

Leadership,
the Thirteenth Element of Risk Optimization
in Process Facilities

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Process Safety and Loss Management Symposium
54th Canadian Chemical Engineering Conference
Paper # 226, Monday October 04, 2004
Calgary, Alberta

Abstract:

The CSCChE's Process Safety Management Guide ¹¹ outlines the twelve elements of that management discipline. The guide defines the structure, policies, procedures and management systems... "doing things right". Leadership is then required to take over, moving to the next level and communicate the vision by walking the talk and energizing people to put this very powerful management system to work in every facet of loss avoidance... "doing the right things". It becomes the thirteenth element.

Successful leaders understand the vital importance of trust in the workplace and among their stakeholders and relentlessly pursue the demonstration of integrity and development of competence it is based on. They set standards ensuring the "who?", "what?" and "when?" of risk optimization is in place and they do all this very transparently in continuous alignment with how organizational learning is achieved.

Introduction:

Loss avoidance, or stated more positively, risk optimization, is at the core of what we all do as managers of industrial process operations facilities. It becomes very apparent, early on in the study of loss management, that what pertains to safety, more often than not fits the broader spectrum of risk optimization as summarized on our "Performance Tree".

William James, father of American psychology at Harvard, as far back as the 1870s claimed 40% effort is adequate to keep your job, another 40% can be tapped through proper standards setting and the top 20% is the peak performance zone. So, the key in getting from the 40% level to the 80% level is proper performance standards. To ensure accountability, performance standards answer three basic questions: who? what? and when? or how often?

The key to the final 20% is motivational leadership. Putting the concepts of process safety management to work and improving their performance on a sustained basis takes leadership and vision. Encouraging a deeper

understanding of the characteristics of leadership that this requires is what this presentation is all about.

The reference list at the end of this paper includes material that thirty-plus years' experience has shown to be particularly insightful in promoting further thinking about leadership. Not all these items are directly used here but they have all contributed to my personal understanding. A good way to start to talk about leadership is to think about a few notable leaders and the characteristics they exemplify.

Leadership Examples

Sir Alexander Mackenzie, Canadian Frontiersman

Scottish-born Alexander Mackenzie moved to Canada when he was ten years old went on to become a Canadian hero, knighted by King George III, as leader of the first expedition to cross North America from the Atlantic to Pacific, north of Mexico. And he did it in 1793, twelve years ahead of the Americans Meriwether Lewis and William Clark, whose bicentennial is being celebrated next year.

Mackenzie had moved from Scotland to Montreal in 1774. He began work for the North West Company and was given the job of exploring new land in search of fur supplies. In 1787, he became a partner in the company and set off for Fort Chipewyan, adjacent to present day Wood Buffalo National Park on Lake Athabaska, where he conceived the plan to find an overland route to the Pacific.

In 1789, Mackenzie's crew of voyageurs, his wife and several others, set out to discover that overland route to the Pacific. After five weeks, he reached an ocean, but it was the wrong one. He had accidentally reached the Arctic Ocean and charted the "River of Disappointment" as he called it, the great river now named after him. 100 days later, Mackenzie's entourage arrived back at Fort Chipewyan having documented yet another route to the Arctic Ocean, but not the elusive Pacific he'd been looking for. This first trip aided in mapping the northern regions of the continent and extending the existing base of knowledge, but Mackenzie remained determined to find the "Western Sea."

Before his next trip, he went to England to study recent technical advances in the determination of longitude. Personifying continuing learning and armed with new knowledge and equipment, he returned to Canada a year and a half later. On May 9, 1793, Mackenzie, with nine others, packed into a 25-foot canoe at the present site of Peace River, Alberta, for a second voyage.

They ascended the Peace River to the confluence of the Finlay, then up the Parsnip and over the divide, reaching the Fraser River near present-day Prince George. After descending the Fraser to somewhere between Quesnel and Williams Lake, the native guides suggested they proceed westward, over the Chilcotin Plateau, instead of continuing on into the hazardous Fraser canyon. They took the advice and this time, Mackenzie and his team succeeded,

reaching the Pacific Ocean at Bella Coola on July 22. They returned with the westward route mapped 117 days later.

Mackenzie had become the first European to reach the Pacific Ocean on an overland route north of latitude 25°, a dozen years ahead of the Americans, who reached the mouth of the Columbia River from St. Louis in late 1805. In fact, Mackenzie's role model and his published record of his expedition contributed to President Thomas Jefferson's launch of the Lewis and Clark Corps of Discovery.

[Albino Luciani, Roman Catholic Cardinal](#)

On August 28, 1978, the presiding cardinal appeared on the balcony of St. Peter's Cathedral in Rome to announce: "I bring you news of great joy! We have a Pope: Cardinal Albino Luciani." When Luciani stepped onto the balcony, everyone who saw him remembered his smile. It seemed to touch their souls, causing even skeptics to wonder if maybe God really had intervened in the selection process this time, to secure the selection of "His candidate".

Luciani absolutely radiated delight and joy. He was a man from the mountains of northern Italy, who as a small boy wanted more than anything to be a parish priest. And there he stood, on St Peter's balcony, as Pope John Paul the First. Although he'd been brought up in the environment of the counter-reformation era of the Italian Catholic church in the early 20th century, Luciani was blessed with a vision of a more open and spiritual institution. He never traveled beyond his native Italy but he developed a network of like-minded contacts around the world.

He was fifty years old at the time of Vatican II, but he clearly caught the spirit of fresh air and "getting up to date" that it intended. The cardinals who were among the nucleus of the surviving core from that Vatican II Council we later determined to have voted for him. It was no accident in selecting the Archbishop of Venice, a career pastor rather than a Vatican administrator... they knew exactly what they were doing; they got a leader, not a manager.

He was a protégé of Pope John XXIII, the guiding spirit of Vatican II, who had made him a bishop. As Pope, he was setting about to place high value on the sharing of power with his bishops. He intended to put the Church back where it belonged, back to the simplicity and honesty of its origins. If Jesus were to return to earth, Luciani wanted Him to find a Church he would recognize, free of political interests, and the big business mentality that had corroded it. This man had a revolutionary dream, to pursue the repastoralization of the entire Roman Catholic Church.

[Louis St. Laurent, Twelfth Prime Minister of Canada](#)

Following the extended term of office of his predecessor, Mackenzie King, St. Laurent put a human face on the federal Liberal government, beginning in November 1948. But he did more than that.

Mackenzie King had never maintained a system for organizing his official papers, often arrived late for meetings and appointments, and did not like being disturbed by his ministers and visitors. St. Laurent brought structure to his management system. He kept regular hours, organized his paperwork and kept in touch with his ministers while letting them run their departments. With cabinet ministers like C. D. Howe, Lester Pearson, Jack Pickersgill and Paul Martin, St.-Laurent had a superstar team in place and his leadership style permitted them to manage the affairs of Canada with efficiency.

Behind the affable image lay a very tough mind. He believed that the concept of the father of a family was the best one to be applied to the management of public affairs. His paternalism and common sense suited the country and its people moving into the post-war boom period.

His term of office included the most prolific productive explosion in Canadian history. Initiatives during his term of office included Newfoundland joining Confederation, the Trans Canada Pipeline, the St. Lawrence Seaway, Avro's development of the CF-100 Canuck and CF-105 Arrow, Vincent Massey's installation as the first Canadian-born Governor General, Canada's emergence as a global peacekeeper in the Suez Crisis and the total conversion of Canada's wartime mobilization of resources into peacetime progress and quality of life enhancements.

Disciplined, decisive and dutiful, a statesman model of composure, he saw himself as just a good average Canadian. He traveled across the country, meeting ordinary Canadians, making the Prime Minister an approachable human being for the first time in a generation.

[Darryl Sutter, Calgary Flames Coach, 2004](#)

He'd been fired by the San Jose Sharks a few weeks before Calgary hired him as head coach in late 2002. His first partial season was so-so and some questioned the wisdom of his promotion to general manager as well, the following Summer. As general manager his only early managerial achievement of note had been relieving his former employer of their number three goaltender and the inherent salary obligations.

His first full season started about as expected. When my two sons and I attended the Boxing Day 2003 game against the Canucks at the Saddledome, the outcome was predictable; Vancouver after all, was the team of destiny in the west and Calgary was rebuilding...the Canucks won. Then over the next six weeks, the Calgary Flames truly became Darryl Sutter's team.

He approached the last 28 games of the regular season as four 7-game series. With Sutter's focus and intensity taking hold, the Flames won all four of them and stole a playoff berth. Under his contagious and demanding leadership, fellow San Jose escapee Miikka Kiprusoff became an elite-level goaltender who refused to allow himself the luxury of two consecutive off-games. His young captain, Jarome Iginla made the transition from potential future superstar to kinetic current superstar. His troop of unheralded foot soldiers became a dream

team of over-achievers, working to the plan with maximum intensity, every shift, every period, every game, every series.

They lifted themselves to a whole new and entirely unpredicted level of performance that carried them through three best-of-seven series wins and they became Canada's team as they pushed to the brink, their dream season falling one goal short as the gas tank went empty on a hot and muggy June night on the Gulf coast of Florida. But we'll be seeing more of these guys!

Leadership and How it Differs from Management

So what do these four examples teach us about leadership and how it differs from management? John Kotter ²¹ of Harvard Business School has attempted to distinguish between the two. He says that...

Management means establishing detailed steps and timetables for achieving results and allocating the necessary resources. Leadership involves developing a vision of the future and the needed change strategies.

Management requires establishing structure, staffs it, delegates responsibility and authority, provides policies, procedures and systems. Leadership means communicating the direction by words and deeds to all who need to understand and accept the vision and strategies.

Management requires monitoring results, identifying deviations, planning and organizing actions. Leadership means energizing people to overcome major barriers to change, lifting them to a new level of performance.

Management produces a degree of predictability and order and has the potential of consistently producing key results expected by various stakeholders. Leadership produces change, often to a dramatic degree, adding the potential of producing extremely useful change.

So management and leadership are clearly two different entities. But you don't choose one or the other!

Management and Leadership: Additive and Sequential, not Mutually Exclusive

Over managing an underled team may top out at 80th per centile performance but over leading an under managed effort is simply not stable, long-term, either!

Over five years ago, as I began work in my current position, things just jelled for the team I inherited and we went on to have the best six month period of performance in the 26-year history of the operation. Then performance fell off and deteriorated. The ultimate assessment was that mine was the style of leadership that the local culture required, following a bitter prolonged labour dispute. But the performance management system was inadequately developed and further eroded by excessive turnover; as a result, we ran into a performance inversion.

Two changes of ownership and the transition effort required delayed us getting back again to focusing on developing the kind of results-focused management system we needed. But it has now been in place for over two years and I'm proud to be able to say that the twelve elements of the process safety and loss management lie at the core of this successful management system.

Now, with the kind of management system and leadership style both in place, we are achieving the all-time best kind of performance our shareholders should expect and as described in Pulp & Paper Canada, February 2004 ²⁵. The lesson to be learned is that you need both management and leadership. With management only, you will have to forego the benefits of discretionary extra effort; with leadership only you outrun your established structure and collapse into the vacuum.

Leaders as Role Models

In a nutshell, management means doing things right; leadership means doing the right things. But what are the right things? From my experience in a jointly initiated labour-management relationships improvement process, it is not rocket science to determine what some of them are. One outcome of the process was that as General Manager, I was asked to develop written descriptions of desired behaviour and conduct and they included these ²⁶.

Lead By Example, Treating People Fairly, Honestly And With Respect.

- Everyone here must observe the golden rule and treat other people the way they would like to be treated themselves. Avoid the use of foul language and lower your voice as the other person raises theirs in an argument.
- Act with courtesy and fairness; maintain your composure and don't let other people determine the way you act. Practice seeing things from other people's point of view and don't overlook a good idea just because you don't happen to like the person who suggested it. Truth is serious business, apply it lightly when criticizing others and, by all means, avoid sarcastic remarks. Be tactful; never alienate anyone on purpose.
- When someone is telling you about something that is important to them, resist the urge to top them with a story of your own. Ask for help by saying "I've got a problem, could you please help me?" When giving instructions, tell people what has to be accomplished; not how to do it. Confirm understanding by asking "do you understand?" not "OK?" Never waste an opportunity to tell good employees how important they are to our success. Praise people in public; criticize in them private.
- Remember that some of the most important needs for an employee are to have an accessible boss, to be called by name and to feel appreciated.

Management Will Solicit Input from Employees in Problem Solving and Decision Making and Employees Will Be Respected For Their Input.

- Every employee has a fundamental right to achieve satisfaction from his job, to the extent of his capability and interest, without feeling pressure to hold back. It is our leadership responsibility to ensure that our people are enabled to fully utilize their natural gifts and acquired skills.
- On the job in industry, as in most relationships, is to recognize that trust is vitally important. It takes trust for an employee to genuinely participate in helping his company be successful. To earn the trust of the people you work with, you must never give them reason to regret the discretionary contributions they make. Earning their trust takes trustworthy character (what you are as a person) and relevant competence (what you can do on the job). And you need both; they are critical factors in the success of a personal relationship and in the competitive performance of an industrial organization. Training and practice can overcome some shortage of competence but lack of trustworthiness in your character is fatal!
- When you are working with your team in solving a problem, or better yet, a potential problem, be sure to lay out the background and scope so that they understand clearly what the objective is and what has been tried and there are no false leads due to withheld information.
- Develop your ability to gather information by being able to talk comfortably with all kinds of people, questioning gently, listening and using your intuition to put two and two together. Develop your alertness to the mood of a group of people. Learn how to give others the benefit of your knowledge softly and effectively, giving down-to-earth insight to support trouble-shooting efforts but be the first to acknowledge what you don't know.
- Become lots better than average at translating jargon into understandable terms. Learn to coach other people to use information, classifying and organizing it in a way that makes sense to them. Work at your ability to adapt and improve information provided by other people and help them express their views so they can feel a sense of self-esteem seeing good practical use of what they've offered being applied in a new situation.
- As a leader, your position gives you authority and you may be gifted with more formal education but never confuse that with wisdom!
- Never forget that no matter how many times you're right, sometimes you'll be wrong and your success is totally dependent on support from the people you work with.

Emotional Intelligence

This does not sound anything at all like rocket science. So why should it be so hard to do? Maybe because we are professionals! In his 1995 best seller, Daniel Goleman ¹⁵ identifies five sectors of emotional intelligence: knowing our own

emotions, managing our own emotions, motivating ourselves, recognizing other peoples' emotions and finally handling relationships with other people. How some people are more gifted than others and therefore more able to build trust and respect is in the balance: keeping emotional reactions appropriate and proportional to the circumstances.

The concept of emotional intelligence takes for granted that we all have the intellectual ability and technical expertise to do our jobs adequately. It goes a step beyond and looks at how personal qualities such as initiative, empathy, adaptability and persuasiveness make the difference between marginal and star performance.

Our level of emotional intelligence is not fixed permanently. It continues to develop as we go through life and learn from our experiences. The old fashioned word for this happening is maturity. The impact of emotional intelligence on on-the-job performance is broken down into twelve specific individual competencies and thirteen key relational competencies.

As chemical engineers, or for those others of us with profession qualifications which are cognitively very demanding, entry screening is based almost entirely on IQ. Since everyone getting into the profession has a very high IQ, from there onwards, IQ provides little competitive advantage among individuals. It becomes a threshold or entry-level competence; just something you need to get in, in the first place. Much the same thing applies to technical expertise; it is something you need for entry or further advancement to a certain job. That makes it another threshold competence. Since everyone has the required amount of it, it does little to distinguish among individuals.

On the other hand, emotional intelligence factors figure hardly at all in pre-screening to most professions so there can be a whole spectrum of emotional intelligence levels among people entering into and advancing within these professions. That is why emotional intelligence becomes such a factor for success or failure. And more so, emotional intelligence and cognitive skills are more than additive; they are synergistic; you multiply them!. Top performers have both. At the other end of the spectrum, out-of-control emotions can make smart people act as if they are stupid. So how does emotional intelligence lead to job competence and excellence?

Our level of emotional intelligence is what determines our ability to learn practical skills in five identified and very critical sectors: self-awareness, self-motivation, self-regulation, empathy and social skills. Emotional competence evaluates how effectively we have translated this God-given ability into results in the form of job capabilities.

Super Performers:

I cannot end this presentation without talking for a minute about top-tier leaders. Occasionally, we have to opportunity to observe or possibly even work with someone John Wareham would refer to as a Midex ³⁷. This individual's performance, as a whole, is frequently or consistently greater than could be

predicted by summing all the parts. He seems to be able to establish relationships that are critical, somehow sees trends and patterns in what most people see as a maze of data and manages to distinguish the really important from the inconsequential and trivial when it comes to prioritizing. This ability to detect subjective currents and hidden connections is not closely linked to pure rational IQ. It really has roots in the survival instincts that are primordial in evolution.

These traits are highly evident in competitive team sports because of the compressed time frame and highly visible measurability of success. They can be clearly demonstrated by super-star athletes, including two who made an impact in Alberta: Wayne Gretzky, the former Edmonton Oilers' centre and Doug Flutie, the former Calgary Stampeders' quarterback. Their outstanding creative playmaking performance levels under pressure are largely attributed, not to physical size or strength, obviously, but to a considerably above average ability to detect and recognize patterns and trends unfolding around them.

Although these two individuals are highly visible professional athletes, you may get to see similar dynamics at work in any situation in which a group of people comes together with a common interest. It happens when God-given natural strengths and professional education converge in near-perfect alignment with the requirements and expectations of career situations. When it all comes together, this capacity is something that actually grows stronger with life experience. It's often known as wisdom and it is really very different from pure intelligence. So we truly are justified when we say we aren't getting older, we're getting better, or at least wiser!

Conclusion:

Prudent construction and installation of quality equipment and care in recruiting and staffing, alone, can result in 40th per centile performance in manufacturing process operations. Rigorous application of Process Safety Management discipline, more broadly considered to be a structured approach to risk optimization, can elevate the performance level to the 80th per centile level. Attaining and sustaining a standing in that top 20% requires strong leadership that responds to the competence and credibility expectations of the internal and external stakeholders.

The ability to lead and inspire people is to a large degree instinctive and more fully acquired through life experience. In spite of that, a significant component of it is premeditated and can be learned, with focused analytical attention to what drives it. Every soldier has a right to competent command, and learning to attend to those visible signals of competence and integrity and mastering as wide as possible an array of emotional competences, can make anyone who takes it seriously, significantly more effective as a leader.

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September 2004

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Biographical Information on the Writer



Tom Boughner was born and raised in the Long Point region on "Ontario's South Coast" and received a B. A. Sc. degree in Chemical Engineering from the University of Waterloo in 1970. He is a registered Professional Engineer in British Columbia and Ontario. Following undergraduate co-op experience in chlor-alkali and silvichemicals, his pulp and paper industry career spans roles with ever-increasing levels of responsibility, from Process Engineer and Production Area Supervisor through Maintenance & Engineering Manager, Pulp Production Manager, Paper Production Manager, Capital Projects Manager and, for the past fourteen years, at the General Manager level.

He has pulp and paper management experience in Ontario, New Brunswick and British Columbia. In April 1999, he assumed his present position in which he is responsible for all operational aspects of the Mackenzie, British Columbia 230,000 ADt/yr bleached kraft market pulp mill manufacturing both premium NBSK and also specialty sawdust pulp. He is a member of pulp and paper industry technical associations in Canada, the United States and Brazil and also the Canadian Society for Chemical Engineering, which he serves as the Vice Chairman of the Process Safety Management Division.