



Operational Sustainability, LLC®

PSM System Solutions

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Dordrecht, The Netherlands



BUILDING SUSTAINABLE ORGANIZATIONS

Process Safety IT Point of View

What is Process Safety: The collective name for the measures, systems, policies and procedures which prevent incidents and/or protect people and the environment from the effects of major incidents.

- Most companies lack a strategic IT roadmap for Process Safety
- “Tools in silos” lack interoperability and integration making aggregation and management of risk difficult.
- Finally, these solutions need to incorporate asset-based intelligence, while enabling diagnostics.

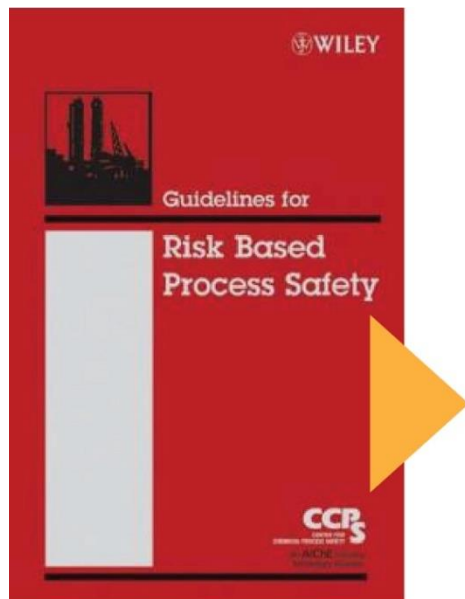


To meet the need, companies will need to undergo significant re-architecting of their existing process safety IT portfolio.

Process Safety Evolution



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Risk Based Process Safety Element	New Element	Expanded Scope	Improved Practices
Process Safety Culture	●		
Compliance to Standards	●		
Process Safety Competency	●		
Workforce Involvement (Employee Participation)		●	●
Stakeholder Outreach	●		
Process Knowledge Management		●	●
Hazard Identification and Risk Analysis (Process Hazards Analysis)		●	●
Operating Procedures			●
Safe Work Practices			●
Asset Integrity and Reliability (Mechanical Integrity)		●	●
Contractor Management			●
Training and Performance			●
Management of Change		●	●
Operational Readiness (PSSR)		●	●
Conduct of Operations	●		
Emergency Management			●
Incident Investigation			●
Measurement and Metrics	●		
Auditing			●
Management Review and Continuous Improvement	●		

OS Process Safety Framework

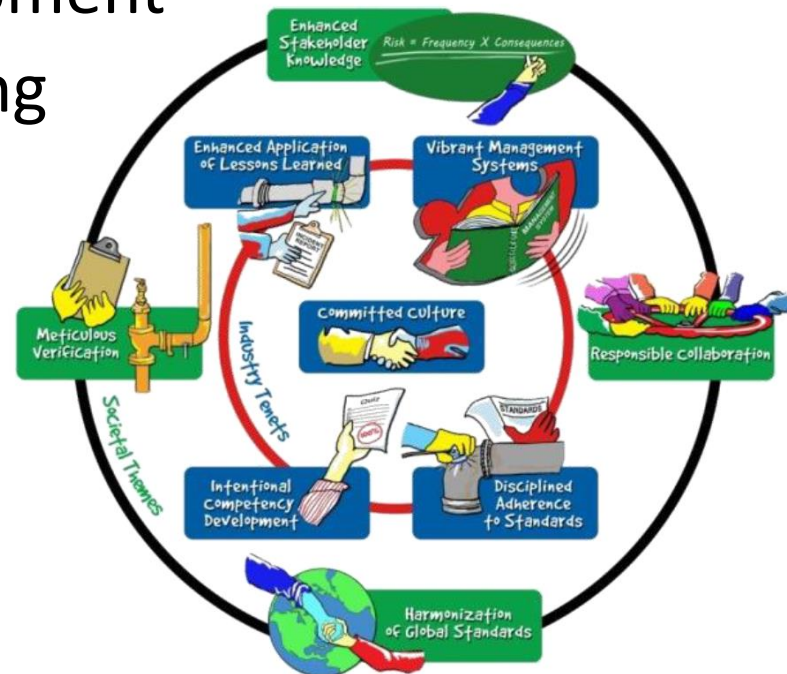


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Industry Tenets

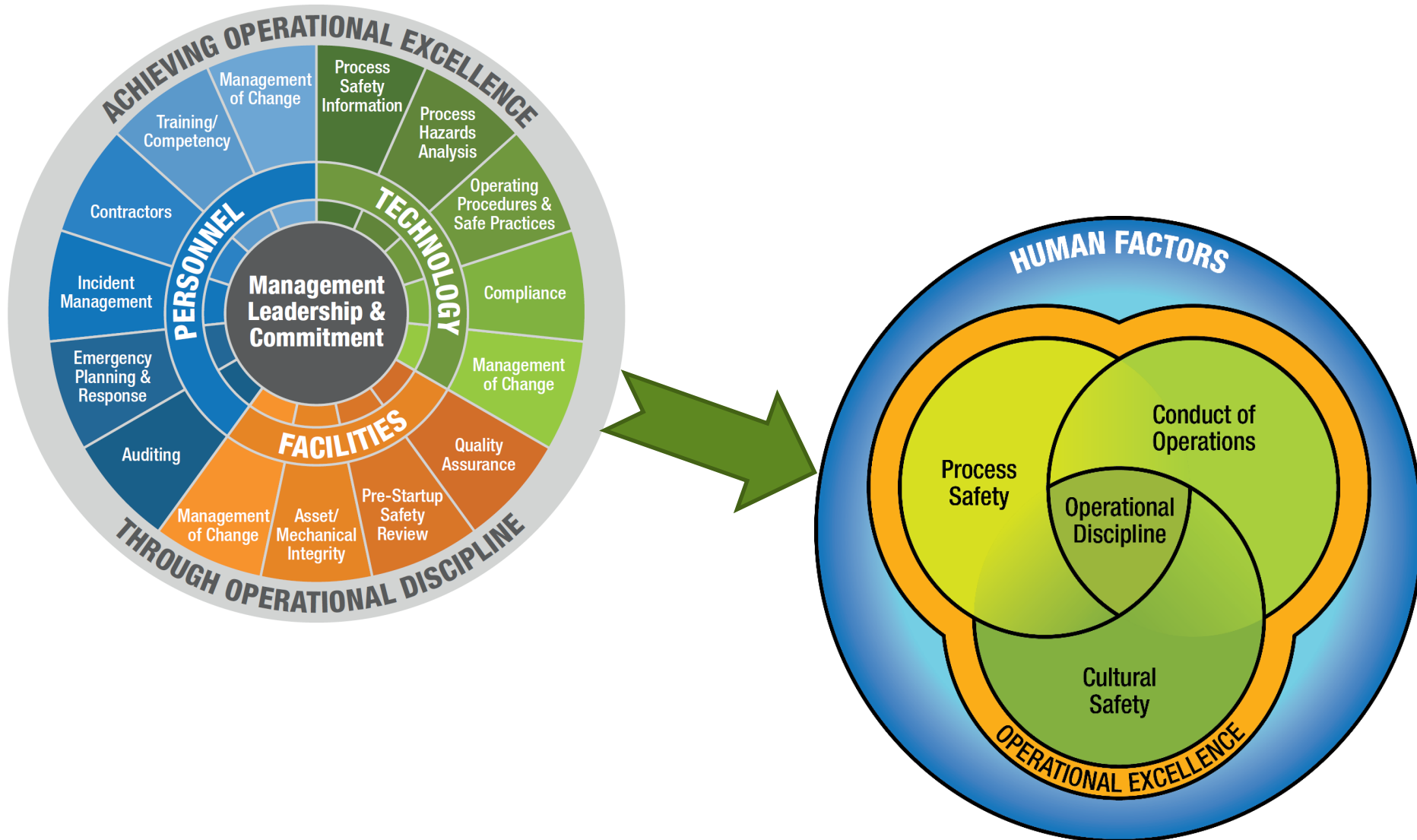
- Committed culture
- Vibrant management systems
- Disciplined adherence to management systems
- Intentional competency development
- Enhanced application and sharing of lessons learned



Process Safety / Operations Convergence



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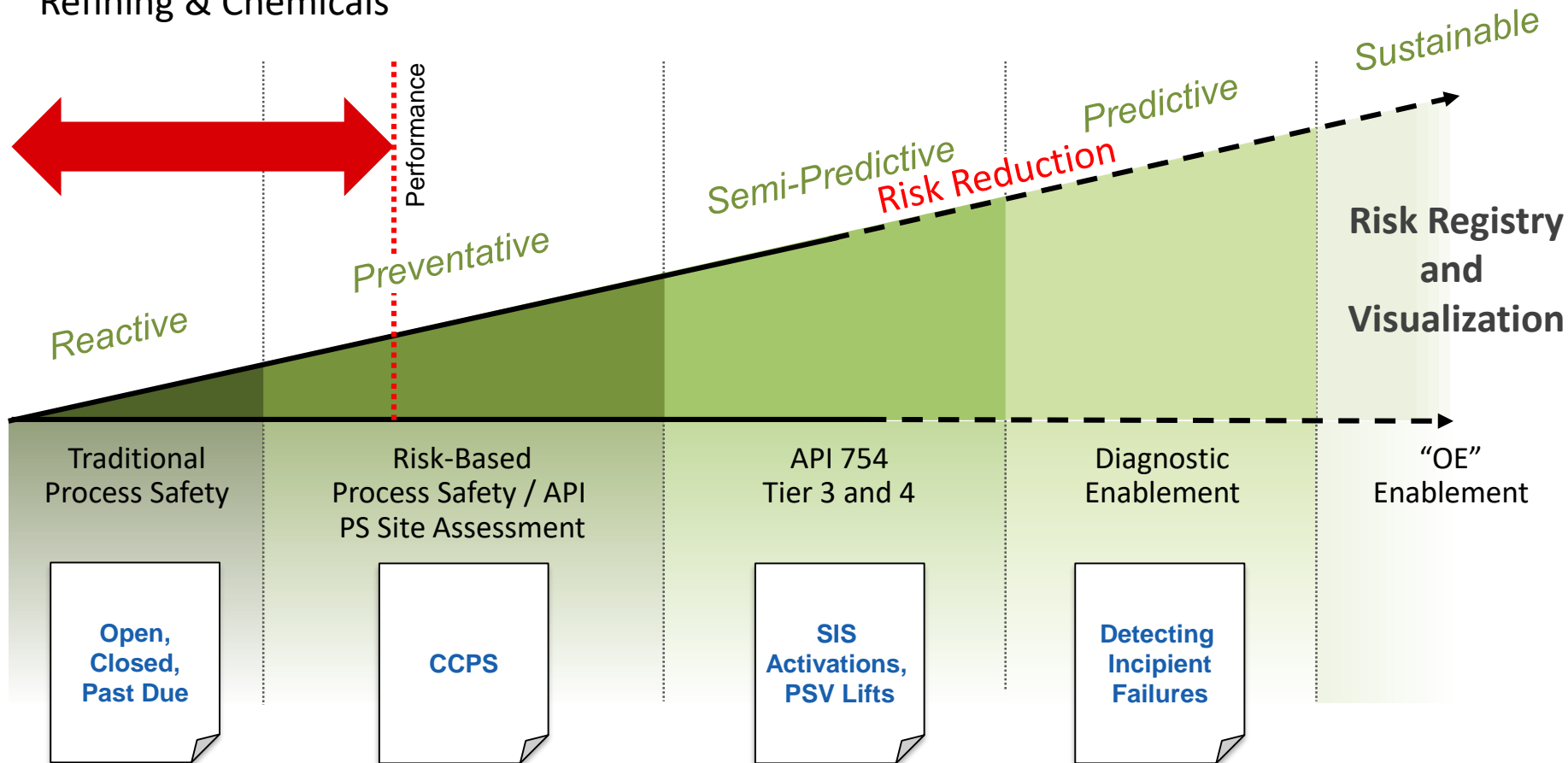


The Risk Continuum



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Refining & Chemicals



Process Safety Metrics: "Leading is arguably lagging. Process safety [today] is inherently reactive," per the Baker Panel Report.

ERM vs. ORM



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- **ERM** involves the systematic identification, assessment and mitigation of risks that could impact an organization. This includes a framework for strategic planning and operational processes coupled with effective decision support processes and tools. *Risk is defined as any event that impacts a company's ability to meet its objectives (losses and opportunities).*
- The goal is to mitigate *financial, operational, and compliance risks* to an acceptable level through policies, systems and procedures. At the end of the day, everything has a financial component (i.e. ability to operate) and are often interrelated.
- **ORM** focuses on the *operational, and compliance risks.*

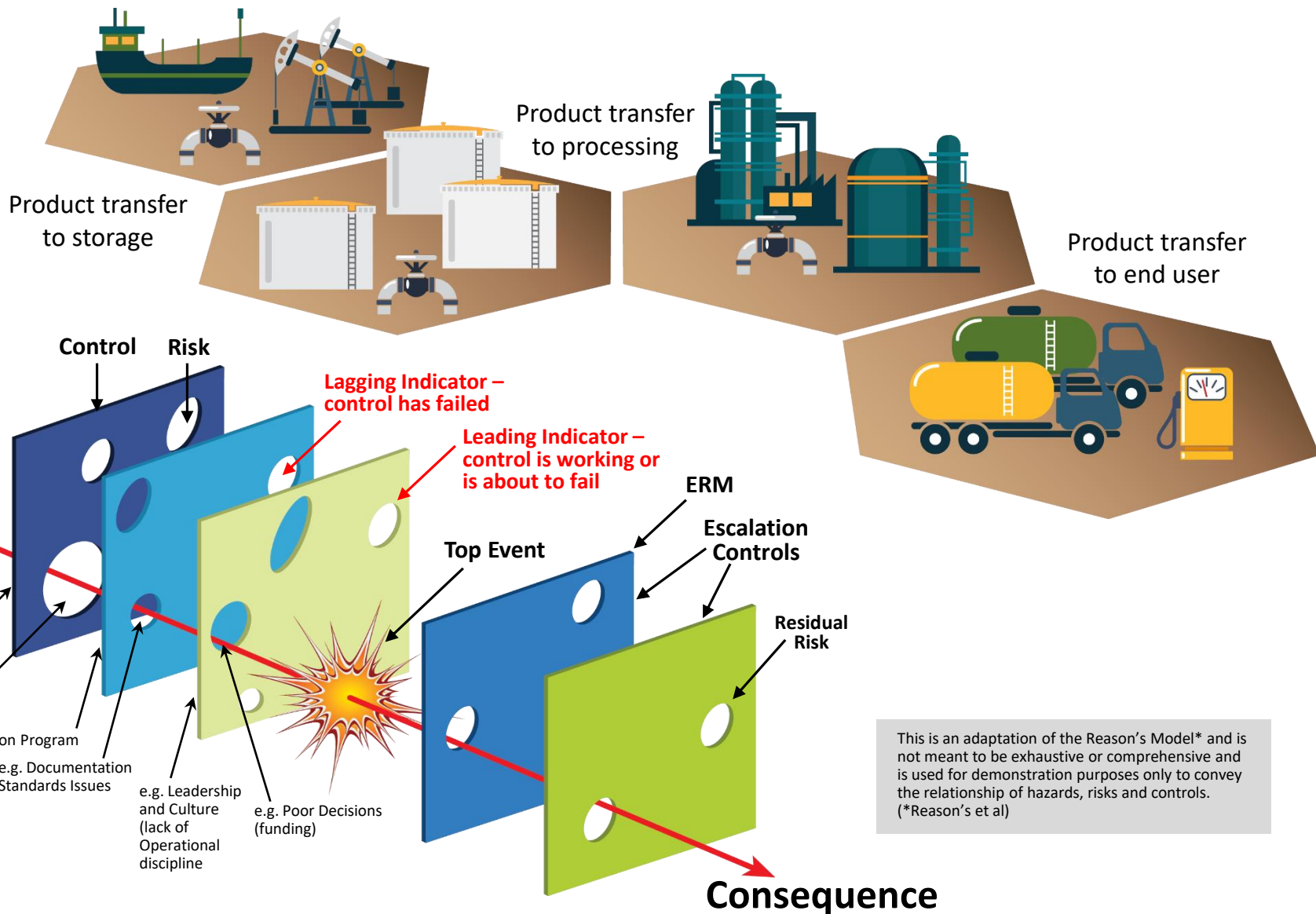


True Enterprise Risk Management must include support by leadership, it must become part of the culture and sustainable through operational discipline.

Risk Chain



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So What Does ORM Need to Address?



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- Process Safety
- EHS Compliance
- Asset Performance Management
- Conduct of Operations
- Workforce Competency / Human Engineering



ORM Maturity Roadmap

First, ensure your "Basic" ORM Elements (often covered in legacy EHS IT solutions at some level) 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

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

Integrate Advanced ORM Elements:

- Comprehensive Conduct of Operations (i.e. Alarms Bypassed, LIMS information)
- Operational Performance Assurance
- Process Safety Information
- Asset Performance Management
- Asset Strategy Management
- Asset Health
- Spares Optimization
- Production Loss Management
- Cognitive Insights (IIoT / AI)

Defining and using an accurate, comprehensive risk registry as threats emerge in real-time is integral to making this paradigm change.

Strategic Objective – Conduct of Ops.

- Compliance **constrains** Operations. How can Operations be maximized to support the business goals? What regulatory constraints kick in and how do we address these?
- Operations is the **engine** that drives financial performance and enables business strategy.
- Do we really give Operations enough attention?



- MOC / PSSR
- Incident
- Inspection
- Work Permitting
- Procedures



Enabling Field Personnel is the key along with a “single pane of glass”



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Q&A / Next Steps

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