



Office for
Nuclear Regulation



Safety Culture: Definition and Model

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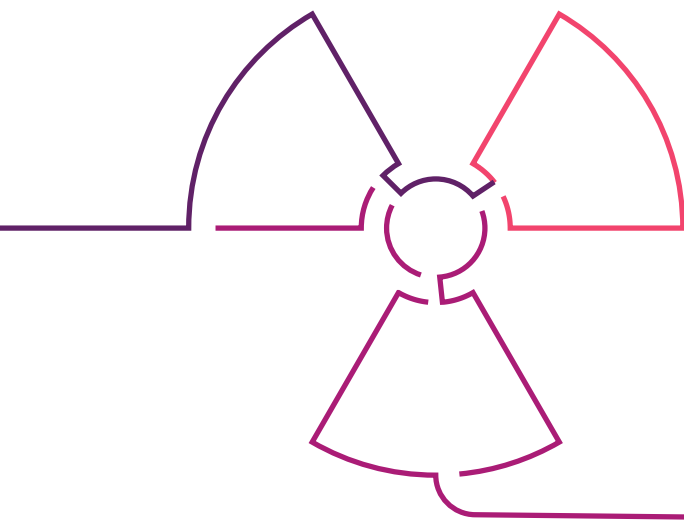
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Introduction

This document introduces the Office for Nuclear Regulation's (ONR) definition and model of safety culture. Its purpose is to create a collective understanding of safety culture across Great Britain's nuclear industry to improve organisational learning, and to provide ONR with a simple and straightforward way to engage with those that we regulate on this important topic.

Safety culture emerged as a concept following the 1986 Chernobyl disaster and since then it has been an important focus area for many major hazards industries. ONR recognises the role of safety culture in maintaining both nuclear safety and conventional health and safety. Reports of investigations into notable events such as Three Mile Island, Chernobyl, Davis Besse and Fukushima provide compelling evidence of the importance of developing and maintaining an effective safety culture.

Furthermore, academic and business research, conducted over the past 40 years, has established the critical role of organisational culture in achieving good business and safety performance. In an increasingly challenging and competitive landscape the implication for both the nuclear industry and its regulator is that a safety culture is essential for a nuclear business to succeed as well as being fundamental to maintaining safety and retaining public trust.

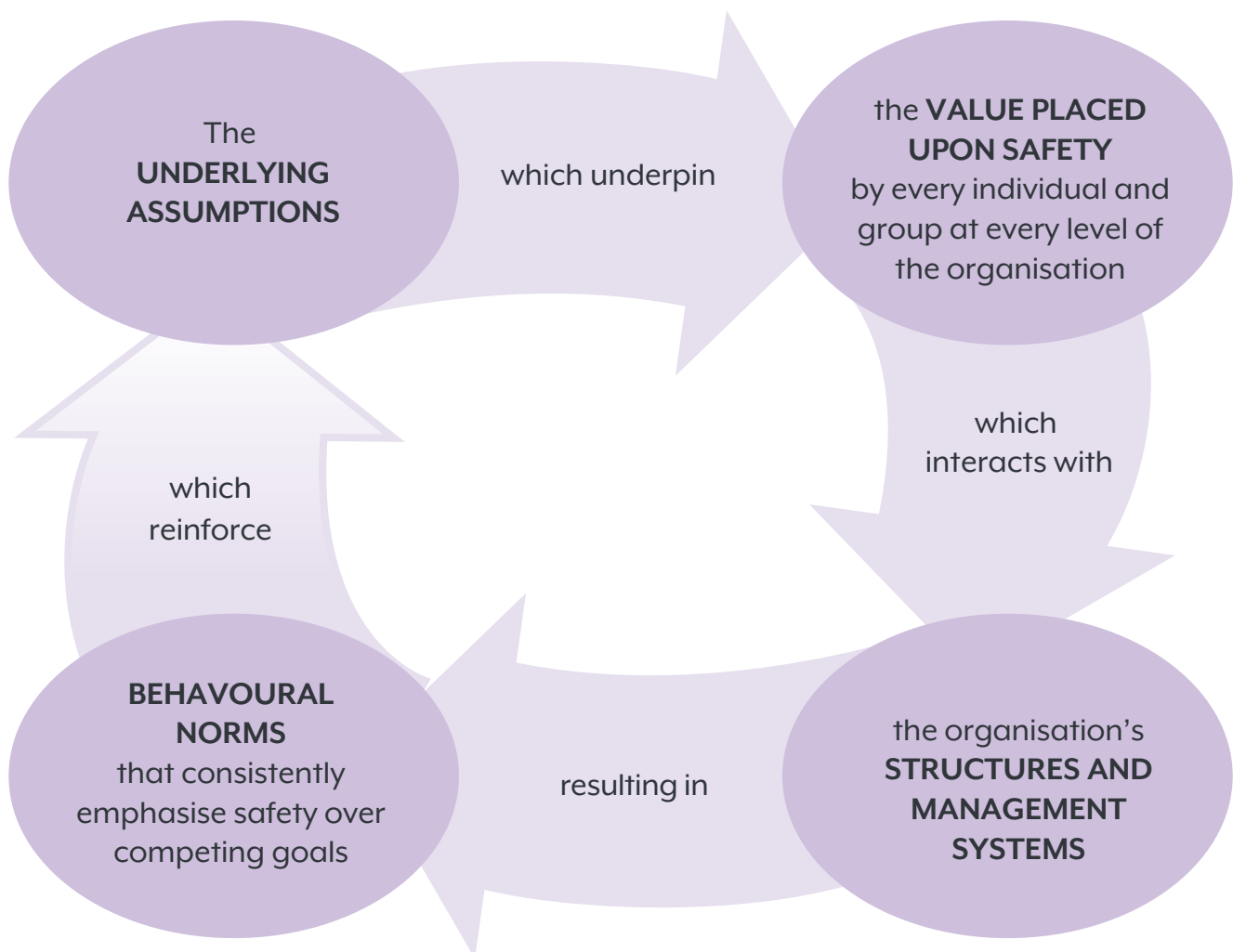


Definition of Safety Culture

We define safety culture as:

“The underlying assumptions, which underpin the value placed upon safety by every individual and group at every level of the organisation, which interacts with the organisation’s structures and management systems, resulting in behavioural norms that consistently emphasise safety over competing goals.”

We have depicted the interaction between these four components in the following diagram:



Guidance on Definition

The underlying assumptions

The underlying assumptions are unconscious and unspoken elements of the safety culture which are hard to articulate as people take them for granted. They often reflect ways of working which have been successful over time and manifest themselves in “the way we do things around here.” This is the most difficult element of the culture to uncover and understand, however assumptions have a profound impact on what individuals and groups value and how they behave.

The value placed upon safety

One of the key factors that influences safety behaviour is the perceived priority that leaders/managers give to safety. At times, production pressures may result in leaders/managers prioritising production over safety and this can negatively influence safety behaviours: if workers feel that leaders/managers prioritise production over safety then workers are less likely to prioritise safety, resulting in lower safety compliance and lower safety participation. When there is a safety culture, the value placed upon safety by every individual and group at every level of the organisation is enduring. People consistently emphasise safety over competing goals and behave accordingly, reinforcing the safety culture.

Structures and management systems

Structures include the formal organisational structures and hierarchies, as well as informal power structures which leaders/managers have not written down but often underpin how people make decisions within a team/organisation. Management systems include policies, standards, procedures, and arrangements; for example, arrangements for reward and recognition, managing performance, dealing with disciplinary matters, and making decisions. Structures and management systems profoundly affect how people behave, and therefore it is important that leaders/managers design structures and management systems which enable the behaviours that underpin a safety culture.

Behavioural norms

Behavioural norms are social rules that influence how people behave within a team/organisation. They are ways of working which people accept and can be a powerful force in influencing behaviour. In a safety culture, the behavioural norms are patterns of behaviours that are associated with safe outcomes, for example acting upon warning signs of danger, responding positively to feedback and ideas regarding safety, or challenging unsafe behaviours. People deem behaviour which is inconsistent with a behavioural norm to be socially unacceptable, and they apply social pressure to ensure that the person exhibiting the behaviour brings it back in line with the social rules.

Model of Safety Culture

We founded our model of safety culture on the output of research we commissioned to develop a measure of safety culture, known as the Nuclear Industry Safety Culture Inventory (NISCI). All of Great Britain's licensees participated in this research and therefore we are confident that this model most accurately captures safety culture as it relates to Great Britain's nuclear context. Our model builds upon the IAEA's Harmonised Safety Culture Model and encompasses those attributes focussed upon underlying values, beliefs, and attitudes towards safety.

Our model comprises of six broad dimensions and 15 attributes of safety culture. A detailed explanation of its development is available on the ONR's website.¹

The following dimensions and attributes are crucial factors that organisations working in Great Britain's nuclear industry should strive to understand and improve upon, so that they may continually improve their safety performance and outcomes.



¹ www.onr.org.uk/media/kajllz4y/ambs-onr-nisci-report.pdf

Safety Culture Dimensions

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Senior Leadership

Strong safety leadership is of the upmost importance to an organisation's safety culture. Senior Leadership consists of three leadership attributes that shape safety culture in organisations.

Senior Leader Communication	Senior leaders communicate the importance of safety in a clear, consistent, and frequent manner. They are visible to the workforce and talk to workers in a way that upholds safety standards.
Senior Leader Consistency	Senior leaders behave in ways that are consistent with their messaging. They 'walk the talk' and 'practice what they preach' when it comes to safety.
Senior Leader Openness	Senior leaders are open to workers' feedback and ideas regarding safety. They encourage and foster opportunities for workers to provide feedback and react positively to feedback and ideas.

Unhealthy Culture

- Infrequent communication regarding safety.
- Avoidance of difficult conversations.
- No clear safety standards are set.
- Safety walks are not or rarely performed.
- Safety issues are not acted on.
- Safety rules can be ignored.
- Safety ideas are not listened to.
- Safety feedback not taken seriously.

Healthy Culture

- Clear communication of safety.
- Frequent and engaging communication about safety.
- Regular safety walks.
- Actions are taken to uphold safety standards (walking the talk).
- Consistent prioritisation of safety issues.
- Workers' safety ideas are heard and taken seriously.
- Implementation of changes based on safety feedback.

Line Management

Line managers play a key role in workers' daily experiences. The main attributes that shape safety culture from a line management perspective are the same as those for senior leaders, however they are manifested through different behaviours. People perceive senior leaders and line managers very differently, so it is important to differentiate between, and consider both, managerial levels.

Line Manager Communication	Line managers communicate the importance of safety in a clear, consistent, and frequent manner. They engage in difficult conversations to uphold safety standards and proactively check-in with workers regarding safety.
Line Manager Consistency	Line managers behave in ways that are consistent with their messaging. They uphold the safety standards discussed by senior leaders.
Line Manager Openness	Line managers are open to workers' feedback and ideas regarding safety. They take workers' safety ideas and feedback seriously and will implement changes based upon these.

Unhealthy Culture

- Safety issues are not discussed with workers.
- No clear safety standards are set.
- No safety 'checks' are done with workers.
- Safety behaviours do not match the safety messages.
- Organisational safety standards are not upheld.
- Workers are not involved in safety improvements.
- Safety feedback is not acted upon.

Healthy Culture

- Safety messages are communicated in engaging ways.
- Safety checks always take place prior to starting work.
- Difficult conversations are embraced to uphold safety standards.
- Safety is consistently prioritised.
- Workers are asked for ideas to improve safety.
- Appropriate changes are made based on safety feedback.

Immersion

The degree to which people feel immersed within the organisation profoundly influences safety culture. Immersion consists of two emotional attributes which influence safety culture in organisations.

Feeling valued	People feel respected, trusted, and valued within the organisation. People are recognised and rewarded for individual efforts and good safety behaviours.
Engaged ²	People feel energised and enthused in the safety culture. They are dedicated to safety and see safety as an overarching priority that they actively contribute to.

Unhealthy Culture

- Workers do not feel valued.
- Workers feel that their organisation has doubt in their ability.
- Good safety behaviour goes unnoticed.
- Workers switch off when safety is talked about.
- Safety is seen as a tick-box exercise.

Healthy Culture

- Workers feel trusted to do a good job.
- Individual efforts are recognised.
- Good safety behaviour is rewarded.
- Workers perceive that their contributions to safety make a difference.
- Employees' minds are always focused on safety.

2 This sub-dimension is named “Disengaged” in the model which accompanies the NISCI (see www.onr.org.uk/media/kajllz4y/ambs-onr-nisci-report.pdf): there it is a ‘reversed’ dimension where a lower score (being less disengaged) reflects a more positive indicator of safety culture.

Accountability

In the nuclear industry, it is essential that people are held to account for their safety behaviours and that this is done fairly and with a learning focus. Accountability consists of two attributes that influence safety culture in organisations.

Presence of Accountability	People are held accountable for their actions regarding safety. Appropriate action is taken when poor safety behaviours are displayed and this applies to people at all levels of the organisation.
Just Culture	Incidents are investigated fairly, without apportioning undue blame, and by adopting a learning approach to accountability.

Unhealthy Culture

- Workers get away with poor safety behaviour.
- Workers are not disciplined for breaking safety rules.
- Blame is attributed to individuals when safety failings occur.
- There is little faith that admitting an honest mistake would result in a fair treatment.

Healthy Culture

- Workers at all levels are held to account when it comes to safety.
- Managers always take action to deal with unsafe behaviour.
- Safety incidents are investigated fairly and without blame.
- An environment that encourages workers to own up to mistakes rather than cover these up.

Challenge

A crucial feature of safety culture in the nuclear industry is recognising and challenging assumptions, values, behaviours, structures or elements of the management system that could adversely impact safety immediately or in the future. Due to the high standard of safety within this industry, accidents or disasters occur rarely. However, remaining vigilant to spot and communicate warning signs early remains essential. Challenge consists of two attributes that influence safety culture in organisations.

Questioning Attitude	People are comfortable challenging safety policies, procedures, behaviours, and norms, even if the challenge impacts productivity or questions senior leaders.
Sensitivity to Weak Signals	People remain vigilant for minor issues that may be warning signs or precursors of something more significant.

Unhealthy Culture

- Unsafe procedures are not challenged.
- Workers feel uncomfortable challenging others on safety issues.
- Workers do not recognise that non-nuclear activity can impact nuclear safety.
- If workers notice something unusual, they do not ask others for advice.

Healthy Culture

- If something feels unsafe, workers always stop and question why.
- Even senior leaders are challenged on their safety behaviour.
- Keeping a look out for any potential threats to safety is regularly encouraged.
- A high level of attention is paid to small issues in case they lead to serious safety events.

Reporting

Reporting plays a key role in sustaining an organisation's safety culture, as it not only contributes to the identification, tracking and management of safety events, but also contributes to the level of compliance that employees exhibit. Reporting consists of three attributes that influence safety culture in organisations.

Feeling Safe	People feel safe to raise safety concerns without fear of personal consequence. People who raise safety concerns are rewarded; they are not seen as troublemakers.
Confidence	People are confident that any safety concerns raised will be acted upon. Here, the speed with which concerns are acted upon even if they challenge other important organisational goals, and the effectiveness of the reporting system, are important.
Informed Compliance	People understand the significance of, and comply with, safety rules, procedures and reporting requirements. Employees are fully informed of the safety risks and requirements relevant to their job rather than blindly carrying out safety procedures that are poorly understood.

Unhealthy Culture

- Raising safety concerns is seen as 'causing trouble'.
- No rewards for raising important safety issues.
- Safety concerns are unlikely to be investigated if they challenge productivity.
- No feedback is provided on concerns raised.
- Safety procedures are carried out regardless of if they are understood.
- Simple rules are often bypassed.

Healthy Culture

- Speaking up about safety is strongly encouraged.
- Reporting safety issues causes no concern to workers.
- Safety concerns are acted upon as soon as they are raised.
- The formal safety reporting system is used and works effectively.
- Compliance with procedures is always high.
- Workers are always fully informed about the risk and requirements of their work.

