



DuPont Process Safety Management

Protecting value and managing risk through learning and development



Managing Operational Risks By Accelerating Employee Skills Development

Key factors such as an aging workforce, a retirement boom in developed markets, a lack of skilled workers in emerging markets and an increasing reliance on contractors have contributed to a significant increase in operational risks. While most companies understand the need for a robust learning and development program to build organizational capability and mitigate these risks, many lack a well-defined method for transferring knowledge and developing the required skills.

Recognizing hazards and associated risks is really the heart of process safety management. As such, it is critical that companies develop a risk matrix appropriate to the nature of risks, and then build awareness across the organization through structured on-the-job learning. This is best done using practical tools and examples that employees can relate to on a day-to-day basis, while concurrently developing a thorough understanding of hazards, equipment and process design. Process safety

principles and systems not only help manage risks, they can effectively increase the safety of your operation while also improving productivity, cost efficiency and quality.

DuPont Sustainable Solutions has developed a systematic learning approach that, when combined with strong managing systems and operational discipline, help companies protect value and prevent potential major process related incidents. Our experts can assess the specific learning and development needs of your organization, design a tailored curriculum using blended learning tools, develop a pool of talent for process safety management, and identify metrics to evaluate effectiveness of the learning program.

Our consultants help companies move beyond simple training, creating a learning experience that maximizes knowledge acquisition and retention.

The Value of Real-World Experience

Based on over 100 years of experience of managing hazardous substances in our own facilities, our consultants have a thorough understanding of the means through which a process safety management system can be built, and sustained. Furthermore, our work with clients across a range of industries – from oil and gas to mining and metals processing – has demonstrated the depth and adaptability of our solutions.

Based on this vast operational experience, we have refined our models and methodologies in ways that can be replicated, put into practice, tested and fine-tuned for almost any situation or industry. Our approach to managing operational risk and preventing process-related injuries and incidents addresses both the cultural and technical aspects of your organization.

Our experts have a proven ability to customize solutions to help your company prevent major process-related disaster incidents, while also preserving business continuity, capitalization, right to operation, and – most importantly – to protect precious lives.

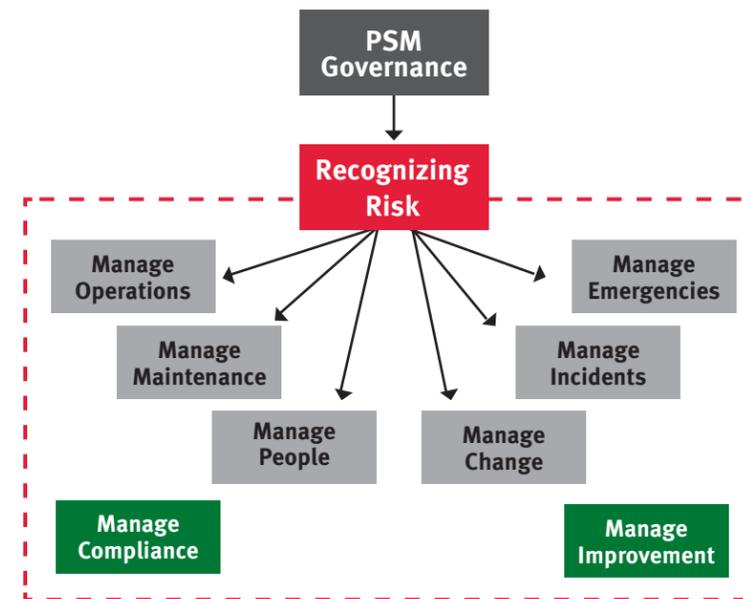
Elements of a Process Safety Management System

The importance of people and leadership for successful implementation of PSM in a safety is a key belief of DuPont. That is why at the core of the DuPont model is Management Commitment. Our experience has proven that strong leadership commitment facilitates implementation of a safety management system and is necessary to implement and sustain real step changes in performance.



Building Organizational Capability through Integrated Learning & Development Solutions

DuPont PSM integrated solutions include a comprehensive learning and development curriculum that helps mitigate the risk of catastrophic failure by building awareness and developing skill-level capability around process safety. The curriculum combines blended learning activities to form a structured learning experience based on DuPont real-world knowledge and is based on your organization specific needs.



PSM Governance

- The Corporate PSM Framework
- The Corporate Visibility (Dashboard)

Recognizing Risk

- Process Safety Information (PSI)
- Process Hazard Analysis (PHA)
- Differentiated, needs-based risk identification

Managing Risk

- Focused on treating needs-based, major risks
- Integrated with governance and business goals
 - » Safe Operating Procedures / Work Practices
 - » Mechanical Integrity Quality Assurance
 - » Contractor Management
 - » Management of Change
 - » Pre-Start-Up Review & Emergency Response

Continuous Improvement

- Compliance monitoring and feedback
- Auditing
- Manage Operating Discipline (OD)
- Continuous Improvement Focus

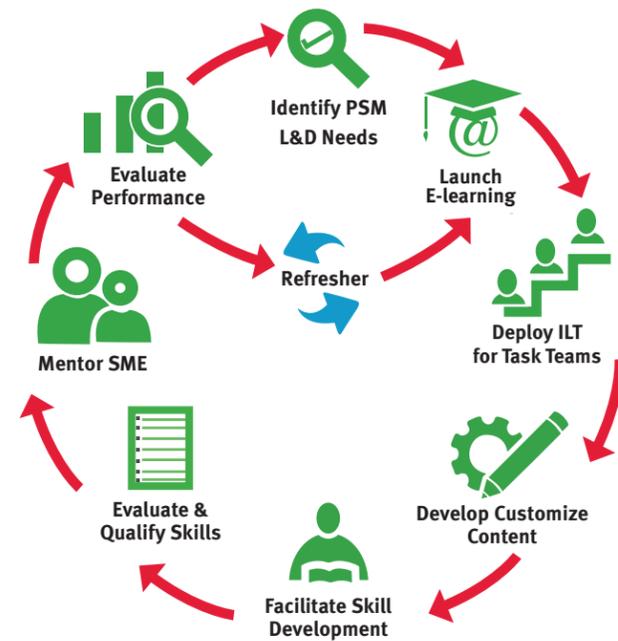


Process Safety Management Learning & Development Design

The design of a PSM curriculum for your company will be based on identification of learning and development needs. This takes in to account critical functions and roles and current level of skill, capability and capacity, and mapping it to project future needs. Factors such as the skill maturity period to develop a particular competency and expected attrition will be integrated in to the PSM learning and development roadmap.

DuPont can provide support across all PSM modules or selected modules as determined by your organization. For example, if an organization chooses to work on the incident investigation module, it would entail the following:

- Identifying of critical functions and roles requiring awareness, knowledge, skill and subject matter expertise in incident investigation.
- Developing an incident investigation learning and development curriculum.
- Using DuPont blended learning activities including e-learning, instructor-facilitated training and coaching on investigating real incidents.
- Assessing and qualifying individuals using a skill matrix.
- Establishing performance metrics for evaluating effectiveness of learning and development for incident investigation.



Process Safety Management Curriculum

The ten module Process Safety Management curriculum includes an e-learning series and instructor-led courses which, when combined with on-the-job coaching, practical application and performance management, can develop the skills your employees need to operate efficiently and avoid process related hazards. For each PSM module, basic awareness level training is delivered via e-learning. Selected employees then participate in a comprehensive one- to three-day facilitator-led workshop which features a problem-based learning (PBL) approach that requires participants to solve situational challenges through a collaborative process, investigating authentic issues and topics that are applicable to specific functions. PBL teaches problem-solving strategies, critical thinking, engagement and fact-driven decision making.



Following the workshop, participants gain additional practical application through on-the-job coaching which further builds capabilities. Skills transfer is tested and competency is evaluated. Performance metrics are selected and implemented to evaluate effectiveness of the learning and development process.

The DuPont Process Safety Management learning and development curriculum can accelerate knowledge transfer and skills development to:

- Help organizations overcome the loss of PSM know-how due to talent attrition from an aging workforce
- Help build PSM capability among a new workforce who adapts more easily to a blended learning format consisting of e-learning and problem-based facilitator-led training
- Mitigate the risk of potential catastrophic process safety incidents.

Process Safety Management Modules:

1. PSM Governance
2. Recognizing Risk (Process Technology and Process Hazards Analysis)
3. Manage Operations (Standard Operating Procedures and Safe Work Practices)
4. Manage Maintenance (Mechanical Integrity and Quality Assurance)
5. Manage People (Management of Change – Personnel, Contractor Safety Management)
6. Manage Change (Management of Change – Technology and Facilities, Prestart-up Safety Review)
7. Manage Incidents (Incident Investigation)
8. Manage Emergencies (Emergency Response Planning)
9. Manage Compliance (PSM Audit)
10. Manage Continuous Improvement (Operational Discipline)

A Comprehensive Continuum of Services

Additional services available from DuPont Sustainable Solutions include the creation of customized, sustainable process safety management standards and systems, the instilling and strengthening of an organization's safety culture and operational discipline needed to achieve excellence, and the assessment and continuous improvement of PSM performance.

DuPont Sustainable Solutions

For more information, please visit:
www.training.dupont.com
www.sustainablesolutions.dupont.com