Driving Operational Excellence™

Next Generation EH&S Management Information Systems (EMIS)

Part of the Strategy for Achieving Operational Performance Assurance

Manage Risk.
Enhance Compliance.
Boost Profitability.

Operational excellence for the petrochemical, oil & gas, manufacturing, mining and utility industries.

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REV 022421

EMIS Overview

New regulatory pressures such as the U.S. EPA Greenhouse Gas reporting requirements and the Bureau of Safety and Environmental Enforcement (BSEE) Safety and Environmental Management Systems (SEMS) compliance regulation continually push operators to seek new solutions for Environmental, Health & Safety Management Information Systems (EMIS). These regulations and the continued evolution of Process Safety Management (PSM) as a prescriptive standard add to the complexity. EMIS projects need company-wide cultural acceptance and decisive planning to be sustainable, but through system integration EMIS enables reductions in energy consumption and proactive decision making in multiple areas, including process safety.

During tough times, cutbacks in regulatory staff are possible in operating facilities. Knowledge retention and management talent also pose significant challenges because of retirement, lay-offs, or departure of the workforce. These situations raise a number of human capital management issues, and companies must be prepared for the elevated risk factors associated with them.

To manage their risks, companies are evolving – and must continue to do so – beyond the traditional check-the-box compliance mentality. At the same time, they must keep financial and legal exposure to a minimum. This is why **Operational Risk Management (ORM)** has emerged as a leading industry practice and Operational Sustainability® (OS), offers its clients a holistic approach to this challenge. **ORM augments PSM** and is designed to help companies better understand and consider risks associated with their assets. It is a progression of converging operational, safety, and compliance processes. EMIS is a critical component of this approach. In general, these systems are largely automated, fully integrated applications for EH&S and process safety compliance, and have their levels of maturity.

But EMIS applications are costly to develop and support from the ground up, so many companies turn to commercial off-the-shelf alternatives. However, tools such as spreadsheets and custom database solutions only create additional concerns regarding security and scalability. Large integrated and mid-size independent energy companies manage a complex set of more than 100 custom applications or tools simultaneously.

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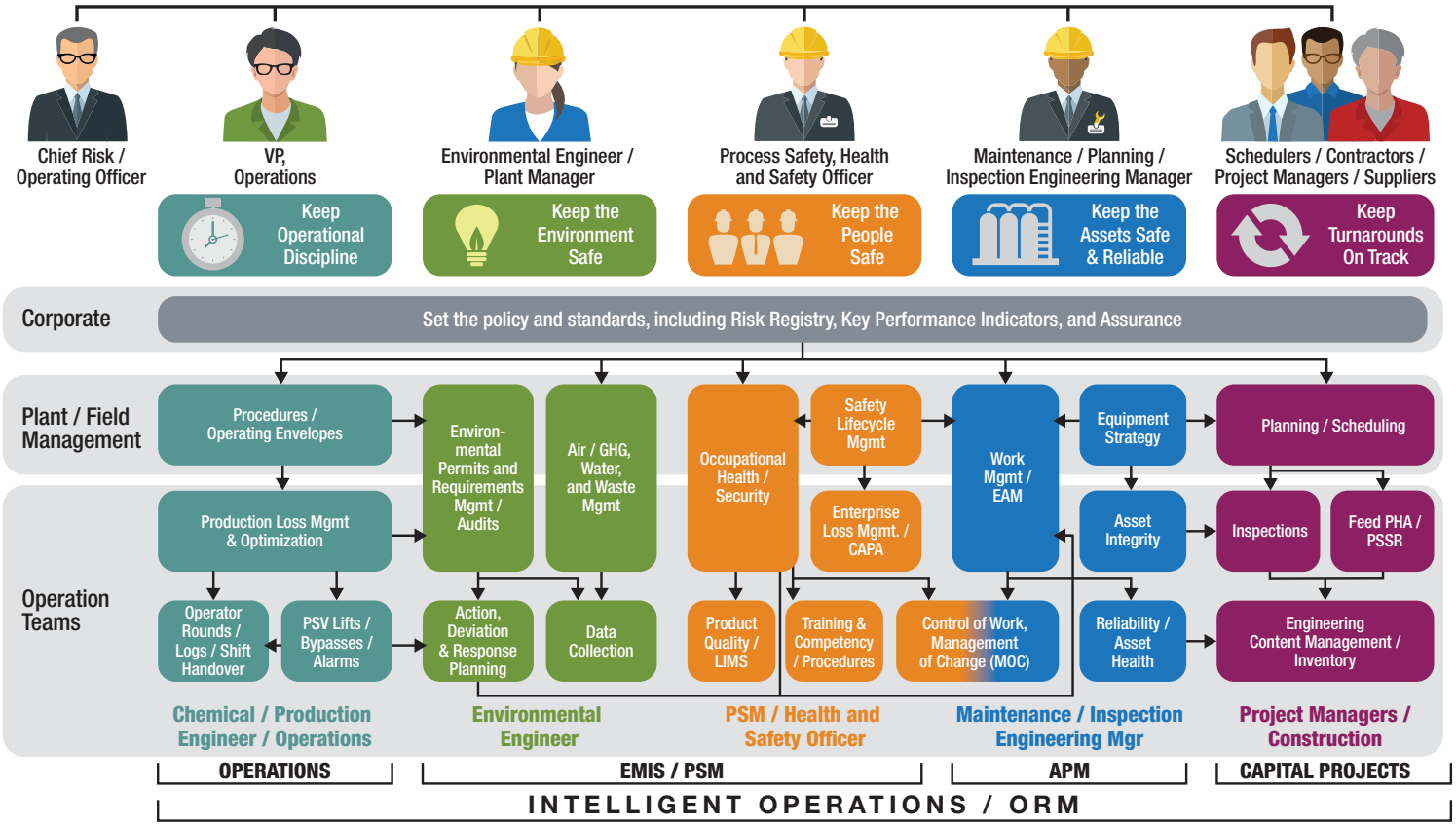

Figure 1 – ORM Stakeholder Impact

The key, then, is cost and consolidation – a specialty of the OS EMIS team. By reducing EMIS applications and vendors into a manageable number it can support, a company not only saves time, money, and resources, but also retains valuable institutional knowledge. OS provides the solutions and delivery team to maximize collaboration and creativity during this process.

Strategically using EMIS, and realizing all of the intended benefits, requires integrating various business processes and information systems so people can make timely, risk-informed decisions. Given the complexity of many businesses, handling data aggregation, visualization, reporting, and business warehousing must be a part of the assessment and system design process. The goal is to provide each system user with the right content at the right time, designed for his or her specific role within the organization.

The concept of strategic EMIS crystallized following many process industry accidents and consent decrees, which prompted rethinking of management information solutions for process safety. However, a gap still exists today in most mainstream EMIS vendor applications. OS believes this gap will close as EMIS applications consolidate and clients seek proactive asset-based solutions rather than event-based systems that deliver workflows without leveraging the asset registry in the EAM solution. Strict standards set by the Occupational Health and Safety Administration, Environmental Protection Agency, and the BSEE are also driving the move toward a more proactive, strategic approach.

There is no panacea application for EMIS, and the addition of process safety and ORM will require companies to select 2-3 vendors to holistically address their needs.

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As always, new regulatory challenges loom on the horizon. For instance, companies are seeing a revolution in process safety legislation, but current solutions are often siloed and disparate, lacking the PSM perspective or flexible architecture to support its evolution. Integrated solutions drive out inefficiencies and can robustly address emerging areas such as competency and quality assurance.

What is the Maturity Roadmap for ORM?

1 Ensure your "Basic" ORM Elements (often covered in legacy EHS IT solutions) are in place:

- Audit
- CAPA
- Incident Investigation
- MOC (Facility / Technology Changes)
- PSSR
- Document Storage
- Task Management
- JHA / JSA / FMEA / PHA
- EHS Inspections (Qualitative)
- Barrier Management
- Emergency Response
- Training / Learning Management

2 Evolve to include Core ORM Elements:

- Mechanical Integrity (Inspection, RBI, IOW, FMECA, Criticality, RCM)
- Enterprise Loss Prevention
- Document Management / Redlining
- Operator Rounds / Logs / Shift Handover
- SIS / LOPA / Alarm Management
- Risk Registry
- Compliance Management
- Competency Management
- Organizational Change
- Procedural Automation
- Human Performance
- Cultural Safety
- Failure Elimination

3 Integrate Advanced ORM Elements:

- Comprehensive Conduct of Operations (e.g., Alarms Bypassed, LIMS information)
- Process Safety Information / ECM
- Asset Performance Management
- Asset Strategy Management
- Asset Health
- Spares Optimization
- Production Loss Analysis
- Cognitive Insights (IIoT / AI)
- Mobility
- Operational Performance Management
- Connected Workforce
- Capital Projects / Effectiveness

Process Safety / EHS → Cultural Safety / Safety Lifecycle → Conduct of Operations / Asset Performance Management

Compliance Risk Management

Basic CRM / ORM

How to achieve effective EMIS implementation

OS recommends a number of ways to embrace EMIS. These include:

- Analyze your business processes and information technology solutions to understand your current state and determine an ideal state to move toward an EMIS solution
- Create your ideal workflows and determine user accountabilities tied to supporting management systems
- Target your most critical compliance risks and determine the phasing of a holistic IT solution

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- Generate a list of the tangible deliverables expected from the system
- Conduct a gap assessment to ensure EMIS fits your company culture, and look at ORM and PSM as supporting processes
- Make sure the solution is scalable to address new regulatory challenges
- Map out a plan for post-deployment change management, as many new EMIS projects tend to fall out of use within 18 months
- Ensure you choose an EMIS solution provider with a proven track record
- Identify the business case to ensure your project remains focused on providing value as you implement an EMIS

For more information email us at info@DrivingOE.com or call (713) 355-2900.

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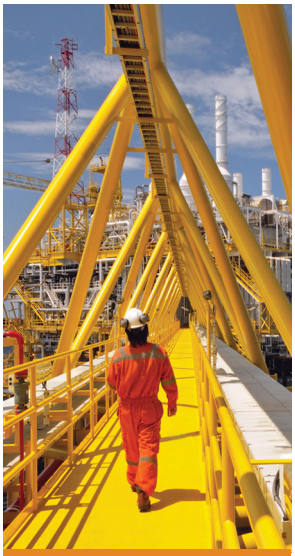
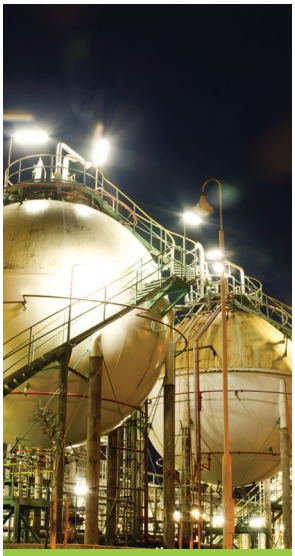
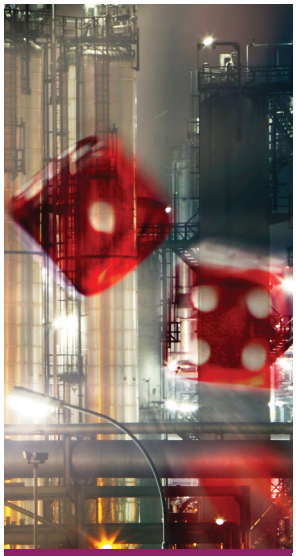

Workforce


Assets

Operations

Compliance


Risk

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Succeeding in today's complex, highly-regulated industries depends on how well your company manages **operational risk** and enables **operational discipline**. Our world-class advisory services and our industry-leading cloud-based, highly configurable software work together to enable your company to achieve **operational excellence**, including OE 4.0 tenets, and sustained **operational integrity**. We identify and help you solve any issues to move to a real-time, mobilized risk-aware culture. With an average of more than 30 years of industry experience each, our advisors can design a solution tailored to your company's culture and needs.

Learn how Operational Sustainability can advise your workforce through our consulting services and support your journey to operational excellence through our OESuite® software platform. See our full slate of free webinars, white papers, detailed module information, and scheduled workshops online at **www.DrivingOE.com**.

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