



## **A professional culture of safety – The influence, measurement and development of organisational safety culture**

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## Introduction

In any work environment there are multiple drivers for individual behaviour and whether we realise it or not, our behaviours are the result of a complex interaction between factors such as our own in built (human) limitations, the work environment including organisational culture, the systems and processes within that work environment and the limitations of other personnel we work with. A number of previous accident investigations have outlined a lack of appropriate safety culture as a significant safety factor in the development of the accident.

Analysis of incident and accident data from a wide range of industries also reveals that organisational safety culture is a very powerful driver for safety behaviours, both good and bad. These organisational and individual safety behaviours have a direct effect on organisational safety outcomes, or safety performance. The importance of a positive organisational safety culture is recognised within a typical safety management system which normally outlines a requirement to achieve a healthy or positive safety culture as part of the safety management system.

This paper will explore the question of what defines organisational safety culture as well as reviewing the evidence for safety culture as a driver for safety behaviour. The review will also outline a number of sub-elements which combine to define a 'professional culture of safety', including the following:

- **A fair but accountable culture,**
- **An open and honest reporting and learning culture,**
- **A culture of integrated hazard awareness and risk management, and**
- **An informed, adaptable culture.**

The paper will also discuss how safety culture can be assessed and finally discuss a number of processes which can be utilised to drive improvements in organisational safety culture and therefore organisational safety performance.

## Is safety culture really important?

There are innumerable safety and accident investigation reports which have identified organisational safety culture or the lack of it as a significant antecedent in the development of the accident. The reader is referred to the reports on the Piper Alpha oil production platform explosion (Cullen, 1990), the 1987 Kings Cross underground station fire (Fennel, 1988), and the sinking of the Herald of Free Enterprise passenger ferry (Sheen, 1987).

Many previous accident investigations have tended to focus only on the technical issues and direct human influences on the outcome. Organisational issues including such things as management decisions and cultural aspects have begun to take on more importance in investigations, as the search for the underlying drivers for individual (and group) behaviour has taken on greater importance. In his report on the Piper Alpha disaster Lord Cullen stated, "*it is essential to create*

*a corporate atmosphere or culture in which safety is understood to be and is accepted as, the number one priority” (Cullen, 1990, p.300).*

## **Organisational safety culture a factor in previous accidents?**

Is organisational safety culture a real factor in driving safe or unsafe outcomes?

A number of relatively recent examples serve to illustrate that organisational safety culture continues to play a significant role in the development of accidents and incidents.

### **Texas, February 2002**

Seven crewmembers were killed when the Space Shuttle Columbia disintegrated as it returned to Earth for landing. The subsequent investigation (Columbia investigation report, August, 2003) found that: **“NASA's organizational culture and structure has as much to do with this accident as the external tank foam”**.

### **Near Waterfall Station, Sydney, January 2003**

Seven people died in the derailment of a train near Waterfall Station in January 2003. The “Official findings into the accident (Special commission of enquiry into the Waterfall rail accident, Vol 1, Jan 2005) found that **the organisation exhibited an "underdeveloped safety culture”**.

### **Gulf of Mexico, April 2010**

On the Deepwater Horizon Oil Rig, 11 personnel were killed and largest oil spill in history was released when the oil exploded and caught fire. As reported in ‘The Australian’, Aug 09, 2010, **“A previous safety audit had expressed concern about the safety culture on the rig”**.

## **What is safety culture?**

Westrum, (1993) defined three stages of safety culture commencing at ‘pathological’, where personnel don’t really care about safety issues, through ‘calculative’, where the organisation does the minimum required for compliance with safety regulations to, ‘generative’, where safe behaviour is fully integrated into all organisational processes.

Hudson (2001) also described safety culture and based his work on the earlier work of Westrum (1993). Hudson’s new model described the evolution of safety culture, from the ‘pathological’ first stage through to the ‘generative’ final stage but incorporated two additional stages of cultural development (originally proposed by Reason (1997)). The two additional stages were labelled ‘reactive’ and ‘proactive’. In Hudson’s model he replaced ‘bureaucratic’ with ‘calculative’.

The five stages in Hudson's model of cultural development are briefly described below.

**Pathological:**

Safety is seen as a problem caused by workers. The main drivers are the business performance and a desire not to get caught by the regulator.

**Reactive:**

Organisations start to take safety seriously but there is usually only action after incidents or accidents.

**Calculative:**

Safety is driven by management systems, with a great deal of data collection. Safety is seen as an impost rather than something which is actively sought by the workforce.

**Proactive:**

Unexpected change is a challenge. Workforce involvement starts to move the initiative away from a purely top down approach. The organisation uses safety data to inform safety programs.

**Generative:**

There is active participation at all levels. Safety is perceived to be an inherent part of the business. There is a healthy wariness that things can still go wrong. Safety is fully integrated into all organisational processes.

**A new approach - The concept of a 'Professional culture of safety'**

The various descriptors for safety culture work well from an academic perspective in delineating the various degrees of safety culture but do they actually assist an organisation in achieving the aim of continuous improvement in its safety culture? Do they help to embed those values and concepts become an expected part of professional behaviour?

It could be argued that without a professional adherence to those values and behaviours which are at the core of what Hudson describes as a 'generative' safety culture, an organisation will never be in a position to achieve it.

**A new paradigm – The professional culture of safety.**

The 'professional culture of safety' places a higher priority on the development of hazard awareness and the integration of risk management as cultural Norms and describes an embedded organisational culture where the understanding,

assessment and management of risk are a natural, essential and expected component. Additionally, it is a culture where it is accepted as normal professional behaviour to support open and honest safety reporting and where the differences between errors and violations are understood and treated appropriately. In a professional culture of safety, safety performance is seen as a key organisational and individual output. All personnel understand what is expected of them and share a responsibility for professional safety behaviour. Broadly, this includes concepts such as personal responsibility and accountability for safety, high standards of leadership by example, the personal desire for excellence and understanding that safety is not an add on, but should be fully integrated in all organisational processes.

When hazard awareness and risk management are fully internalised as the way all personnel think and act, personnel will naturally look for hazards and risks in their work environment and will adapt safety processes to new and challenging situations. From the organisational perspective, this will allow for changes in process and the evolution of the safety management system with changed operating environments. Organisations that have a professional culture of safety will often have an agreed and understood priority for safety amongst all personnel and will have developed and implemented an emergency stop (or 'time out') procedure to be used when personnel feel that safety is about to be or could be compromised.

### **How can an organisation achieve a professional culture of safety?**

For an organisation to achieve a professional culture of safety, personnel need to first understand its sub elements and the organisation's management team needs to actively reinforce and embed them as expected professional behaviour.

**The following four cultural sub elements are required as part of the professional culture of safety:**

#### **A fair and accountable culture**

The fair and accountable culture involves the establishment of acceptable vs unacceptable behavior, the appropriate treatment of error and violation and the development of professionalism, respect and personal responsibility and accountability at all levels of the organisation.

#### **An open and honest, reporting and learning culture**

An open and honest, reporting and learning culture involves the development of an honest and open, closed loop safety reporting processes, the development of an organisational action plan to address the issues identified and retention of lessons learned.

## **A culture of integrated hazard awareness and risk management**

A culture of integrated hazard awareness and risk management involves the understanding of the concept of hazard identification and risk management at the grass roots level, it also includes a healthy wariness and belief that people and systems aren't infallible.

## **An informed and adaptable culture**

An informed, adaptable culture is driven by an informed, safety committed management team, aiming to achieve continuous safety improvement. In this culture the organisation and personnel are adaptable to new safety challenges.

Let's now briefly explore what is meant by these sub elements by discussing them in more detail:

### **The fair and accountable culture:**

The 'fair and accountable culture' refers to the way that personnel view both errors and violations in the professional sense. For a fair and accountable culture to exist, the organisation needs a collectively agreed and clearly understood distinction between what is acceptable and unacceptable behaviour in the workplace. Many high hazard organisations are highly reliant on personnel following specified process as a risk mitigator. In such a context all personnel must understand the difference between intentional departures from the rules such as violations and honest unintentional departures such as errors.

In a fair and accountable culture, members of an organisation understand that they have a professional responsibility for their own behaviour and are accountable for their actions. In this culture, managers understand that there are normally systemic drivers for both error and violation. In the fair and accountable culture, personnel are not punished for true, unintentional error but in the case of wilful disregard for regulations and procedures or intentional violation, personnel will be expected to account for their actions.

### **An open and honest, reporting and learning culture:**

In an open and honest reporting and learning culture, the organisation is looking for causes not culprits. In this culture, all personnel should feel free to report safety issues without fear of reprisal. To achieve this, the reporting system must be actively supported at all organisational levels. With an effective safety reporting system, safety data can be utilised as part of a closed loop process to ensure that reported hazards are mitigated. Without effective near hit (miss), hazard and occurrence reporting systems, an organisation cannot be risk and hazard aware. One of the underpinning requirements in establishing an open and honest reporting culture is the prior establishment of a 'fair and accountable' culture as previously described. In a learning culture the organisation proactively learns from risk management, hazard and incident reports and applies the lessons

learnt from these to (hopefully) prevent future accidents and incidents and to mitigate risk.

### **A culture of integrated hazard awareness and risk management:**

Hazard awareness and risk management are both vital parts of any organisations safety management systems. It is vital that all personnel have an understanding of context, hazard, and risk within their working environment. It is fundamental to the continuous improvement of an organisation's safety systems and operational effectiveness, that all personnel share an understanding of these key concepts and that they become embedded as the way all personnel go about their business. In reality, it is rare to find that these processes are truly integrated across an organisation.

For this culture to develop, all personnel need to understand the nature of hazard and risk and the differences between the two. Risk management must become so ingrained as part of normal (professional) behaviour that personnel will actively look for threats to safety within their environment, continuously asking - what have we missed? - What will catch us out? This sub element is closely linked to the open and honest reporting and learning culture as previously described.

Whilst it is vital that risk management is embedded across the organisation, it is also important that personnel don't assume that all the hazards in their work environment have been identified and mitigated, as this is almost certainly not the case. Whilst it is important that an organisation's personnel trust the underlying safety management system, it is just as important for them to understand that no system is infallible. Even with the best personnel and systems, things can (and do) still go wrong.

### **An informed and adaptable culture:**

A safety adaptable organisation requires an informed and safety committed management team. The management team can only remain informed where timely and accurate information is readily available through the safety reporting and risk management database. Many organisations are data rich but information poor. Although organisations may have access to a massive amount of data in the form of safety and hazard reports, they may not actually be able to 'mine' or use the data to inform them of real trends, lead/lag indicators and current risks.

The informed and adaptable culture involves actively searching both externally and internally for safety lead/lag indicators and proactively applying safety lessons learnt from the data. This culture ensures that from an individual and an organisational perspective, lead/lag indicators are evaluated and lessons learnt to achieve a process of continuous, systemic safety improvement. When an organisation combines well understood and integrated risk management processes with effective data mining and lead/lag indicators for safety, it should be able to effectively adapt to new safety challenges.

## **Is it possible to accurately measure safety culture?**

### **Climate Vs Culture**

Before we discuss the measurement of safety culture it is important to understand the concept of 'safety climate'. In the author's view, safety climate and safety culture are two very different things. Safety climate is a sub-set of safety culture and is a measure of the safety beliefs, values and behaviours at a given point in time. It is possible for safety climate to change on an almost a daily basis, whereas the underlying culture will not have changed over the same period. Typically, an organisation will carry out a 'safety survey' to assess the safety climate on a given day or over a given time period. Although a safety climate survey may reveal a number of indicators of safety culture, it does not, in itself give a definitive assessment of an organisation's safety culture. The reality is that the climate survey is just a 'snapshot' of that particular day (or time period) and the views expressed by personnel may have been affected by events, (for better or worse) close in time to the survey. (For example, taking a survey the day after a major accident may give a very different result to that obtained if the survey had been conducted the day before the accident).

### **Assessment of underlying safety culture**

Any accurate assessment of organisational safety culture is a relatively complex procedure, not limited to the simple analysis of a safety climate survey. It can be difficult to accurately assess a culture from within an organisation as you may be part of the culture you are attempting to assess. For this reason, it is recommended that organisational safety culture be assessed (where possible) by an appropriately qualified external organisation. Any assessment of organisational safety culture should include a number of cultural indicators and although not exhaustive, it is recommended that at least the indicators listed below are reviewed as part of the assessment process.

#### **Some of the indicators that can be used in combination to give an indication of organisational safety culture are:**

- Review of safety climate surveys
- Review of previous safety audits and safety surveys
- Response to focused questionnaires
- Inspections and observation of existing attitudes and behaviours including Management, Maintenance, Engineering, Operations, Planning and Support
- Review of the training for and treatment of hazard and risk and evidence of the hazard awareness and risk management processes in action
- Organisational and individual responses to safety reporting / safety corrective actions taken.
- Evidence of the priority placed on safety by management and other key personnel
- Evidence of the flexibility of the organization in response to new safety threats

- Personnel Interviews at multiple organisational levels

## **How can management reinforce the drive toward a professional culture of safety?**

Apart from the proactive development of the cultural sub elements previously described as part of the professional culture of safety, it is possible for individual managers to make a substantial and positive improvement to organisational safety culture by simply adopting the following practices:

### **Mentoring professional and safe behaviour**

Managers and supervisors need to take up a mentoring/developing role in regard to expected/desired safety behaviour in the workplace. One way of achieving this is to reward good safety behaviours by making positive examples of personnel who demonstrate a commitment to safety. This can be achieved by actively supporting personnel who raise safety concerns. Many organisations also have a regular employee safety award which gives public (and often financial) recognition to an individual (or team) for exemplary safety behaviours.

### **Safety communication and feedback**

This involves ensuring that all personnel receive feedback from their safety reports. (How often does Management ensure that personnel are briefed on the outcome of organisational safety reviews and surveys?) Management also needs to effectively communicate their expectations, so that that everyone in the organisation knows what is expected of them - what standard is acceptable and unacceptable in the workplace. Additionally, it should be a normal and expected part of the safety communication process for managers and supervisors to receive open and frank comments/discussion on safety matters from the organisational 'coal face'. Managers and supervisors need to be prepared for these comments/discussions and openly promote them.

### **Fair and appropriate treatment**

Managers and supervisors need to ensure that all personnel share an accurate understanding of the differences between error and violation. Managers in particular need to demonstrate their support for the fair treatment of personnel who admit to making errors. The appropriate investigation of incidents should reveal the systemic drivers behind both errors and violations and allow management to frame appropriate responses. Provided that the organisational response is always both fair and appropriate, personnel will remain engaged with the safety reporting and management systems. What managers (and supervisors) say and what they do are both important. Managers and supervisors need to 'walk the talk' of safety.

## **The process of cultural change**

Cultural change can be a slow process. Even after a major event effecting an organisation, (such as a major accident), the underlying culture within the organisation may not have substantially changed. Organisations, particularly larger organisations, have a certain amount of inertia and are generally resistant to change. Once a successful change process has been put in place however, the change can begin to gather momentum. For successful culture change to occur within an organisation, the desire for change needs to be internalised at all organisational levels so that all personnel see and feel the need for change, have the desire for change and have the capability for the change. The role of management in this process is to communicate the requirement for change and to lead and facilitate the change process. This can be a frustrating period for organisational management, as the cultural change process in large organisations is usually measured in years. All major organisational change needs to be proactively managed utilising an appropriate change management process, this is no different for culture change management. There are five key elements of any change management process, they are described below.

### **Five steps of change management:**

- **Measurement**  
Where are we now and where do we need (or want) to go
- **Planning the change**  
How do we make the change and how do we measure our success
- **Actioning the change**  
Implementation of an action plan – the implementation must include some goalposts to assess the progress of the change
- **Reviewing the change**  
Measurement that group values and beliefs align with those required/defined to complete the change
- **Reinforcement of the change**  
Implementation of ongoing management processes to maintain the new paradigm

## **Conclusion**

Organisational safety culture is a significant driver for individual safety behaviours. By actively promoting and developing those elements required to achieve a professional culture of safety, an organization can make a significant and positive difference to the safety behaviours of its personnel and therefore the safety performance of the organization as a whole.

*“Culture has a very real influence on the attitudes and performance of the people within an organization”*

*John Lauber, NTSB.*

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