

Safety practice

Leadership and management role in process safety — a day-to-day example

Adam M Musthafa

Summary

Both leadership and management have essential roles to play in achieving process safety. Every one of us that works in an operating environment has or will have to a certain extent the role of leadership and management. This paper discusses three simple and day-to-day examples of leadership and management roles in process safety management, why they are both important, and how both roles are played to continuously improve our process safety performance.

Keywords: process safety leadership, management

Introduction

Process safety is all about keeping hazardous materials and energy in the equipment and piping systems to prevent catastrophic fires, explosions, and toxic releases¹. To achieve the process safety goal, both leadership and management are essential. Every one of us that works in an operating environment has or will have to a certain extent the role of leadership and management.

Warren Bennis once stated, "The manager does things right; the leader does the right thing". He further states that the differences between leaders and managers are that leaders are those who master the context and manager are those who surrender to it². While the difference between leaders and managers as stated by Benning focuses on the strength of leadership as compared to management, in process safety, management is as important as leadership. This paper discusses three simple and day-to-day examples of leadership and management roles in process safety management, why they are both important, and how both roles are played to continuously improve our process safety performance.

Leadership vs management

Leadership is a process of social influence in which a person can enlist the aid and support of others in the accomplishment of a task³. While defining process safety leadership is not very straightforward, CCPS stated: "Strong process safety leadership refers to the ability of a person to convince their reports and peers of the right process safety thoughts and actions"⁴. It is all about how a person can influence others' actions and behaviour regarding process safety. It focuses on people, their trust, and how to drive them to the right thoughts and actions.

Management is the specific tool, the specific function, the specific instrument, within an organisation that makes it capable of producing the desired result/product⁵. Management is about monitoring and controlling resources and processes to achieve the desired result. It is about planning, monitoring execution, and improving. It is focused on processes, metrics, and improvements.

Leadership set the direction, management manages the execution and resources

In a leadership role in a major hazard industry, we should establish that process safety is an integral part of the operations, and production will not be continued at the cost of process safety and asset integrity. Having a periodic meeting to discuss process safety and asset integrity issues with frontline staff is a good start. The more the leaders talk about process safety the stronger the imperative for process safety is at the operational level.

Some organisations set up discussions on major accident lessons learned periodically. Watching incident learning videos from the US Chemical Safety Board or other sources and discussing the applicability of lessons learned with the operations and maintenance team will not only enhance the organisation's knowledge but also instil a sense of vulnerability. It is a great tool for leaders to direct others to be preoccupied with what can go wrong in their operations.

Setting up a less frequent meeting with senior management specifically to discuss higher risk process safety and asset integrity issues is also critical. This will not only show the importance of process safety and PSM but also will help senior management to understand better the issues at the operational level and as appropriate intervene and provide additional support/resources when needed. While this sounds basic, some major hazard operations do not even have this meeting. It is not uncommon for senior management to only be exposed to and informed of business and financial risks, reducing their capability to drive process safety culture.

How the leaders react to the reported process safety and asset integrity issue will also set the tone. Leaders should appreciate reported process safety and asset integrity issues and provide timely intervention and feedback. Leaders should avoid the perception that response to process safety concerns is slow. Slower response to process safety issues compared to production issues could lead to workers thinking that management does not care about process safety. When management does not care, why should the worker care about process safety? If this thinking spreads across the organisation,

the process safety culture will be weakened.

Tracking the reported issues in the day-to-day action register will help the organisation systematically follow up and resolve the issues. This is part of the management role. As a manager, we should manage reported issues and resolve them to eliminate, control, or mitigate the associated risk. All process safety and asset integrity issues in the day-to-day action register should be risk-ranked to better understand the priority. Resources should be assigned and provided to the resolving these issues. Resources include manpower, budget, competency, and time.

When internal resources and competency cannot resolve a particular concern, the manager should be ready to get this from an external source. The budget should be secured promptly, and when the issue is unplanned and serious, managers should be ready to go to higher-level management to request *ad hoc* funding. Contrary to some managers' beliefs, bringing the issues to higher-level management does not show them as incompetent, but rather accountable. Knowing when an issue is serious enough to be brought to higher-level management attention is a key skill for a manager. Some organisations facilitate this process by assigning each risk level to a different level of management as a risk owner. The higher the risk, the higher the management level who should own the risk decision-making and control.

Time is one very limited resource that is often forgotten. Higher risk issues that require shutdown work should be prioritised and slotted into the nearest planned shutdown and plant turnaround. When an issue is assigned to particular staff, an adequate and manageable target date should be set. Deferral to the agreed target date should be discussed and formally approved by the managers.

Leaders verify conformance, managers monitor and improve performance

Two aspects define the healthiness of process safety management implementation in any organisation — conformance to the requirement and implementation effectiveness (see Figure 1). Ronald Reagan once stated:

"Trust, but Verify". This summarises the second role of leaders in process safety. As a leader, we delegate the coordination, implementation, and execution of the process safety management program in our organisation. Delegating includes holding the assigned person responsible for the process and implementation but owning the result. To own the result, leaders should verify that the delegated task/role is executed properly. This requires leaders to spend time at the front, shop, field, or plant. Leaders should get their hands dirty and verify.

As a leader, we should personally ask managers and supervisors under our leadership about the implementation of the processes under their supervision. We should personally check if critical procedures are implemented properly. We should also periodically discuss with our staff if critical procedures are correctly understood. Last but not least, leaders should see the need, request, and support internal and external audits. Leaders should own the organisation's conformance to PSM requirements (fulfilment of specified requirements) and verify it through inspection and audit.

Unclear roles and responsibilities in process safety-related tasks is one indication that leadership verification does not happen or is not effectively conducted. In one PSM audit, there were five DCS operators in a control room of a chemical plant. When asked which area of the plant they were responsible to look after, they said that each of them were responsible for all parts of the plant. No specific assignments were given, and responsibilities were unclear. The danger of not assigning clear responsibility is that there will come a time when personnel rely on each other to respond to process anomalies or upsets, with no-one taking the appropriate action. Leaders should discuss with workers to ensure that roles and responsibilities are clear, and that they have the necessary resource to execute their roles.

Managers, on the other hand, focus on performance. An organisation may already fully implement MOC (Management of Change requirements are fulfilled), but the effectiveness of the process may still need improvement. For example, upon analysing the MOC database one can find gaps and

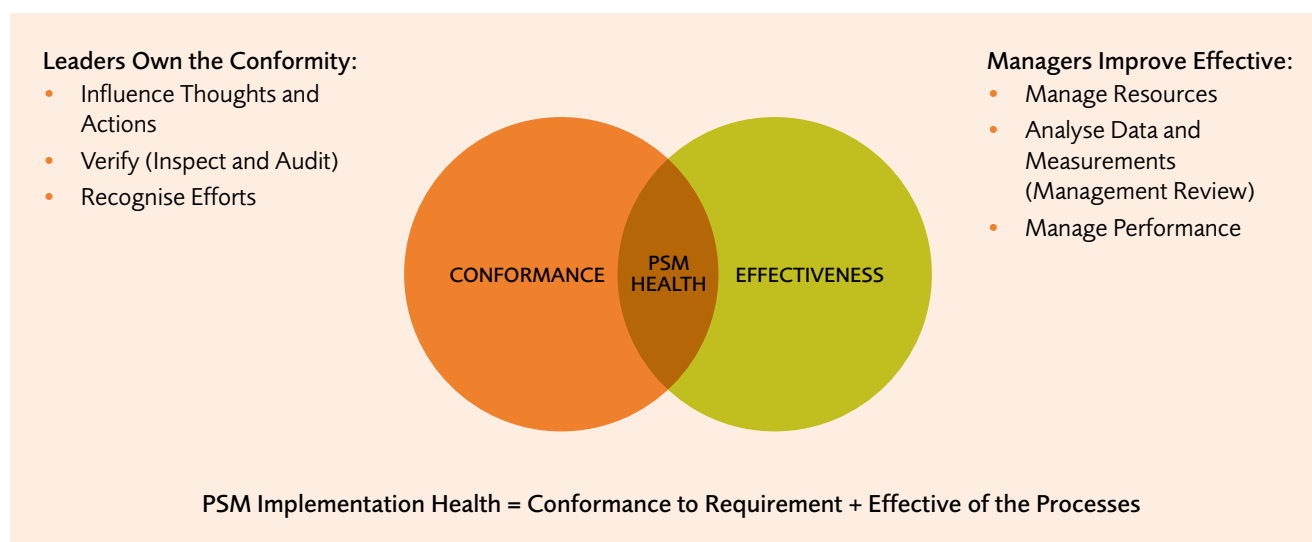


Figure 1 – PSM Implementation Health

weaknesses in risk assessment quality. Some important risks or aspects may have been missed. Some review or action resolution may take too long, putting the plant operations in a higher risk situation longer than they should be. Actions are assigned to only one or two "favourite" engineers, slowing down the process, reducing the depth of review, and at the same time hindering the development of the other engineers' skills. These are some real examples of performance issues in PSM implementation.

One of the most important tools in this role is management review. Management review is the routine evaluation of whether management systems are performing as intended and producing the desired results as efficiently as possible. It is the ongoing "due diligence" review by management that fills the gap between day-to-day work activities and periodic formal audits⁶. Normally it consists of evaluating KPIs or other measurements to gauge the implementation and effectiveness of management systems and processes. Measurements are quantitative and qualitative data that can be compared against a desired result or performance standard. We use measurement to monitor and identify areas of improvement and determine where management intervention is required to restore or improve effectiveness.

One tool that can be used to conduct self-assessment to verify how well our organisation is managing process safety is given in the OECD publication *Corporate Governance for Process Safety: Guidance for Senior Leaders in High Hazard Industries*. The questions in the self-assessment tool are intended to be answered by senior leaders and then discussed with the staff⁷. Leaders and managers in high hazard industry will find the checklist a valuable tool to conduct this periodic assessment.

Leaders recognise conformance, managers reward performance

As a leader, when verification shows non-conformance, we should show care and emphasise the importance of complying with the requirement. We should start with the "why". Explain why a certain process is required and motivate others to conform. On the other hand, when verification shows conformity, leaders should thank and recognise all who are involved in the process. Appreciate the effort and specifically highlight key persons and achievements. Both nonconformity and conformity should be given a timely response.

One example of weak process safety leadership is when operating outside the safe operating envelope is accepted or tolerated by leaders⁸. Not only allowing the occurrence itself is dangerous, but it also tells workers that it is OK to deviate from safe operating limits to achieve production goals. A leader with a good commitment to process safety should give immediate feedback and emphasise the importance of conforming and operating within a safe operating envelope before this becomes a habit and a culture.

As a manager, when the process's effectiveness is eroded, we should work with the team and find the root causes and make a plan to improve. We should identify and plan the resource required to restore the effectiveness to the defined standard. When effectiveness is beyond expectation, a reward should be given. Reward requires a budget and thus

should also be planned appropriately. Managers however should be critical to the measurement data and verify if the data is correct. When the target is too lenient, a new target should be set for the next implementation phase to continuously improve.

In one real example, it was a common practice for PHA actions in one organisation to be given a very long due date. As an unwritten practice, all actions were given a minimum of one to two years to be completed, even those as small as updating simple procedures. The PHA coordinator "trained" the organisation to avoid setting risk levels as "high" to avoid deferral of the high-risk action items. When all is perfect, something must have been wrong. Process safety management is a management system, and all management system key features are a continuous improvement process. Upon reviewing the data, the "all-green" status should prompt a detailed checking by the appropriate management.

Conclusion

Leadership and management play an important role in process safety. Each of us to a certain extent has a role as a leader or manager in process safety implementation. While the difference is sometimes unclear, the role of leaders and managers can be summarised as follows: As a leader, we focus on people's thoughts and actions, while as a manager we focus on the processes and results of PSM implementation. As a leader, we own the conformity to PSM requirements by inspection and audit, and as a manager, we monitor and manage resources to achieve continuous improvement through measurements and reviews such as management review. As a leader we recognise the effort and motivate people to do the right thing, as a manager, we troubleshoot performance issues and manage performance rewards.

References

1. CCPS. (2019). *Process Safety Leadership from the Boardroom to the Frontline*. Hoboken, New Jersey: John Wiley & Sons, Inc.
2. Bennis, W. (2009). *The Essential Bennis*. California: Jossey-Bass.
3. Chemers, M. M. (1997). *An integrative theory of leadership*. Psychology Press.
4. AIChE, CCPS. (2018). *Essential Practices for Creating, Strengthening, and Sustaining Process Safety Culture*. Hoboken: American Institute of Chemical Engineers and John Wiley & Sons, Inc.
5. Drucker, P. F. (2008). *Management (Revised Edition)*. HarperCollins.
6. AIChE, CCPS. (2011). *Guidelines for Auditing Process Safety Management Systems*. Hoboken: John Wiley & Sons, .
7. OECD. (2012). *Corporate governance for process safety: Guidance for senior leaders in high hazard industries*. OECD.
8. CCPS. (2012). *Recognizing Catastrophic Incident Warning Signs in the Process Industries*. Hoboken, New Jersey: John Wiley & Sons, Inc.