



LEADERSHIP FOR System Safety

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Introduction

Since the advent of industrial revolution way back to seventeenth century, the issue of industrial safety has been a matter of great concern for industries and business all over the globe. Concerned with efficiency, cost effectiveness and reputation of the company, new safety management theories evolved, and are being modified time and again, to strike an optimum balance between productivity and safety. However, experiences with the industrial accidents show that there has been a serious gap in whatever is being propagated in safety management theories, and the practical realities. The need of the hour is to bridge the gaps between safety aspirations and reality by translating the concept into real goal of accident prevention at every level in the industry.

As a result of some major accidents in various parts of the world, the consequences had a powerful impact on the public mind. Awareness in modern society of the hazards around it has reached a significant level in recent times. Today, 'risk management' and 'risk assessment' are phrases used in diverse industries, companies and activities. In the commercial world, a structured approach to risk management is required, for success in increasingly volatile and difficult external environments.

Industries involved in 'High Risk' and 'High-Tech' production activities, such as petroleum exploration and production, oil refining, chemical manufacturing, with high potential of the risk and hazards associated with their operations, are susceptible to disasters. Such industries need to adopt safety management practices, which can effectively prevent industrial disasters through proper planning and sustained efforts, of both the management and the employees.

Business Safety Model

A safety system is defined as the total set of men, equipment, and procedures specially designed to be superimposed on an industrial system for the purpose of increasing safety. The system safety concept envisions a preplanned, organised effort with a primary goal to conserve resources associated with the given system, product or operation by:

- The pre-accident identification of potential hazards,
- The timely incorporation of effective safety related design, and operational specifications, provisions and criteria,

- The early evaluation of design and procedures for compliance with applicable safety requirements and criteria,
- The continued surveillance of overall safety aspects through-out the total life-span, including disposal.

Safety issues affect all organisations to the extent that potential risks and legal obligations cannot be ignored. To comply with changes in legislation and to protect staff, more organisations are looking to introduce the 'Safety Management System'.

There are a number of 'off-the-shelf' safety management systems available. Each has a number of key element areas, against which the corporation is periodically audited and scored. Unfortunately insufficient weight is given to actual safety performance results. Too often workplace practice bears little resemblance to the defined system. Safety needs to be one of a company's core values, and given at least equal importance as to other core values like production, quality, customer service and profitability. Safety must be integral to the way business is conducted – not an afterthought or bolt-on extra.

The safety management systems not only improve our knowledge of hazards and risks, but also are the most effective way to capture, retain, and transfer valuable knowledge by embedding that process into the workflow, and minimizing the downtime. The adoption of safety management system reflects a growing strategic importance of safety issues.

Process Safety Action Plan

Process Safety Management (PSM) System is an application of management systems to the identification, understanding, and control of process hazards. It is comprehensive approach focusing on prevention, preparedness for mitigation, response, and restoration from catastrophic release of chemicals or energy from process associated with a facility.

Due to the worldwide concern triggered by the Bhopal Disaster, in USA a separate directorate known as 'Center for Chemical Process Safety' (CCPS) was established in the American Institute of Chemical Engineers in 1985 for focusing on process safety, supported by over 70 sponsoring companies in the chemical process and allied industries. Implementing a risk based approach to process safety management is a continuing journey for better managing risks.

Construction Safety Issues

Construction Industry adds substantially to the growth and sustenance of the Indian economy. This is 2nd largest industry in India and 12th largest in the world. After agriculture, this is the 2nd largest employer in India, absorbing 14% of employable population. Construction industry accounts for 12% of Gross Domestic Product (GDP) of India and creates the multiplier effect in the range of 1.8 to 2.0, through forward and backward linkages.

Construction industry is plagued with poor state of safety, numerous accidents, deaths and loss of limbs. Unfortunately, we do not have credible statistics about this available in the public domain to validate it and draw meaningful inferences. Such a huge number of deaths at workplace (construction sites) has no other parallel in today's world. Ironically, deaths at construction sites remain unnoticed. Political dispensation and ideology don't wish to embrace this issue, as:

- Construction industry is governed by cumbersome multilevel legislative regimes, and is plagued with numerous flaws and does not provide a level playing field.
- There is lack of wisdom and vision on part of Government and Policy Makers to inculcate safety culture in the country as a whole, and construction industry in particular.
- There is no "Unified Command & Control" to address workplace safety and Health, as national priority.
- Mechanism is missing for collating data pertaining to Workplace Safety and Health, and analysing it as a basis for policy formulation and deployment.

About 83 percent of workforce employed with construction industry is of unskilled workers. Unskilled workers are vulnerable to accident. 99% of contractors deployed in construction works are small (1-200 employees), or medium (200-500 employees), and only 1% are large (500 or more employees). Small and medium contractors don't have organisational set up, process, training and capacity for building infrastructure, initiatives and resources needed for infusing safety.

Small contractors and to some extent medium contractors depend on traditional methods and low end technology, which are labour intensive and have very little or no consideration to safety engineering. Construction industry operates under the cloud of uncertainties. Basic inputs like design and specifications get changed overnight. Concept of 'Safety Budget' is just emerging, and in majority of cases companies do not include it in the execution cost.

Responsibilities, Authority and Accountability for safety are misplaced. In safety matters, execution team has indifferent approach. Basic infra-structure for safety promotion and safety training are not available at sites. Work contractor is unwilling to invest in safety promotion and training. Further, hired PME coupled with incompetent operator is the biggest culprit of safety. No concept of provision of quarantine area for inspection, examination, certification, operation clearance etc is followed.

Safety should be 'line function' and not 'staff function'. Emphasis should be on systematic analysis of accidents and implementation of corrective and preventive actions, emanating from the 'Root Cause Analysis'. Symptomatic treatment of the accident should be discouraged, at all levels.

Quantitative Risk Assessment (QRA) may be used to provide input on

safety issues to the design, operation or regulation of hazardous activities. Including:-

- Estimating risk levels and assessing their significance.
- Understanding nature of the hazards, and suggest possible targets for risk reduction measures.
- Defining design accident scenarios.
- Evaluating risk reduction measures.
- Identifying safety-critical procedures and equipments.

QRAs provide a rational structure for monitoring risks and providing guidance for decision-making about safety issues.

Responsibility of the Board

In recent years, the risks of criminal prosecution have grown and the importance of compliance with safety requirements has increased. What directors have to do to comply with the law and clear guidance has been produced setting out how they can reduce both the risk of accidents happening and also their vulnerability to prosecution. Increasing scrutiny is on directors and senior executives to underline the importance of complying with health and safety laws. Safety is easily forgotten, when carrying out redundancy programmes, even if a specific safety budget survives when savings are made elsewhere. Directors should take positive steps to ensure that the impact on safety from potential job cuts is carefully considered. For example, are safety critical supervisory or managerial roles being considered for redundancy? So the impact of a programme of redundancies or cutting health and safety budgets need to be very carefully considered to ensure that unintended consequences are avoided.

The guidance is based around the following four-stage process:-

- Step 1: Plan- The board of directors is expected to set the direction for effective health and safety management and establish a health & safety policy that is an integral part of the organisation's culture, values and performance standards.
- Step 2: Deliver – Effective delivery is regarded as being dependent on directors taking ownership of health and safety and putting in place management systems to ensure that risks are dealt with sensibly, reasonably and proportionately.
- Step 3: Monitor- The board to review reports on health and safety performance.
- Step 4: Review – There should be a formal boardroom review of health and safety performance to allow the board to establish whether the system is operating effectively.

It is important for directors to be proactive in managing safety. They can no longer adopt the approach of simply dealing with issues as they arise. It will depend on all the circumstances as to how far each director ought reasonably to go, and the reasonable degree of involvement should take into account that specific director's role in the organisation. However, a 'hear no evil, see no evil' defence will not suffice in the face of poor health and safety management.

Safety can be managed more effectively through an insight into the causes of human error, and practical steps to reduce the incidence of errors, incidents and accidents. You can't ignore low probability risks. Lessons learnt from infamous failures and little known close calls can help design jobs for Error reduction and driving organisational and

Human errors to zero. Analyzing performance problems highlights the influence of culture on human error. We need to strive for a safety perfect culture. Understanding human error could be the Safety's next most profitable frontier.

The IOD Perspective

The Institute Of Directors (IOD) believes that the effective protection of staff and customers in the workplace is not only the duty of a responsible business director, but also an essential aspect of good business. The risks to health and wellbeing, and related potential risks from reputational damage, financial liability, staff absence and safety come with serious commercial consequences too.

The appraisal process can be an effective way of motivating individuals to consider their health and safety performance. In most businesses, an appropriate strategy would be to include health and safety performance as an assessed criteria or an objective in the appraisal forms of all employees at all levels of the company. If a senior manager's appraisal performance is dependent on the health and safety performance of his team, it is much more likely that the message of the importance of prioritising safety will successfully cascade down through the organisation.

In the event of a serious incident, the Health and Safety Executive of the local authority or the police are likely to conduct an investigation. There are some serious errors that an organisation might make from the outset, reducing the chances of being able to defend a criminal prosecution or civil compensation claim. Later equally, there are tried and trusted ways of avoiding legal pitfalls. Specialist legal support may be required from the outset.

We are operating in an environment in which it has never been more important for directors and senior managers to 'set the right tone at the top', in order to protect themselves and their organisation from criminal prosecution. This potential threat should nonetheless be seen as an opportunity to focus on training for directors, take steps to reduce the chances of accidents happening, and to reduce directors' vulnerability to prosecution.

Leadership Behaviour

The leadership behaviour for establishing safety excellence in an organization require covering the following seven Es:

- Establish Expectation – Leaders establish expectations and accountabilities for safety through clear vision and communication. Leaders need to translate their vision into clear expectations and accountabilities.
- Engineering Support – Ensure that engineering concerns are handled as priorities, designated in the hierarchy of controls. Leaders should ensure that safety-related engineering concerns are handled as priorities.
- Exemplary Behaviour – Leaders set a personal example of the behaviours required for the desired safety culture.
- Educate Employees – Leaders provide education, training and resources to ensure that employees are fully developed and prepared to contribute to safety excellence.
- Enable Employees – Leaders grant employees authority, flexibility and partnership once they are educated and properly prepared to fulfil those characteristics.

- Encourage Employees – Leaders encourage everyone at all levels by positively reinforcing desired behaviours.
- Evaluate Effectiveness – Leaders measure and evaluate the effectiveness of their organizational strategies and make needed adjustments.

Safety Culture

Safety management's shift from absolute safety to risk based safety has adversely been affected by common misuse of safety risk terminology and language. A positive safety culture is based on relationships that include trust, credibility, encouragement, and valued appreciation of jointly-found solutions of challenges and issues. The Key Points of Safety Culture, with the potential to provide professionals with a clear picture of their role as safety leaders are:-

- The concept of safety culture must be practically defined to be of value. Safety Culture is that observable degree of effort by which all organizational members direct their attention and actions towards improving safety on a daily basis. Poor leadership and management lead to unsafe processes and are one cause of poor attitudes.
- Safety culture is an integral part of the larger organization. Organizational culture can help or harm safety efforts. An organization's culture is more powerful than of individual.
- Safety culture can be qualitatively measured with existing assessment tools and measures.
- Leadership must share a vision for establishing safety excellence. Cultures are created to a great extent by leaders. Leadership is the most powerful component of culture. A poor safety culture implicates poor leadership.
- Leaders Must Focus on Specific Behaviours to Strengthen Safety Culture.
- Leaders need both "What To" and "Know How" to establish excellent cultures. Leaders must possess both the desire to act and a clear understanding of the specific behaviours that lead to excellent safety cultures.
- The safety professional's role influence the right people to take the right actions, which must influence site, corporate leaders and line management to establish a safety culture.

Conclusion

This paper has highlighted the importance of 'Safety as a vital arm of any integrated successful 'Business Model' and rating system. It has stressed on the need for safety culture, behaviour and leadership in every organization. It placed importance on the process of Safety Analysis, risk assessment and management. It projected that, understanding of the causes of human error will be the Safety's next frontier. Disaster management and the important plans and the practical training of all concerned by simulating such scenarios would be useful. The role of engineers and Safety certification audits have brought in the need for statutory requirements and an 'Umbrella Act' to ensure compliance. Instead of relying solely on poster campaigns and safety weeks, we need to create an environment of Safety awareness, through effective plans. ■

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