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Leadership's Influence on Process Safety Management Performance

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Agenda –

1. Leadership defined
2. Corporate Organizational Leadership vs PSM Leadership
3. Responsibilities for Process Safety
4. Leadership Effect
   - Positive
   - Negative
5. Strategies for PSM Excellence Through Leadership Engagement
6. Questions

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Corporate Leadership Definition

- **Corporate leadership** is the system of behaviors and decisions by a corporation's top leadership (board, CEO, executive team, senior line leaders) that:
  - **Sets direction** (purpose, strategy, risk appetite, priorities).
  - **Aligns the organization** (structure, resources, incentives, capabilities).
  - **Mobilizes performance through leaders and culture** (values, norms, accountability).
  - **Governs and assures** (oversight, internal controls, stakeholder duties).
  - **Delivers results sustainably** (short-term performance without compromising long-term health).
- Corporate leaders are trained and rewarded to "focus on enhancing shareholder value"

Why PSM Leadership Is Different

- Focusing on preventing and managing catastrophic incidents involving highly hazardous chemicals
- Major hazards are low-probability / high-consequence / systemic
- Prevention is less obvious: success means events that never happen
- Requires chronic unease, rigor, and deference to expertise
- Line leadership owns PSM; PSM function enables/assures

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Corporate Leadership Responsibilities and PSM Impacts

Responsibility	Major (+) Impact	Major (-) Impact
Sets direction (purpose, strategy, risk appetite, priorities)	• Commitment to PSM • Measured Risk Tolerance • Effective Execution Strategy	• Low PSM Priority • Higher Risk Tolerance • Poor or No Planning
Mobilizes performance through leaders and culture (values, norms, accountability)	• Participatory Style and Engagement • Accountability • Shared Values	• Autocratic or Distant • Noncommunicative • Not Leading by Example • Destructive to PSM Culture
Governs and assures (oversight, internal controls, stakeholder duties).	• Direct Involvement • Risk Awareness • Structured Approach	• Disengaged • Lack of Risk Knowledge
Delivers results sustainably (short-term performance without compromising long-term health).	• Performance Driven • Sustainable Organization and PSM Management System	• Short-Term Financial Focus or Quick Fixes • Unsustainable PSM

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PSM Leadership Best-Practice Principles

- Boardroom-to-Frontline ownership of major-hazard risk
- Visible commitment + clear risk appetite
- Relentless focus on barrier health and operating discipline
- Learning culture: surface weak signals early, fix system causes

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What Senior Line Leaders Do

- Declare process safety a strategic value; set risk appetite
- Put ownership in the line; align incentives
- Fund critical barriers first; avoid deferrals
- Review barrier health trends and red-barrier recovery plans
- Build competence for critical tasks

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Model of Excellence for PSM

- Set direction: purpose, risk appetite, non-negotiables
- Build integrated PSM/Safety Management Systems with PDCA improvement
- Lead culture through behaviors and consequences
- Learn from weak signals, near misses, and events
- Assure barriers via leading indicators & audits

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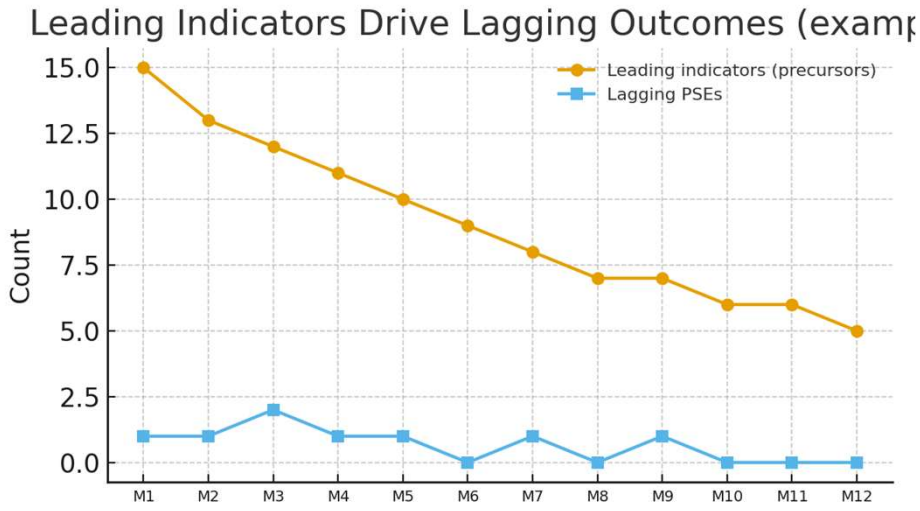
Leading Indicators Prevent Tier 1/2 Events

- Track precursors: MI red backlog, SIS tests overdue, alarms, bypasses, MOC past due
- Reward high-potential near miss reporting
- Use trends for early intervention



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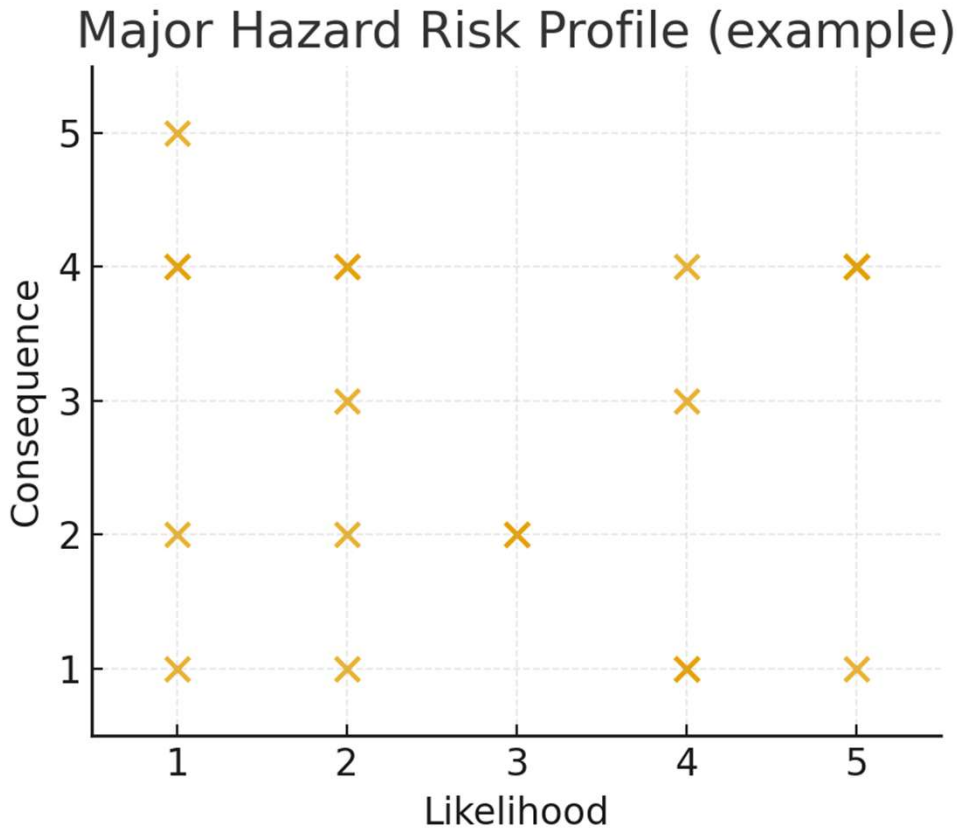
Enterprise Major-Hazard Risk Profile

- Top MAHs identified via PHA / bowties
- Quarterly exec review of risk trends
- Resources targeted to highest-criticality reds



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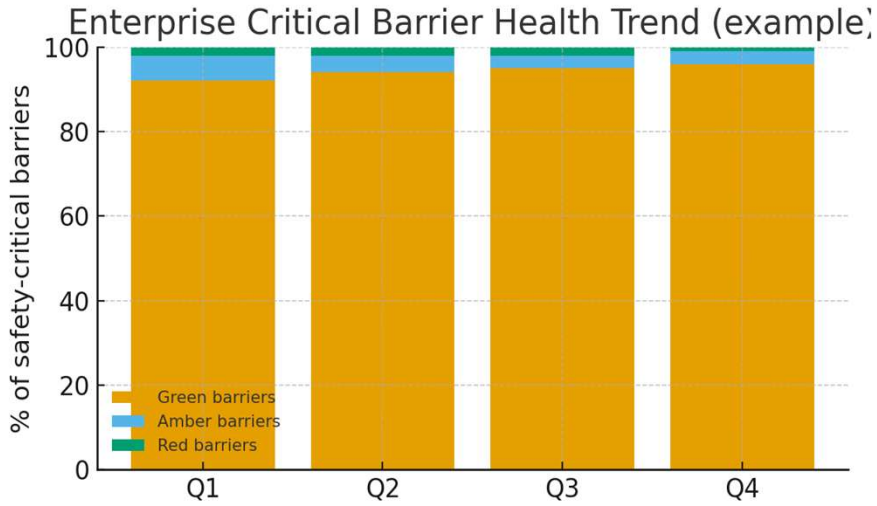
Critical Barrier Health Index (CBHI)

- Enterprise view of safety-critical barrier integrity
- Green = exists + functional + effective + assured
- Amber = degraded / overdue with recovery plan
- Red = impaired barrier; requires constraints or shutdown



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Leadership Behaviors That Drive PSM Excellence

- Be visible in the field; ask barrier-focused questions
- Treat MI/SIS backlog like production loss
- Stop or throttle when W=3 barriers are red
- Celebrate early bad news; punish concealment
- Demand systemic RCA and verify effectiveness

PSM Governance Rhythm (Enterprise)

- Monthly: site/unit barrier reviews chaired by line leaders
- Quarterly: enterprise CBHI + MAH posture to CEO/Board
- Annually: independent audits and scenario refresh
- Every turnaround/startup: PSSR and control verification

What Corporate PSM Managers Do

- Maintain integrated PSM/SMS and standards
- Provide MAH + CBHI visibility in business terms
- Coach leaders on field behaviors
- Own leading-indicator system & early warnings
- Provide independent assurance and escalation

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Top Industry PSM Leading Indicators

- CCPS strongly recommends **tiered leading indicators** focused on barrier health and system discipline, not just injury rates. AIChE+1
  - **Critical barrier impairment rate**
    - **of overdue / bypassed / failed critical safeguards (SIS, relief devices, fire & gas, ventilation, interlocks).**
    - Trend by asset / unit. AIChE+1
  - **Asset integrity "red backlog"**
    - Overdue inspection, testing, corrosion monitoring, pressure equipment repairs.
    - % of safety-critical PMs late. AIChE+1
  - **Management of Change (MOC) quality & timeliness**
    - Temporary changes past due.
    - % MOCs with completed PSSR before start-up. p-s-f2.org.uk
  - **Operating discipline / procedures adherence**
    - Verified procedure use, deviations, permit quality.
    - "Work done outside constraints" events. p-s-f2.org.uk+1
  - **Alarm management stress**
    - Alarm floods, standing alarms, disabled alarms, operator load.
    - Especially relevant to oil/gas, chemicals, pharma batch control. AIChE

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- **1. Setting the tone: what "matters most"**
- Leaders signal what the organization truly values. If production targets, cost cutting, or schedule are consistently rewarded more than safe operations, people will take shortcuts—often without meaning to.
- Concrete leadership behaviors that strengthen process safety:
  - Repeating that "no target is worth a major incident."
  - Asking about barrier health and risk, not just output metrics.
  - Treating process safety as a core business objective, not a compliance add-on.
  - When leaders treat process safety as *non-negotiable*, employees feel permission to slow down, stop work, or escalate concerns.

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- **2. Building (or eroding) a process safety culture**
- Culture is the "default behavior" of the organization. Leadership shapes culture by:
- **What they pay attention to.** If leaders routinely review near misses, hazard reports, and maintenance backlogs, the workforce learns those are important.
- **How they react to bad news.** If they welcome reporting and avoid blame, reporting rises and learning improves. If they punish messengers, hazards go underground.
- **What gets rewarded.** Promotions, bonuses, and praise drive behavior.
- A strong process safety culture is usually characterized by:
  - open reporting,
  - healthy questioning/"chronic unease,"
  - respect for procedures,
  - and shared ownership of risk.

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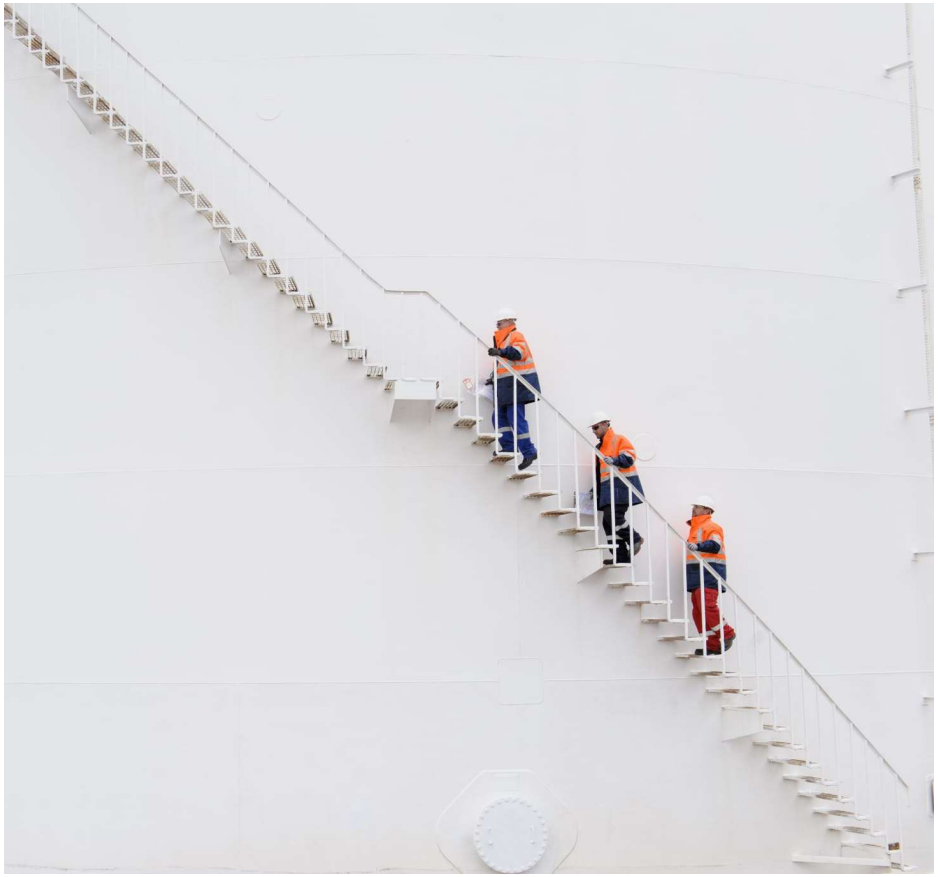
- **3. Providing resources and competent staffing**
- Process safety requires time, equipment, and skilled people. Leaders influence:
  - staffing levels and fatigue risk,
  - maintenance budgets,
  - training quality,
  - engineering support,
  - and modernization of aging assets.
- Under-resourcing safety-critical work (like inspections, proof testing, or control system upgrades) is one of the most common paths toward major accidents. Leaders decide whether backlogs shrink or grow.



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- **4. Governance and accountability**
- Leaders define who is responsible for what, and how seriously responsibilities are taken.
- Good leadership governance includes:
  - clear process safety roles from frontline to executives,
  - visible ownership of safety-critical barriers,
  - routine audits and assurance,
  - and follow-through on corrective actions.
- Weak governance looks like:
  - unclear decision rights,
  - chronic overdue actions,
  - audits that become "paper exercises,"
  - or tolerance of repeat deviations.

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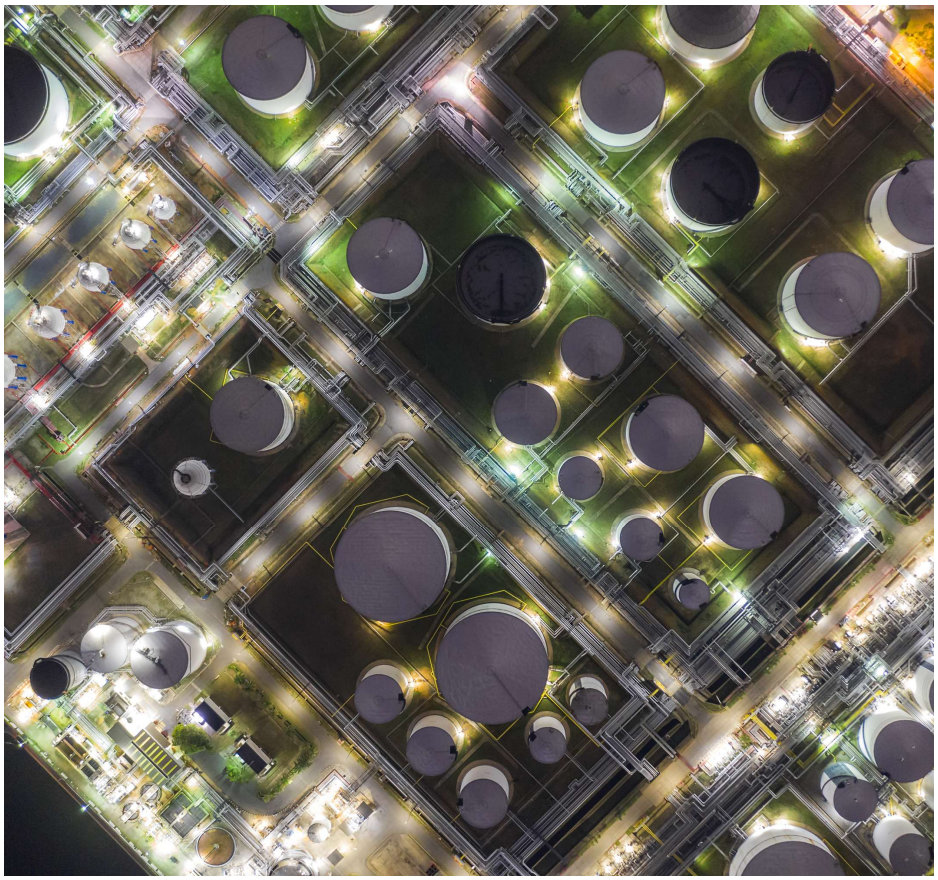
- **5. Decision-making under tradeoffs**
- High-risk industries constantly face tradeoffs (uptime vs. repair, cost vs. redundancy, speed vs. procedure). Leaders influence process safety by *how they handle these moments*.
- Strong leaders:
  - insist on risk assessments before deviating,
  - ask "what barrier are we weakening?"
  - and accept short-term pain to avoid catastrophic loss.
- Poor leadership normalizes drift: small exceptions pile up until an accident becomes "surprising but inevitable."
- **6. Learning, curiosity, and continuous improvement**
- Organizations with great process safety *learn faster than risk accumulates*. Leaders accelerate learning by:
  - encouraging near-miss reporting and investigating root causes,
  - funding corrective actions, not just identifying them,
  - sharing lessons broadly,
  - and checking whether changes actually work.
- Leaders who treat incidents as opportunities to improve (not to scapegoat) create resilient systems.



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- **7. Visibility and presence in the field**
- Leadership presence doesn't mean policing; it means understanding real work.
- Effective field engagement includes:
  - asking operators what makes the job hard,
  - noticing mismatches between procedure and reality,
  - observing barrier conditions firsthand,
  - and removing obstacles that force unsafe workarounds.
- When leaders are visible and curious, they close the gap between "work as imagined" and "work as done."

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- **8. Leading indicators vs. lagging indicators**
- Leaders choose what gets measured and reviewed. If they only track lagging indicators (injuries, incidents), they're always reacting too late.
- Good process safety leadership emphasizes leading indicators like:
  - safety-critical maintenance backlog,
  - test/inspection compliance,
  - alarm management health,
  - MOC quality and timeliness,
  - number and quality of hazard reports,
  - operator training and competency checks.
  - Choosing the right indicators keeps attention on prevention, not just outcomes.

- **Bottom line**
- Leadership influences process safety through **priority-setting, culture, resourcing, governance, tradeoff decisions, learning systems, field engagement, and metrics**. The most safety-successful organizations are almost always the ones where leaders consistently demonstrate—through actions, not slogans—that preventing catastrophic events is a core value and daily operational discipline.

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