

ORGANISATIONAL DRIFT – A CHALLENGE FOR ENDURING SAFETY PERFORMANCE

Jonathan Berman, Peter Ackroyd
Greenstreet Berman Ltd, Fulcrum House, 5 Southern Court, South Street,
Reading RG1 4QS, 0118 938 7703, jonathan.berman@greenstreet.co.uk

Much guidance has been produced concerning approaches to ensuring effective safety performance. Recent years have seen an increasing focus on corporate governance, on a systems approach to enhancing process safety, and a greater understanding of the need constantly to be vigilant to the opportunities for enhancing safety through improved organisational learning. Additionally, much attention has been focused on safety culture, and organisational factors.

All of these elements are necessary, but are they sufficient? The nuclear industry has been concerned over recent years that some high-performing organisations appear to have suffered a gradual and hence apparently imperceptible degradation in safety performance that has gone unnoticed until a significant incident or near-miss brings it painfully to light. Davis-Besse, Tokai-Mura, Columbia – all are recent examples of organisations that appear to have ‘drifted’. For example, at Davis-Besse, a US nuclear utility that was perceived by the industry as being high-performing, undetected pressure vessel corrosion was only discovered when the 7inch thickness had reduced to 3/8th inch, despite warning signs that could have been heeded.

This paper, which is based on recent work undertaken for the UK nuclear industry, considers whether Organisational Drift is a valid and useful concept, and also considers how it might be countered. The paper presents some observations concerning the types of defence that could detect early signs of organisational drift, and concludes that Organisational Drift is something that should be considered by all high-reliability organisations

The challenge for any high-performing organisation is that the factors that drive a downward drift in safety performance are also likely to affect the organisation’s own internal oversight processes, and hence reduce its ability to detect the very degradation that is of concern.

INTRODUCTION

“It seems from opening a newspaper or listening to the radio as though everything that can go wrong with this country’s health care system is going wrong. We have filthy and germ-infested hospitals, our surgeons are incompetent and our nurses uncaring”.

Dr Ian Gibson MP, Hansard 6th March 2003

Is this true? Is this where we expect the NHS to be?

“Rail accidents . . . remain in the public consciousness for a long time. The same accident may appear in the headlines several times, because of the

inquiries and court cases that follow them, often over several years. This leads people to overestimate their probabilities. It is widely believed that privatisation has made the railways less safe, but the evidence does not support this”.

Professor Andrew Evans, Imperial College, 2004

Is our perception of safety performance correct?

“BP Group Policies . . . set high standards . . . and are capable of delivering compliance with the law and the company stated aims of ‘no accidents, no harm to people and no damage to the environment’ . . . The three incidents would not have occurred if BP’s high standards and policies and procedures had been followed consistently across the Complex BP Group & Complex Management did not detect and intervene early enough on deteriorating performance”

HSE, 2003. Major incident investigation report: BP Grangemouth, Scotland: 29 May to June 2000

Do we know what is happening within our own organisations?

It’s not appropriate to debate the question of whether the media accurately report the current state of the NHS or the rail industry – a subject for another paper . . . Instead, the focus here is about whether organisations – or those parts that we each come into contact with – are both where we believe they are in terms of safety, and whether that place is where it ought to be.

Taking a further quote from Ian Gibson MP, when referring to the Vincristine incident at Queens Medical Centre in 2002¹:

“Two cancer drugs, vincristine and methotrexate, got mixed up. No proper system of reporting and collecting such incidents has been in place in past years. Over the past 10 years, 10 people have died in these circumstances. If one thinks of the amount of injections that are given in hospitals every day, or the amount of times that those particular cancer drugs are injected, that figure is not very high. However, each case represents a huge tragedy, particularly as this mistake—a simple human error—is so easy to prevent.

It would be technologically easy to design the respective syringes and needles in such a way that only intra-spinal syringes could be used with intra-spinal needles. It is incomprehensible to me – and to people who work in

¹A 15yr-old boy died after a cancer-treatment drug was inadvertently administered intrathecally (into the spine) rather than intravenously as required. The error arose due to a breakdown in a number of administrative controls intended to prevent precisely this error (which is inevitably fatal).

hospitals – why that has not happened: it seems to be one of those cases where the drug companies point at the needle manufacturers, and vice versa, but why on earth do the Medicines Control Agency or the Medical Devices Agency not intervene? What are they for, if not to make medicines and medical equipment safer?”

Dr Ian Gibson MP, Hansard 6th March 2003

(in fact its 23 incidents since mid 1980's which have resulted in death or serious harm)

But is not the issue also about why 'the system' appears to tolerate a situation that, on reflection and with hindsight, is clearly inadequate?

This paper considers a concept that many of the high-hazard industries are becoming increasingly exercised by – Organisational Drift. Many of those industries are recognizing that gradual degradation in organisational performance can take place without apparently being noticed – or at least, not triggering a level of organisational attention that is appropriate to the message the degradation is sending. Plenty of examples exist across different industries where the gradual erosion of safety performance appeared never to breach a threshold of organizational consciousness, until a major accident or near-miss made everyone sit up and take notice. The nuclear industry has started to take the issue seriously – how do you both enable an organization to be sensitive to potential organizational drift, and also prevent that drift from occurring?

Derived from some recent work undertaken for the nuclear industry, this paper presents a simple model of the factors that affect organizational drift and then considers what it means in the context of safety. Whilst all organizations strive for improved levels of safety, is a gradual drift to lower standards inevitable, or can you prevent it? Is Organisational Drift a useful concept for safety management, and what does it suggest we should do?

This paper does not present elegant solutions. However, it is intended to add to the debate about how the issue of Organisational Drift can be countered.

SETTING THE SCENE

A maintenance engineer at a Pressurised Water Reactor nuclear power station is working on the reactor, following identification of cracks in the control rod channels above the pressure vessel, when he observes some corrosion. Corrosion should not be present on a reactor – it's a potential sign of leaking primary coolant (which contains highly corrosive boric acid).

Further investigation revealed that the 7" thick carbon steel pressure vessel had corroded away around one of the control rod penetrations . . . leaving only the 3/8" stainless steel liner to prevent a catastrophic loss of coolant. 7" of steel does not corrode overnight . . .

Either no one noticed the leaking coolant water, or they noticed, but considered that it wasn't significant. Over a period of 12 years of operation the leaking borated water

accumulated on the reactor vessel, corroding a cavity in the carbon steel six inches deep, five inches long and seven inches wide.

The internal pressure caused the stainless steel liner – which was the remaining barrier against a catastrophic failure – to bulge out of the hole. The Davis-Besse nuclear power plant, near Toledo, Ohio, came within 3/8” of a loss-of-coolant accident that would have earned it a place alongside Chernobyl.

Nearly two years before the failure was detected, the U.S. Nuclear Regulatory Commission advised the operators of US nuclear power plants to inspect nozzles going into reactor vessel heads. Cracks in such nozzles had just been discovered at a nuclear plant in South Carolina, with similar cracks being found at plants in Arkansas and Virginia. Furthermore, photographs taken by Davis Besse during a routine maintenance outage approximately two years before the incident revealed that corrosion was visibly present then. It could not be claimed that there were no warnings available.

Some 18 months after the NRC alert, Davis-Besse advised NRC that some boric acid ‘slush’ had built up on the reactor vessel, but the plant was scheduled to shut down for refueling in a few months, and hence the owners would wait until then to inspect the vessel head. The NRC (which endorses the industry drive towards cost-savings and greater efficiency) agreed. It was an inspection some three months later that revealed the incident.

On 30th September 1999 a ‘criticality incident’ occurred at JCO’s uranium producing plant at Tokai-Mura, leading to the deaths of two workers, requiring the evacuation of 161 staff and causing 300,000 people to remain indoors for nearly two days. There was a major impact on local farming and industry.

JCO had been very successful, but over a period of around 10 years faced increasing commercial challenge and competition. As a result there were several downsizing campaigns leading to loss of experience and expertise; operator training ceased to include anything on criticality. JCO met the commercial challenges by creating a culture of innovation to meet production goals, including working round procedures. There was a lack of supervision, safety leadership, and a disconnection between the plant operators and management. Nuclear safety was left to overworked engineers. JCO became very insular and its safety committee knowingly approved operating procedures that violated its license conditions, producing alternative documents for public scrutiny. Eventually the accident occurred when 3 workers, unsupervised, improvised a quicker way of working in contravention of the procedures that were themselves unauthorised – they were carrying highly radioactive liquor in open buckets!

On 1 February 2003 the Columbia space shuttle disintegrated on re-entry to the Earth’s atmosphere only 16 minutes from touchdown, killing all 7 members of its crew. It had travelled over 6 million miles in the previous 16 days; the Columbia shuttle had performed 27 previous missions successfully. The primary cause of the accident was a piece of thermal lagging becoming detached on launch and then causing damage to the heat shield on the wing. On re-entry this damage caused the shuttle structure to heat up excessively then break up. Lagging detachment had been observed on all previous Columbia launches and had progressively become accepted. This catastrophic failure occurred 17 years after the Challenger shuttle had been destroyed on launch due to an “O” ring failure.

Why did it happen? In the words of the Columbia Accident Investigation Board:

“It is our view that complex systems almost always fail in complex ways, and we believe it would be wrong to reduce the complexities and weaknesses associated with these systems to some simple explanation. Too often, accident investigations blame a failure only on the last step in a complex process, when a more comprehensive understanding of that process could reveal that earlier steps might be equally or even more culpable.”

“The organizational causes of this accident are rooted in the Space Shuttle Program’s history and culture, including the original compromises that were required to gain approval for the Shuttle, subsequent years of resource constraints, fluctuating priorities, schedule pressures, mischaracterization of the Shuttle as operational rather than developmental, and lack of an agreed national vision for human space flight. Cultural traits and organizational practices detrimental to safety were allowed to develop . . .”

In September 1999 it became apparent that significant quantities of foetal and child body parts had been retained post-mortem at Alder Hey Hospital, without proper consent nor with relevant purpose. These activities had been undertaken since 1988, since the appointment of Dr van Velzen. Despite concerns over the initial appointment, and increasing evidence of inadequacies in the activities of Dr van Velzen, no management actions ensued.

Between 1988 and 1994 the mortality rate at Bristol Royal Infirmary for open-heart surgery on children was roughly double that elsewhere in five out of seven years, and it failed to follow the downward trend experienced elsewhere. A variety of reasons for this subsequently emerged, ranging from the needs of sick children not being given sufficient priority, through the competence of healthcare professionals, to monitoring arrangements. The Inquiry report noted: “The story of the paediatric cardiac surgical service in Bristol is not an account of bad people. Nor is it an account of people who did not care, nor of people who wilfully harmed patients”.

What are the common threads in these incidents? They appear to relate to organisations that had at some time been perceived as being high-performing organisations. They also indicate organisations that suddenly received a wake-up call – either just in time or, sadly, just too late. They are all organisations that had drifted.

Organisational Drift is the gradual, and apparently imperceptible, degradation of standards that leads to a failure to address shortcomings that are having an adverse impact on performance – and which are theoretically capable of being detected.

It should be noted that the concept of Organisational Drift is being used here in a different sense from the way that some others have considered it. For example, Vaughan (1997) when considering the Challenger launch decision, concluded that it was a consequence, in part, of the organisational drift within NASA and Morton Thiokol. However, she was using the term to describe an organisation without clear purpose or agreed

objectives (i.e. an organisation that was *adrift*). In the present context, drift is used in the sense of gradual deviation from an intended course (drifting off track).

The other common theme is that none of the organisations appeared to be aware of the drift, even though they had in place a variety of monitoring arrangements. Furthermore, by being unaware of the drift, not only could they not address it, but they were positively assured that their performance was acceptable.

SIGNIFICANCE

Why does Organisational Drift matter? Greenstreet Berman recently undertook a study for the UK nuclear industry to identify whether the concept of Organisational Drift is meaningful, valid and useful, and to consider what it is, what causes it to occur and, ultimately – what can be done about it. The HSE Nuclear Installations Inspectorate (NII) – the UK regulator – had expressed concerns about it. Davis-Besse had been rated ‘INPO 1’, which meant that an independent review process undertaken by industry peers had judged it to be a high-performing organisation. The NII was therefore concerned that, if Organisational Drift was a valid concept, not only might the organisation be unable to detect drift, but that independent groups might also be unable to do so – including the regulator themselves.

A typical attribute of an Organisational Drift incident is that it comes as a surprise not only to the organisation, but also to the industry. Whilst there will always be some evidence after the event of whistle-blowers whose warnings were not heeded, the general tone tends to be of an organisation that is seen as being effective. A typical reaction might be “I would never have expected it of THAT organisation . . .”

There appear to be two necessary conditions:

- Degradation of key aspects of safety processes, including competences and safety awareness;
- Failure of oversight processes (both internal and external) to detect and effectively arrest the degradation.

A number of potentially troubling issues emerge from considering this:

- Is drift inevitable?
- Can it be detected by the drifting organisation?
- Are there types of organisation that are more susceptible?
- Are there conditions that are more likely to precipitate it?
- Can it be halted?

Perrow (1999) postulated the concept of Normal Accidents. Normal accident theory suggests that complex ‘high-reliability’ organisations will inevitably fail, in particular due to a range of factors including unpredictable interactions and unintended consequences. Does this imply also that Organisational Drift is both inevitable, and unavoidable?

Snook (2000) describes ‘practical drift’, which focuses on the gradual deviation of working practices from those required to assure safety. However, the issues for

Organisational Drift is the ability not only to detect and control such drift, but the implications for the organisation as a whole in terms of its understanding of its true levels of safety performance.

The issue is also of specific relevance to issues of Corporate Governance, and the extent to which an organisation can demonstrate that it is adequately controlling its risks. However, the present focus is on safety management.

A MODEL

In the light of the work for the nuclear industry, a model emerged that was used to try to understand the issues.

According to a FirstEnergy spokesman at Davis-Besse the discovery of the hole “was met with the kind of shock generally reserved for those late-night phone calls involving loved ones and car crashes”. “Employees and management were shocked and really incredulous at how this could have happened”. What happened at Davis-Besse was created by a “lack of robust questioning, of not challenging things that don’t appear correct or that pose a risk to the safety margin.”

A number of characteristics were identified that appeared to be relevant.

1. Organisational Drift is a change that leads to a reduction in safety margins that is not recognised or controlled. This can arise because:
 - The change is slow, incremental and incipient, and so goes unnoticed;
 - The change is masked by other changes;
 - The attention of managers and staff is degraded during prolonged periods of continuous change

These later two are most likely to arise when an organisation is undergoing radical restructuring including major shifts in responsibilities, staff reductions and increasing commercial pressures.
2. Organisational Drift can occur during any period of continuing change; however there seems to be more likelihood of organisational drift during slow changes occurring over a prolonged period of time. This may be for two main reasons:
 - During major change in an organisation with a good safety culture there is greater focus on the problems that could arise from such major change and hence a strong attention to ensure they do not occur;
 - More gradual changes and slow degradation are easily overlooked (perhaps considered ‘normal’ business) and may affect both the “operational standards” and the oversight processes.

“Each time an incident occurred, the Flight Readiness process declared it safe to continue flying. Taken one at a time, each decision seemed correct”. Columbia Inquiry

However, a shorter period of major organisational change may act as a catalyst that initiates a more prolonged period of assimilation of those initial

changes. That more prolonged period may then provide a fertile breeding ground for Organisational Drift – particularly where the organisation may have ‘taken its eye off the ball’ if it perceives the change process to have been completed.

3. Oversight failure occurs either because of degradation of the oversight processes themselves (their capability is degraded or they are not heeded) or because they are not sufficiently sensitive to detect the operational degradation. The Davis-Besse CRDM² nozzle cracking and Columbia lagging failures show how apparently small technical deficiencies can be missed or their significance not recognised.
4. Organisational Drift events are likely to exhibit a considerable degree of “common cause failure” i.e. that they degrade both the operational standards and the oversight processes (e.g. Tokai-Mura; Columbia). This is likely to be one of the main challenges for any system purporting to detect the onset of Organisational Drift – it may be degraded by the very factors leading to other operational degradations.
5. Most of the reviewed accidents seem to be characterised by a failure or lack of regulatory oversight. Certain key factors were revealed:
 - A drift in regulatory interest (stemming from misplaced confidence in the level of performance and belief in the organisation’s ability to self-regulate);
 - Inherent weaknesses in the overall safety oversight and regulatory framework (until recently many regulators focussed on technical issues and had ineffective processes for addressing cultural and managerial issues);
 - Even when regulators identified concerns (e.g. with Ontario Hydro Nuclear, in Canada) they did not have adequate regulatory instruments to require utilities to address their concerns.

“Finally, a perennially weakened safety system, unable to critically analyse and intervene, had no choice but to ratify the existing risk assessments on these two problems” Columbia Inquiry

This model, which is descriptive rather than predictive, has a number of implications:

- All organisations undergo change – and hence there is constant opportunity for standards to erode.
- Various factors influence that incremental change – all have positive benefits in their own rights, and hence are not amenable to ‘removal’
- Major change is gradually assimilated into the organisation – the perennial complaint of “living through constant change”
- Degradation affects two processes in parallel – one is the erosion of standards. The other is the erosion of the effectiveness of oversight.
- Performance degradation is in the area of:
- Standards

²CRDM = Control Rod Drive Mechanism

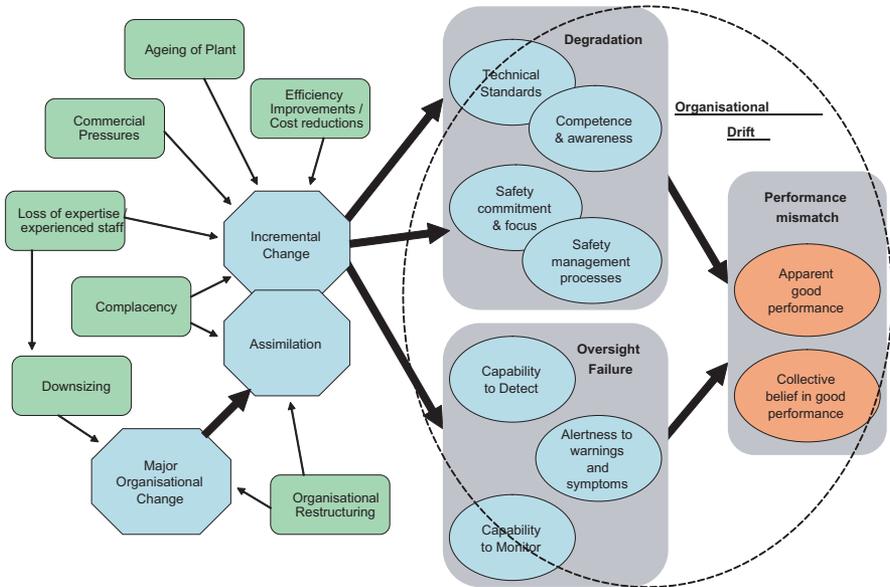


Figure 1. A model of Organisational Drift

- Competence
- Commitment
- Management Processes
- Oversight degradation is in the area of:
- Capability to detect
- Capability to monitor
- Alertness to warnings

The model does not attempt to consider the types of organisation that might be susceptible to organisational drift. It is anticipated that Drift is more likely to occur in complex organisations, where

This view of Organisational Drift indicates the potential for defences in three areas:

- Prevention of significant deterioration of operational standards
- Early, effective detection and correction of degradation if it occurs
- Determine/recognise what changes constitute a significant threat

Effective oversight requires:

- Detecting deterioration in technical operational standards and issues
- Identifying deterioration in commitment and focus

In addition it must be:

- Independent of, or capable of withstanding, the influence that could degrade the process itself
- Strongly linked to arrangements that ensure identified deficiencies are properly addressed and corrected with sufficient urgency

This means that the oversight process must be ‘externally anchored’. There needs to be a process that provides validation and calibration with external processes. This is always difficult to achieve – there is a need to understand the degree of independence. For example, the nuclear industry has long-recognised the value of external peer review – and as noted previously, such processes were implemented at Davis-Besse. However, one can question the true degree of independence in such review processes – with the best of intentions, they draw on the same body of knowledge and expectation. Furthermore, the review process needs to have authority. It is not sufficient for the process to be independent in terms of its conclusions – it also needs to be able to provide compelling ‘advice’.

The external anchor seems to be the primary defence against gradual changes in standards – it provides an external reference that enables the organisation to recognise that inappropriate changes in standards are occurring.

Typical defences:

- Peer reviews – typically these have few ‘teeth’; they require benchmarking; they are voluntary
- Safety culture assessments – these may not include the regulator, and hence may not take account of the influence of organisational drift on the ability of the regulator
- External audit – this is frequently too generic in scope
- Learning and feedback systems – these can be swamped by data; they may not reveal slow trends
- Performance indicators – they tend to be lagging indicators; they tend to be insensitive to slow change
- Internal oversight departments – they need high-level ‘patronage’ if they are to be able to have an impact
- Formal reviews – these still require some form of benchmarking

UNDERSTANDING ORGANISATIONAL DRIFT IN COMPLEX ORGANISATIONS

The model described above shows how drift can occur and what is required to lead to a significant event, but what causes organisational drift in complex organisations? There may be many causes but two aspects are worth considering.

The first is the characteristics of a complex organisation. This would comprise different departments, each with their own goals, sub-cultures, standards and people. They interact both with other parts of the organisation and some with external groups;

these can then lead to changes – some planned and with expected outcomes and some unforeseen.

The second aspect concerns the main drivers leading to, or requiring change within the organisation, particularly those arising from external demands. Organisations have to respond to these demands as expressed by the market, regulators, public pressure, as well as internal stakeholders (e.g. the corporate body; employee expectations). Typically this leads to new high-level goals and targets that are then translated into goals and targets lower in the organisation at a department or unit level. Frequently this can cause changes in the work processes (e.g. seeking greater efficiency), a shift in priorities, resource reductions or re-allocation, and many other changes. Those leading and managing changes need to make the organisation successful, or at the very least survive. Many also need to feel that they are acting consistently with their own and the organisation's key values e.g. on safety. Consequently they can genuinely believe that actions they are taking have been well thought through and are acceptable.

It can be very difficult for those charged with monitoring safety to challenge a decision at the time it is made as there may be no evidence to counter the assertions (and belief) of its acceptability. Only when sufficient evidence has arisen will the voices of concern be heeded, which may well be too late. How much notice is taken of internal voices will depend on their credibility, the support they receive from senior management, and their position in the organisation. They are even less likely to be fully heeded when the organisation has a strong perceived need to make change.

For external regulators, they face additional challenges. A permissioning regime tends to place on the duty holder the onus to implement effective monitoring arrangements. Ideally these should detect and prevent drift. The first challenge for the regulator is whether they actually have monitoring arrangements that adequately detects or assesses the onset of change within a regulated organisation. Secondly, even when they have concerns that the duty holder does not have effective arrangements in place, the regulator may not have an appropriate regulatory or legal means of intervention that ensures that corrective actions are taken.

IMPLICATIONS AND RECOMMENDATIONS

A number of implications and recommendations can be derived from this consideration of the gradual degradation of organisational safety performance:

- Organisational Drift appears to be a valid concept. Indeed, in the context of regression to the mean, it may be inevitable that high-performing organisations will tend to exhibit gradual deterioration against any performance measures that they adopt. Statistically, in the absence of other reasons, repeated measures tend to exhibit a tendency for extreme values to be followed by less extreme values (whether extremely good or extremely poor). This concept has been used elsewhere to provide a possible explanation for why road accident rates at sites with speed cameras tend to improve

- Organisational Drift events occur in mature organisations despite mature safety management (governance) systems
- For Organisational Drift to occur it requires degradation of operational processes and standards AND failure of oversight processes
- Precursors can be put in place long before the incident occurs (and typically do exist long before the drift becomes apparent)
- Common cause effect – the degradation of process arises for the same reason(s) as the degradation of oversight
- A critical defence is associated with improvements in the ability to benchmark and learn from others.
- Senior staff must be made aware of the potential for Organisational Drift, and be enabled to remain constantly vigilant to its effects
- Internal oversight processes should be reviewed for their capability to identify signs of Organisational Drift – especially in the areas of competence and safety leadership (and also in terms of their competence at internal oversight)
- There is a need to be self-critical at an organisational level
- Oversight needs to have teeth – across the organisation
- Oversight processes need to have external anchoring – although there remains a challenge as to how such anchoring is achieved (countering ‘industry’ mind set)
- Performance indicators need to be capable of highlighting changing interpretations of standards and requirements
- Governance – governance processes themselves can be eroded, which reduces the ability of the organisation to monitor how it is complying with its intended arrangements
- Risk assessment processes provide just that – there is a need to maintain oversight of the processes for decision-making based on those risk assessment (such that the outputs do not merely become ‘justified’)

WHERE DO WE GO FROM HERE?

There is no ‘quick fix’. However, there appears to be a positive response to the question posed at the beginning of this paper. Whilst pressures leading to Organisational Drift are likely to be an inherent part of any complex organisation, there appear to be processes that can mitigate the consequences. At the same time, it is likely that effective solutions need to draw in resources from outside the organisation – including, at times, the regulator.

- It appears likely that improved awareness of the potential for and likely causes of Organisational Drift is the first step
- Incident investigation and learning processes must focus on trends and generic implications, in addition to a focus on preventing a repeat occurrence – whilst avoiding the challenge of drowning in data rather than being influenced by information
- Consider all change opportunities – and how they might influence standards both operational and oversight

- Consider how standards are monitored
- Consider the factors that influence the oversight process
- Part of the process of detecting and managing drift is about knowledge management
- There is a need to recognise that problems may be local (resolving specific safety issues) but the solutions need to be global (ensuring organisation-wide approaches).

It is notable that many organisations, retrospectively, make significant efforts to bring in independent and external review processes. What appears to be more difficult is for those organisations to bring in external processes, with ‘teeth’ prior to an event.

Management of Organisational Drift is a challenge for ‘detection’. Once changes in performance become apparent, most organisations have well-developed processes for managing and enhancing safety – there is plenty of advice and guidance available to support organisations in improving culture, competence, processes, etc.

Where there is a need for further work is in the area of detection of drifting performance. In particular, there is a need to consider how the internal oversight processes can remain effective, and also to consider the interactions with external oversight processes. It may have been noted from elsewhere in this paper that there is an implicit claim being made on the regulator. Whereas, rightly, the regulator places full responsibility for safety on the duty holder, there is nevertheless an inevitable relationship between a drifting organisation and regulatory oversight. There is a need to consider how it can be ensured that such links do not contribute to undetected drift.

It is not sufficient for an organisation to strive to achieve excellent safety performance – it must also put in place arrangements that will give confidence that such performance will be maintained. This may be a greater challenge.

POSTSCRIPT

At the time of writing this paper BP had recently announced its response to the findings of the US Chemical Safety and Hazard Investigation Board into the Texas City refinery explosion. It accepted the recommendation to set up an independent panel that would review a range of safety management and culture issues, including corporate safety oversight, safety management of refineries obtained during mergers and acquisitions, corporate safety culture, and management systems such as near-miss reporting and mechanical integrity programmes.

What is noteworthy is the text of a speech given by Tony Hayward – BP Chief Executive Exploration and Production – at a conference a week after the refinery accident. He gave a very clear account of the significant efforts that BP put into ensuring employee and public safety, across all of their activities. He described an organisation that could rightly be confident that it was managing safety effectively without being complacent . . . and yet the conclusions from the initial investigations now suggest an organisation that was not performing in the way they or the regulator believed that they were.

Processes to monitor indicators of drift away from the path towards safety goals are clearly critical.

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