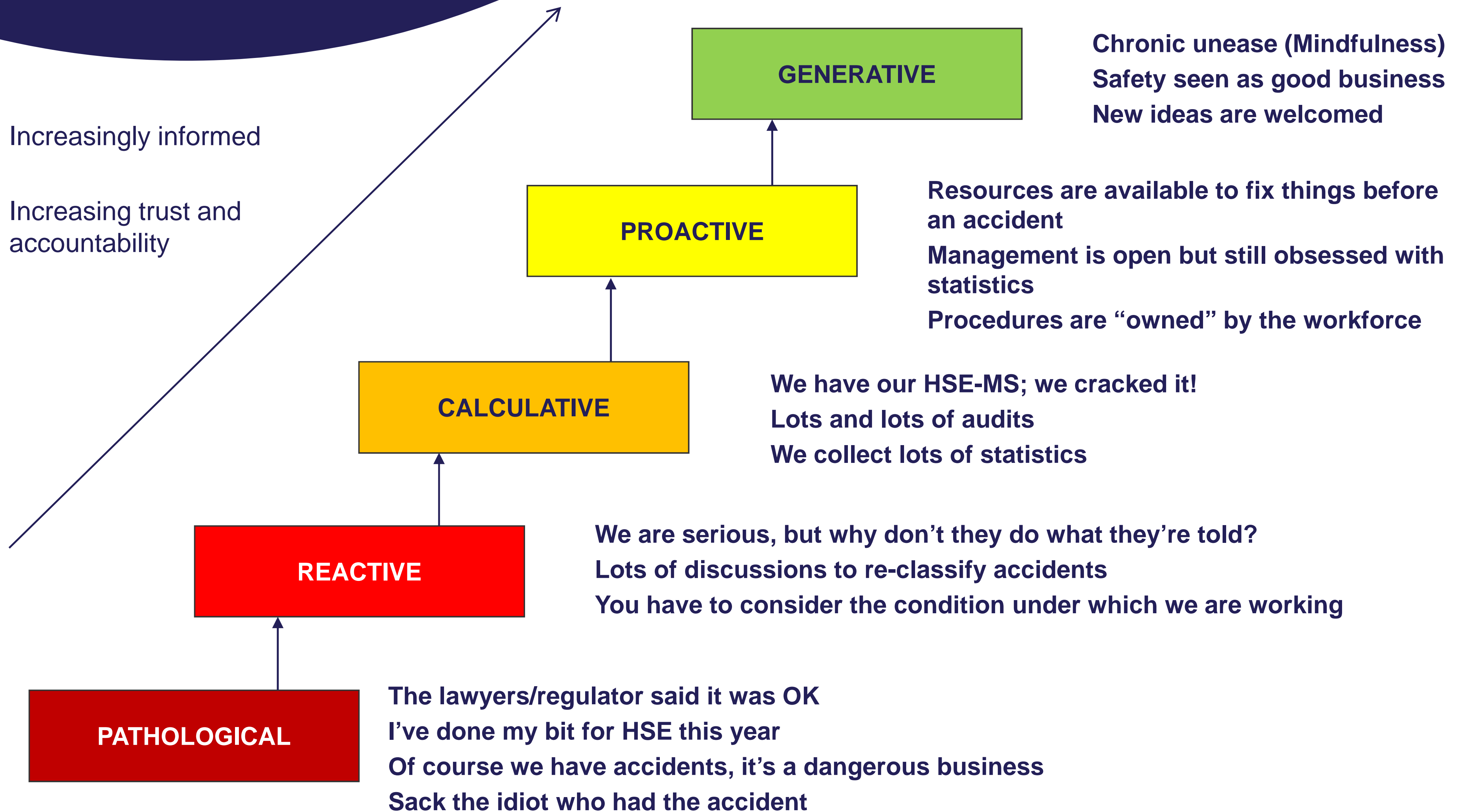
- Culture is not a real property, it can't be objectively measured.
- Culture is 'created' by the observer.
- It is simply a way of making sense of why people behave in similar ways.
- However, practically, we believe there is merit in classifying cultures, as a way to improve that culture.

The safety culture ladder



Parker/Hudson culture model

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The toolkit

http://www.eimicrosites.org/heartsandminds

What is Hearts and Minds (H&M)?

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- A set of ‘tools’ designed to facilitate safety cultural change.
- 9 tools, focusing on common issues.
- Originally produced by Shell, through 20 years of psychology research at Universities of Leiden, Manchester and Aberdeen
- Each tool:
  - Distils key academic theory into practical information.
  - Provides a series of workshop activities and ‘micro tools’ to stimulate discussion.
  - Aims to help people identify their problems and create their own solutions.

The H&M ethos

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- A range of tools and techniques, based on academic theory, to help organisations improve their safety culture
- Aim to make theory accessible and useful
- Not a change programme requiring delivery by external consultants
- Tools suitable for use by non-experts (but do require thorough preparation)
- Most of the tools used in a participative workshop context
- Workshops require 2-3 hours without interruption
- Small groups (no more than 20 people) working together to diagnose their problems and work up solutions

- The principle behind this ethos?
  - Self-generated solutions are more likely to succeed than those coming top-down, or externally imposed

The science behind Hearts and Minds

- Sneddon, A., Hudson, P.T.W., Parker, D., Lawrie, M., Vuijk, M.,Â & Bryden, R. (2005) A Comprehensive Model for Human Behaviour in Industrial Environments. *The XIIth European Congress on Work and Organizational Psychology.*
- Hudson, P.T.W., Parker, D., Lawrie, M., v d Graaf, G.C. & Bryden, R. (2004) How to win Hearts and Minds: The theory behind the program. *Proceedings 7th SPE International Conference on Health Safety and Environment in Oil and Gas Exploration and Production*. Richardson TX: Society of Petroleum Engineers
- Aune, S., Bryden R., Cairn, D., Van Dam, P., Dekker, G. Lauvstad, B., v.d. Wal, J.Â (2004) Culture Change and Breakthrough Safety Performance: A European Example. *Proceedings 7th SPE International Conference on Health Safety and Environment in Oil and Gas Exploration and Production*. Richardson TX: Society of Petroleum Engineers
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- Hudson, P.T.W., Parker, D., Lawton, R., Verschuur, W.L.G., van der Graaf, G.C. & Kalff, J. (2000) The Hearts and Minds Project: Creating intrinsic motivation for HSE. In *Proceedings SPE International Conference on Health Safety and Environment in Oil and Gas Exploration and Production*. Richardson TX: Society of Petroleum Engineers
- van der Graaf, G.C. , Kalff, J., & Hudson, P.T.W. (2000) Moving towards a generative safety culture: The Hearts and Minds HSE Research Programme (Part 2). *Exploration and Production Newsletter.EP2000-7006*,38-40 The Hague: Shell International

Etc.

How to improve culture

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Consistent and fair positive and negative consequences for safe/unsafe behaviour

- Coaching
- Praise and trust / criticism and distrust
- Career enhancement/limiting
- Dismissal
- Fair and just reward/discipline

Personal proactive interventions

We are intrinsically motivated to work safely

Individual consequences

We understand and accept that there is a fair system for reward and discipline

Personal responsibility

We understand and accept what should be done and know what is expected of us

Being 'crystal clear' in our HSE expectations.

- SMS identifies risks and controls
- Roles and responsibilities are made clear
- 1-to-1 discussion with role-holders
- People accept roles and are held accountable

3. Hearts and Minds toolkit, a quick overview

Understanding your culture

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- **Assess organisation against the ‘culture ladder’**
- Qualitative tool
- Workshop-based questionnaire (although online version available)

- Outcomes:
  - Understand the current culture, and ‘what better looks like’ (i.e. better cultures)
  - Convince need for change
  - Understand issues
  - Begin to plan solutions

Making change last

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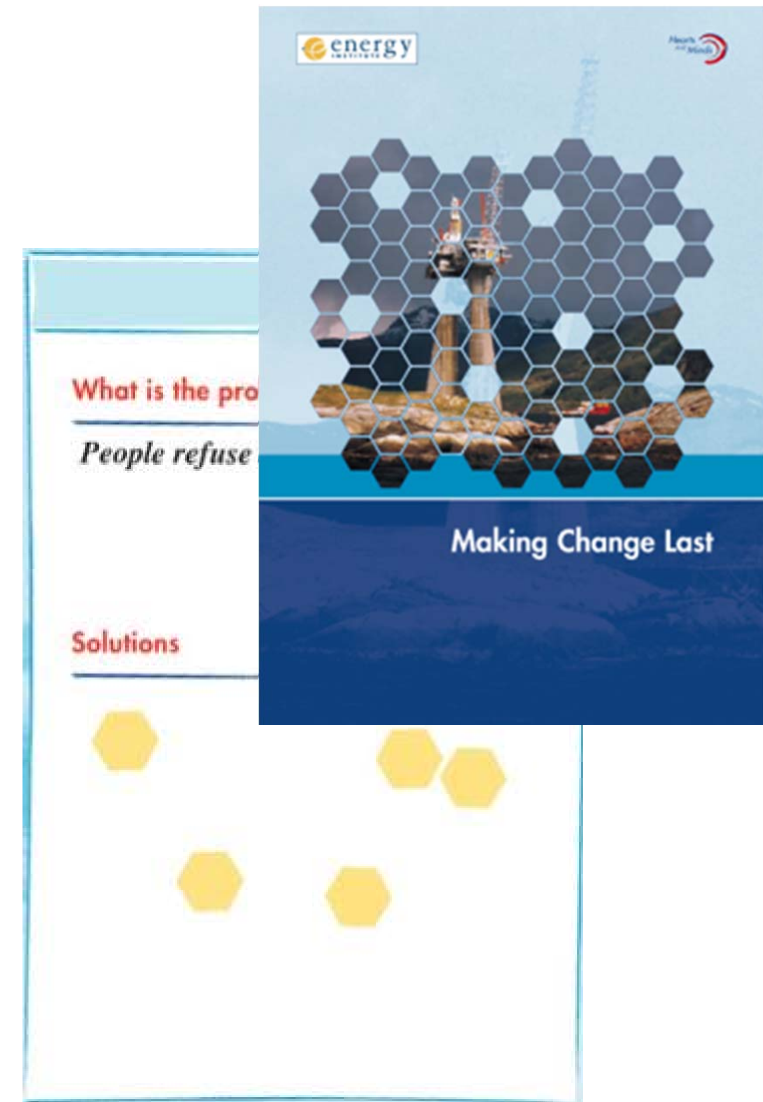
- **Assesses readiness to change**

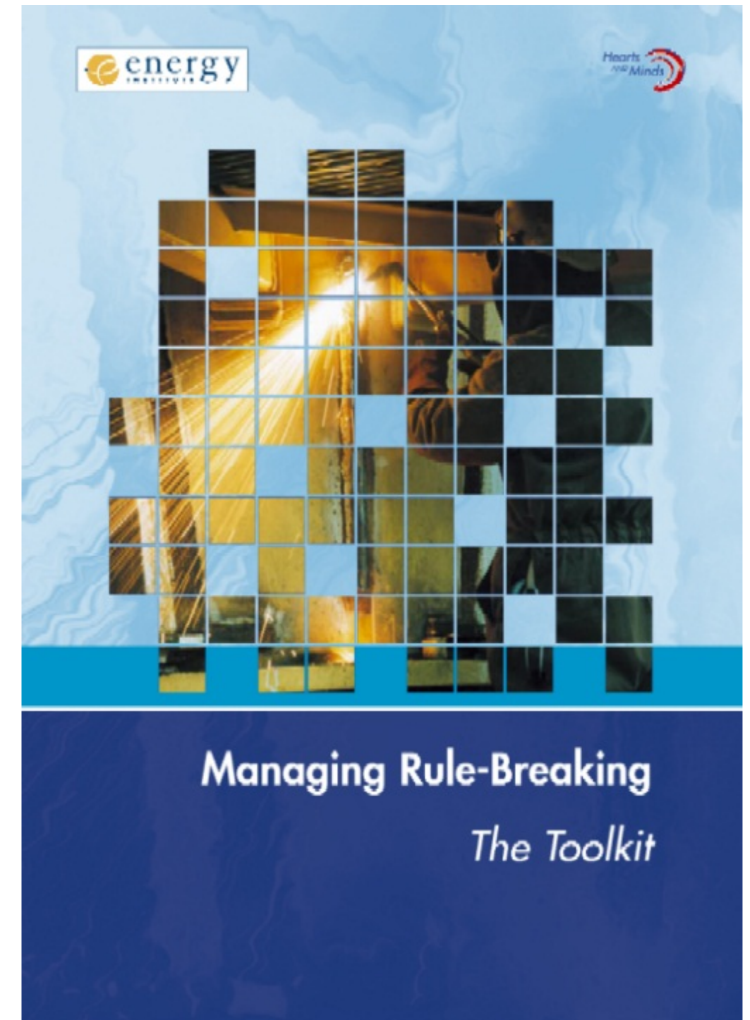
Change process:

- Are you ready for change? (Aware of the problem? Plans in place?)
- Plans implemented? Effort maintained?
- Overcoming barriers to implementation of change
- Setting goals and implementing the right initiatives for change
- What is the problem?
- Solutions?

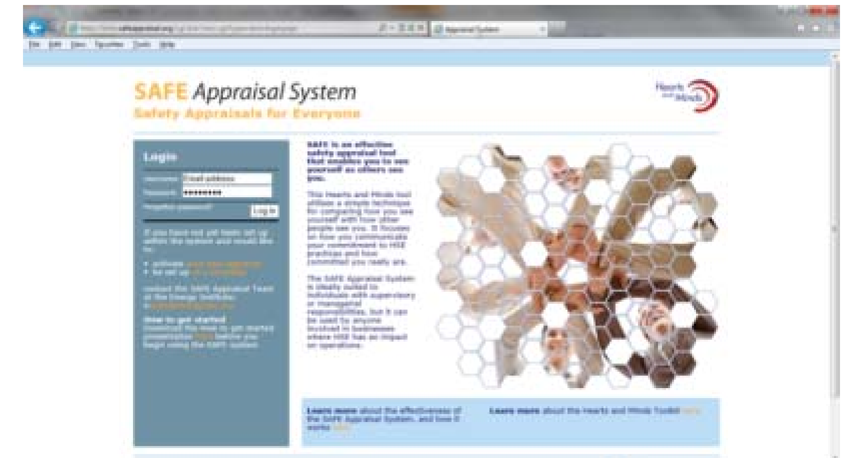


Managing Rule Breaking

- **Why does rule breaking happen?**
- Improving procedures and practices
- Workshop exercise
  - are rules/procedures followed?
  - Why break the rules?
  - Do we have problem procedures? How can we fix problem procedures
- Solving causes of rule breaking
- Applying fair and consistent consequences for rule breaking behaviour



Safety appraisals for everyone

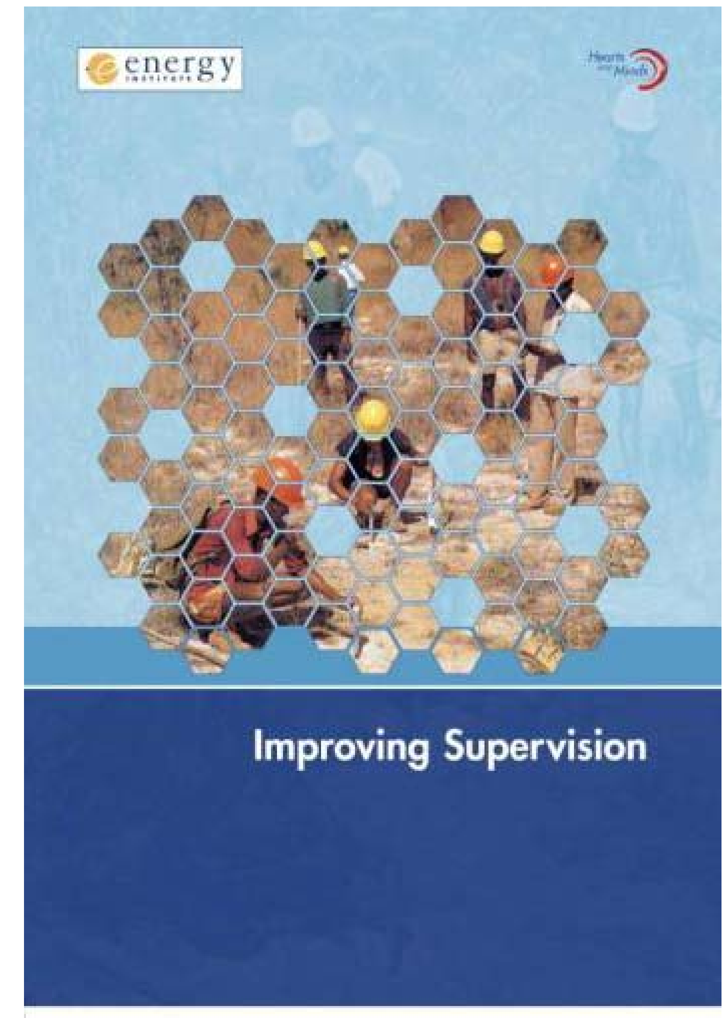


- **Improving safety leadership**
- Designed to provide feedback to managers and other safety leaders on their safety behaviour.
- 360-degree appraisal system.
- 17 questions.
- Follow-up discussions to discuss results and create a personal action plan to improve safety behaviour.

www.safeappraisal.org

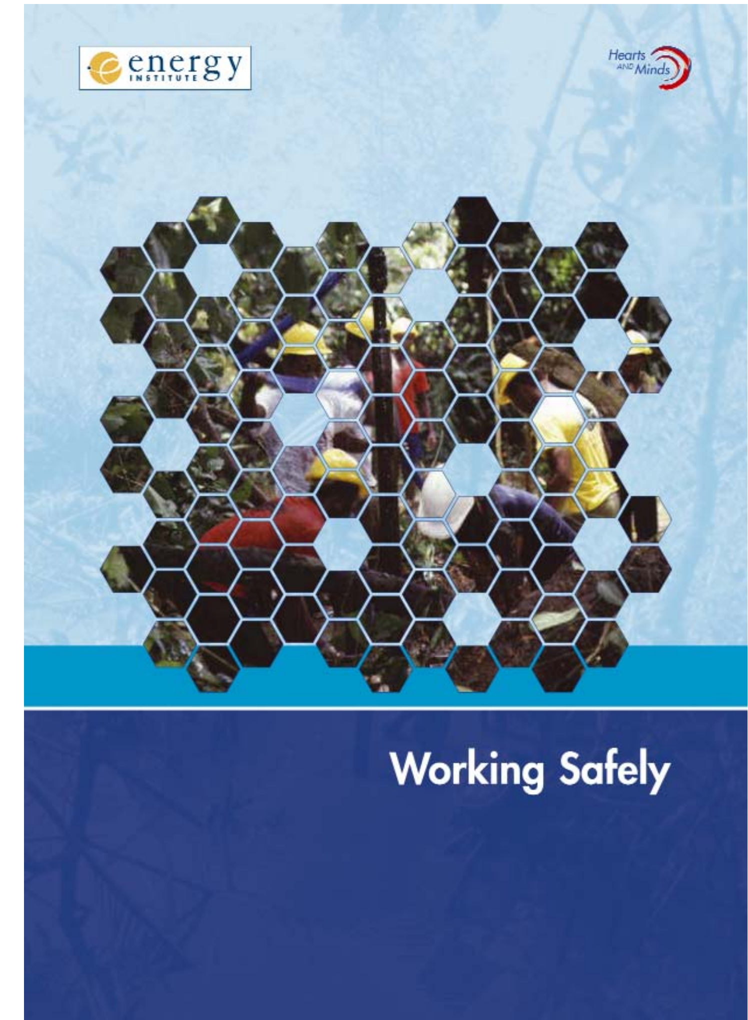
Improving supervision

- **Improving competence of supervisors**
- Leadership styles, examining which styles are most appropriate to use.
- Helps leaders understand their leadership style and effectiveness, and an action plan for improving.



Working safely

- **Improving competency of workforce to manage hazards**
- Situational awareness tool used to increase people's ability to work safely.
- Why people do and do not work safely
- help identify risks,
- introduces risk assessment.



Achieving situation awareness – the rule of 3

- **Knowing when to continue and when to stop/restart an activity**
- The problem: people tend to err on the side of risk, not caution.

- Rule of 3: traffic light system:
- Green = good to proceed
- Amber = proceed with caution
- Three ambers = Stop!
- Red = stop!

- Helps removes human bias from go/no-go decision making

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Achieving Situation Awareness in Five Minutes

The Rule of Three

What is it?

This tool is a simple technique that can help you develop a good habit for realising how normal situations can escalate to become serious risks and how this can be prevented. In five minutes, you have a process for defining your problem areas and guidelines for maintaining control.

Why use it?

Real life decision making is often made hard because of many uncertainties. How do you know when to stop and when to go on? You can set hard limits, but these are often arbitrary or intended to compensate for all the other things that might go wrong, but don't usually. When you are involved in critical operations, personal, operational or even commercial decisions, you need to know how many problems areas you are facing, how serious they are, and what you can control.

The idea is simple. We have clear No-Go limits – **Reds** and marginal conditions – **Ambers**. If there are no problems we are in the clear – **Green**. We must always stop if we have a Red, but too many ambers are just as risky. The rule says, Three Ambers = **Red**. When we have too many ambers, we can try to manage some of them back into the green, maintaining control of what might become an escalating situation. Analyses of many incidents has shown a relationship between the number of ambers you have and whether the outcome is a near miss or an accident.

The Rule of Three

Green	=	OK		
Amber	=	Proceed with caution		
Three Ambers	=	Red	=	STOP!
Red	=	STOP		

What can I do?

- Know what can go wrong in the work you do. This can be within any operation; even commercially critical decisions can also be tested with *The Rule of Three*.
- Discuss with your team how you are going to use the tool (see examples).
- Identify and agree as a team the concerns that count as an amber (see the Examples of ambers box).
- List your ambers, if challenged, as the evidence for stopping the job.

Examples of Ambers

What factors might divert your attention and become problem areas? Think about the factors that are relevant for the work you do. Make your own list of possible reds and ambers, e.g.

- People – a new job, numbers, inexperience, fatigue/hours worked, attitudes, job insecurity, personal problems, personnel/shift change etc.
- Equipment – just out of maintenance, marginal operability, non-standard, etc.
- Pressures – commercial, approaching deadlines, poor plan etc.
- Environment – night-time, bad weather, climate, concurrent operations, etc.
- Change – reorganisations, change of plan content, change of plan timing, etc.

Why didn't they stop earlier?

When things go wrong, we often ask this question; but we have the benefit of hindsight by that time. How can we get those benefits, without unnecessarily stopping operations by too much caution? The issue is about evaluating marginal conditions so that sensible decisions are made, either to carry on or to stop. The trick is first to know how many problem areas there are, where the risk can accumulate. Then you can identify which ones you can control, reducing the cumulative risk and so allowing you to continue safely.

The Rule of Three in use

The steps

1. **Pause** for five minutes to think or discuss with your colleagues, especially when something changes.
2. **Identify** what concerns you about the situation. Add up all the factors. These are your ambers.
3. **Stop** what you are planning to do or doing if you get to three ambers or have any reds.
4. **Recognise** what you can or cannot alter in order to control the problem. Change what you can. Re assess your ambers to see if you can now carry on.
5. **Agree** with colleagues in advance about using *The Rule of Three* to stop work. Discuss what your ambers are. Use terms like "counting your ambers", "managing into the green" or "close to red", so that everyone can communicate how they are managing risks and solving their problems.

Risk assessment matrix

- **Competency to manage risk**
- Qualitative risk assessment tool.
- Provides a framework for making sense of risks in order to help build in the necessary barriers to lower the chance of an incident to ALARP (As Low As Reasonably Practicable) levels.

Risk Assessment Matrix

SEVERITY	CONSEQUENCES				INCREASING LIKELIHOOD				
	People	Assets	Environment	Reputation	A Never heard of in the Industry	B Heard of in the Industry	C Has happened in our Organisation or more than once per year in the Industry	D Has happened at the Location or more than once per year in our Organisation	E Has happened more than once per year at the Location
0	No injury or health effect	No damage	No effect	No impact					*Continuous Improvements*
1	Slight injury or health effect	Slight damage	Slight effect	Slight impact					
2	Minor injury or health effect	Minor damage	Minor effect	Minor impact					*Control to ALARP*
3	Major injury or health effect	Moderate damage	Moderate effect	Moderate impact					
4	PTD* or up to 3 fatalities	Major damage	Major effect	Major impact					
5	More than 3 fatalities	Massive damage	Massive effect	Massive impact					*Tolerability to be Endorsed by Management*

* Permanent Total Disability

Driving for Excellence

- **Improving situational awareness in both drivers and supervisors of drivers.**
- Driving operations remain the biggest hazard in terms of frequency for most organisations
- Driver need to be able to recognise ‘hazards’.

New: Learning from incidents

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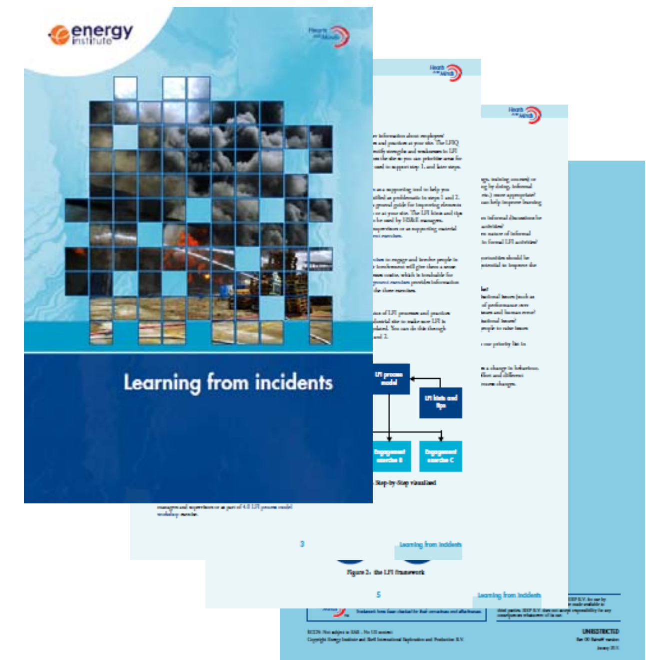
- PhD research found that:
  - There is a generic LFI process that most companies follow.
  - However, LFI activities in most companies are not very effective
    - Not based on how adults learn
    - Tend to end after disseminating information about incidents to the workforce.
  - A key phase to learning that many companies do not do well is ‘contextualising’ – giving people the time and tools to make sense of an incident – what does it mean to them and their work?

- The tool was created to help companies
  - A) Understand the LFI process and what activities they have.
  - B) Help people ‘contextualise’ – make sense – of incidents.



4. How is Hearts and Minds being used?

Who is using Hearts & Minds

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- Used to an extent by hundreds of companies – approx. 400-500 companies
- Used extensively in the following industries:
  - Oil and gas
  - Power generators
  - Shipping
  - Aviation
  - Rail
  - Pharmaceuticals
  - Security and defence
  - Training and consultancy

- Shell
- Vattenfall
- Sakhalin Energy
- Sabic
- Petronas
- Wartsila

Case Studies

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Safety first for SEPC

People, safety, productivity and profitability are the key fundamentals an organisation should aspire to integrate into its culture, explains Raj Singh, *Chief Executive, Safety@Work.*

People, safety, productivity and profitability is the prevalent ethos at Safety@Work (S@W), an oil and gas industry focused consultancy, which has made its presence felt by working with top industry players within the Asia-Pacific and Middle Eastern regions, including Shell, Aker, Sea Production and Rubicon Offshore.

S@W has recently completed work on a major Shell Eastern Petrochemicals

on the project – it was recognised that raising the profile of safety skills and professionalism would also help promote a strong safety culture across the wider construction industry. S@W was therefore employed to assist in the development of a multi-level training programme for employees on the site, including contracting companies. The key goal was to ensure that employees across the board were aligned with Shell's aim to enhance

workforce was identified as a key opportunity to achieve safety goals – if the young workforce could fall into a high level of safety culture now, they would likely maintain the level long term. In addition, working to engage first line supervisors (predominantly contractors), was also important to deliver the results on site, not just for quality and productivity, but for safety.

Improving cultures

In the workplace, scaffolds, cranes and mobile equipment do not pose a risk to people unless they are misused and expose workers to danger. Given that people can change situations, what can be done to educate them to improve safety?

The three waves of safety for reducing incidents over time are probably a familiar sight to those involved in this part of the industry (see **Figure 1**). Each wave improves safety and helps to reduce incidents, with the fall in incidents levelling off over time as the limits of improvements are reached. The first wave reduces the exposure of people to risk through improved hardware and technology, the second wave introduces improved management systems, and the third and most recent wave focuses on developing a continuously improving safety culture within an organisation.

In theory, the way that people behave in relation to safety depends on an

Petroleum Review, May 2010

Shell Eastern Petrochemicals Complex, Singapore

- Major turnaround project – 15,000 workers
- Rolled out Hearts and Minds from the start as part of trainee programme for supervisors.
- All participating contractor supervisors enrolled in training course. Course covered various aspects of Hearts and Minds. A senior Shell manager was present for every H&M workshop.
- Supervisors were also allocated a mentor onsite to get involved in safety interventions.
- Achieved 13.5mn man-hours without an LTI, and recordable injuries of 0.6 per mn man-hours. At the time, a record for Shell.

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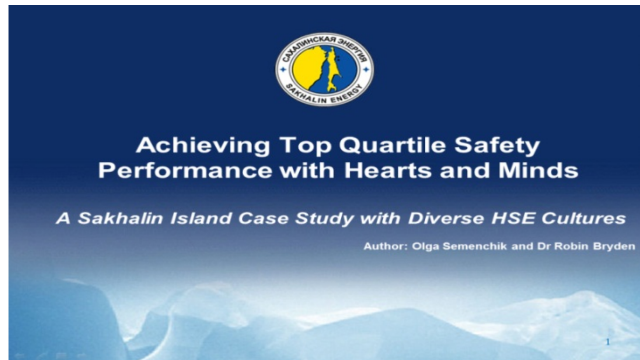

Sakhalin Energy

- Diverse but generally reactive safety culture in 2004
- Used H&M, particularly Understanding Your Culture and Managing Rule Breaking
- Significantly reduced fatalities from 14 in 2004 to 0 in 2012
- Reduced road traffic injuries from 60 in 2004 to 0 in 2012
- 80% improvement in LTIs over 8 year period
- Achieved record safety performance

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Working with energy professionals, serving the global energy community

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