Driving Operational Excellence™

Operational Risk Management (ORM) Solutions and Consulting Services

ORM Enhances Asset Performance and Overall Compliance

Manage Risk.
Enhance Compliance.
Boost Profitability.

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

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Driving Operational Excellence™

Operational Sustainability®

Succeeding in today's complex, highly regulated industries depends on how well your company manages operational risk. **Operational Sustainability® (OS)** delivers world-class consulting services plus our industry-leading cloud-based, highly-configurable software to enable your company to realize and achieve operational excellence. With an average of more than 30 years of industry experience, our advisors design **Operational Risk Management (ORM)** solutions tailored to your company's needs.

Why Focusing on ORM Matters

Operational Sustainability® is the market leader in ORM, which is the portion of a business's total risk that originates from its processes and facilities. ORM creates a comprehensive solution for managing risk across an organization. We define comprehensive as all departments across an organization, including but not limited to EHS / PSM compliance, operations, engineering, maintenance, supply chain, production, capital projects, training, and human resources.

ORM is a subset of Enterprise Risk Management (ERM). More specifically, ORM addresses operational and compliance risks. Compliance Risk Management (CRM) is a subset of ORM focused solely on compliance. ERM goes a bit further, in that it takes financial risk into consideration. In its simplest form, ERM is the holistic business approach an entity uses to manage the various threats and opportunities it encounters while accomplishing its mission. To that point, in traditional ERM versus ORM language, ORM is focused on everything that is non-financial in nature… although in reality, all types of risk have the potential for financial impact.

The current view of ORM that seems to permeate the analyst community is primarily focused on traditional EHS / PSM compliance tactics and challenges such as Audit, PHA, Incidents, Work Permitting, and Corrective Action Management – which is in fact CRM, not ORM. Because EHS and PSM compliance do not focus on the risk of production loss through inefficiencies, poor asset management, workforce competency, conduct of operations, and the connected workforce, the typical EHS-first view or CRM does not address real risks that can have significant impact on an organization's future.

To ensure OS meets client expectations, we begin each consulting engagement with a predetermined set of commitments including:

- Technical correctness in all aspects
- Thoroughness of process and reporting
- Auditability
- Clearly defined client expectations
- Understanding of regulatory requirements
- Appropriate design of output

OS assures quality from project inception through to project close out by delivering quick and appropriate responses to client needs in an environment of open communication. We are also very sensitive to costs. Everything from travel planning to hours billed will be accomplished as economically as possible and with your prior approval.

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The disconnect exists because a clear focus on EHS / PSM **does not equate to true risk management**, merely CRM. Risk is defined as any event that impacts a company's ability to meet its objectives. That would include production losses and lost opportunities.

The overall goal of ERM and ORM is to mitigate financial, operational, and compliance risks to an acceptable level through cultural alignment, policies, systems, and procedures. The experts at OS have helped dozens of companies assess, define, and mitigate their risk, and then measure and sustain the improvements made. If you're ready to take a deeper look at your risk profile, we're ready to help. Because ORM helps companies focus on both **Value Protection** and **Value Extraction** as shown in Figure 1, it is a key component of the overall value creation equation.

Risk is defined as any event that impacts a company's ability to meet its objectives.

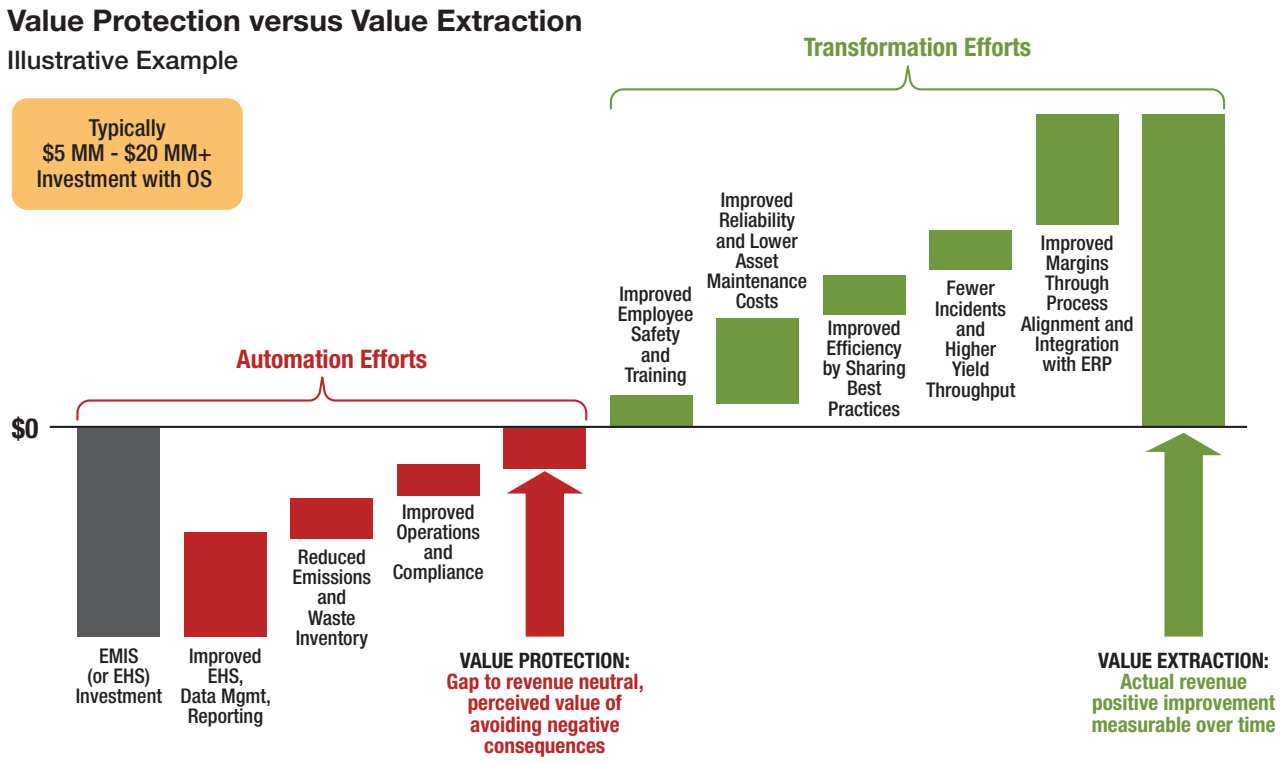

Figure 1 – Value Engineering Example

Because value protection focuses on compliance and reporting to avoid negative consequences, it tends to deliver a **return** to value protection promising to mitigate possible financial impacts from the future negative outcomes avoided. The actual value is revenue neutral and the perceived value is dependent upon avoidance of negative outcomes. In many organizations, **automation** efforts are often value protection initiatives.

Value extraction focuses on gaining efficiency, applying resources for maximum impact and optimizing production. Value extraction will also deliver both positive perceived and positive actual value but is most effective when applied in tandem with value protection to create a solid foundation for

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efficiency initiatives. In most cases, **transformation** efforts are often value extraction initiatives. In the end, value protection is foundational with a focus on **risk** and value extraction is about reducing **waste** or **inefficiency** and **increasing profitability**.

It's Time to Move from Safety to Risk

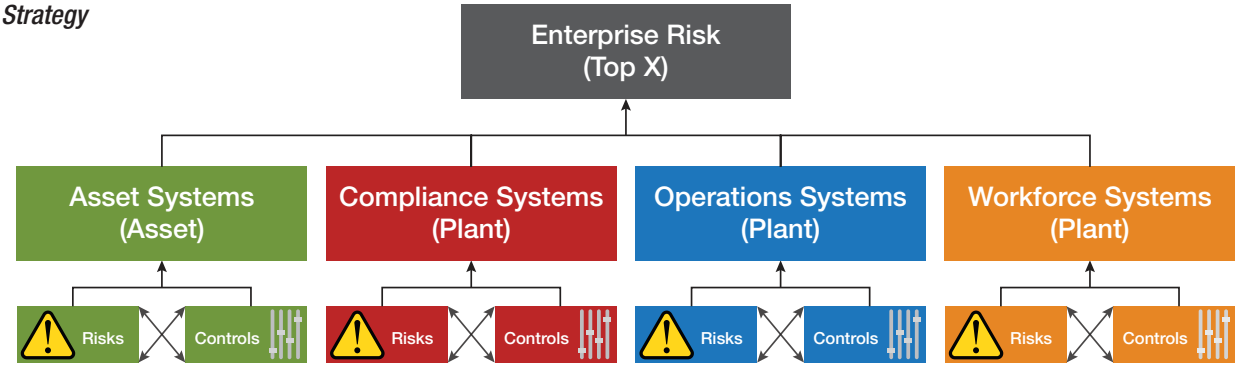
ORM is focused on shifting companies from a safety focus to a risk focus.

We've found most companies focus on incident investigations, which are a short-term view of risk with a focus on EHS / PSM events. This mentality encourages companies to focus on increasing safety rather than reducing risk. As we've discussed, it's possible to reduce incidents, and feel a false sense of security, when the organization's overall operational risk has actually not lessened. Focusing only on safety as a measure of risk doesn't lead to an optimum result because it ignores many types of operational risks. Conversely, focusing on reducing overall operational risk will positively impact incidents, safety and related types of risk. OS will work with your organization to define your roadmap and help you reach your ORM goals.

The OS Approach to ORM

We understand that not all risks are equal, and that is why a prioritized, dynamic risk registry needs to be created that includes a closed-looped management of change process. An MOC-prioritized integrated risk registry is essential to enable the organization to adapt as new threats manifest over time. The interrelationship of one risk to another is the key to contextually prioritizing risks, but to get to a comprehensive risk registry across all departmental tenets, we need an enterprise strategy. Without a strategy, we will fall back into disjointed tactics and that lead to whack-a-mole cultural outcomes along with addressing the fires that rage in our cultures. Strategies help us to realize maximum efficiency and the strategies require vibrant management systems, clear understanding of accountability across numerous departments who collaborate, and flawless execution ideally at the point of work in the field.

Figure 2 – OS Enterprise Strategy



Controls are tasks, programs, and KPIs

Having a spreadsheet or paper is fine, but in reality, there are so many interrelated risks changing frequently enough that you really need a framework from which to operate to build out a risk registry. To build out the foundational elements of "Basic" Operational Risk, we start with these five items.

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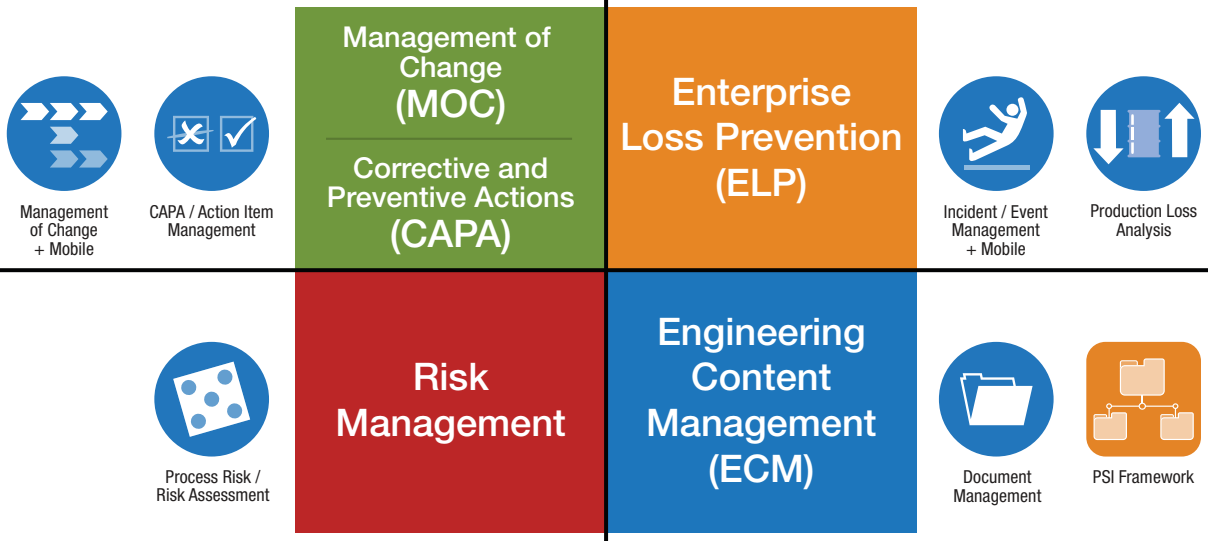
- Critical because change is in everything an organization does
- CAPA as a holistic clearinghouse for all action item management
- Organizations that quickly and easily adapt to changing conditions will be more resilient in the long-term

- Transformation journey for an organization to realize its value objectives
- Stop accepting failures and move toward value-added functions such as effective Root Cause Analysis
- Tying Incident Investigations, Failure Reporting, and CAPA to Asset Strategy positively affects an organization's ability to achieve objectives



- Key to understanding the potential consequences when failures occur, regardless of the source of the failure
- Human error, equipment, off-spec product, and more are examples of failures that lead to unwanted consequences

- Involved in all aspects of managing operational risk
- Example: run-to-failure as an equipment strategy may have unintended, negative consequences depends on having up to date ECM

Figure 3 – Initial Foundation for "Basic" level of ORM

To summarize, let's assess and manage risk to an acceptable level, then we address corrective actions and manage change, with the goal of detecting and eliminate bad outcomes. This requires supporting engineering information or process safety information to make good decisions as part of this foundation.

Setting the Foundation

The five foundational elements of ORM, as OS defines it, are **Management of Change (MOC)**, **Corrective and Preventive Actions (CAPA)**, **Enterprise Loss Prevention (ELP)**, **Risk Management**, and **Engineering Content Management (ECM)**. Why those five?

MOC is a critical foundational element because change is in everything an organization does. The speed at which an organization can assimilate change – whether that is market conditions, equipment, workforce needs, or something else – is directly related to how effectively MOC is embedded in the culture. Organizations that can more quickly and easily adapt to changing conditions, both external and internal, will be more resilient in the long-term.

CAPA is a holistic clearinghouse for all action items.

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Enterprise Loss Prevention is part of the transformation journey for an organization to realize its value objectives. OS helps organizations move away from merely accepting failures and toward value-added functions such as effective Root Cause Analysis. Tying Incident Investigations, Failure Reporting, and the Corrective Action Process to overall Asset Strategy is an example of how advanced ORM can positively affect an organization's ability to achieve its objectives.

Risk Management is the key to understanding the potential consequences when failures occur, regardless of the source of the failure. Human error, equipment, off-spec product and more are all examples of failures that lead to unwanted consequences.

Engineering Content Management should be involved in all aspects of managing operational risk. For example, knowing when run to failure as an equipment strategy might have unintended, negative consequences depends on having up to date ECM.

OS has comprehensive software through our OESuite® platform and management system solutions that integrate the five key elements into one foundational view of ORM. We're with you every step of the way along the journey.

How does OE relate to ORM?

Operational Excellence (OE) is a continuous improvement journey that is comprised of three primary frameworks in our OESuite® platform.

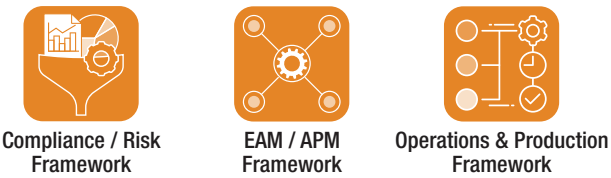

Figure 4 – OESuite® modules by Framework

An operationally excellent company encompasses compliance…. How can you be operationally excellent if you are out of compliance on your permits, your incidents, or have lost your privilege to operate? You can't. Compliance is inherent in excellence. However, the other view isn't true. It is possible to be fully in compliance (compliance excellence) but not be operating at any kind of sustainable level from a profitability standpoint. In the process industries, we've been focused on incremental improvements in compliance-related areas for a long time. Intelligent Operations seeks to put the focus on Operational Excellence to balance out this situation and achieve both goals. The first building block to Intelligent Operations is Privilege to Operate, which leads us to "Basic" ORM or Compliance Risk Management (see Figure 7).

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We put our decades of experience to work immediately to accelerate your organization's journey to enhanced ORM and a more integrated, holistic view of your risks, opportunities, and outcomes.

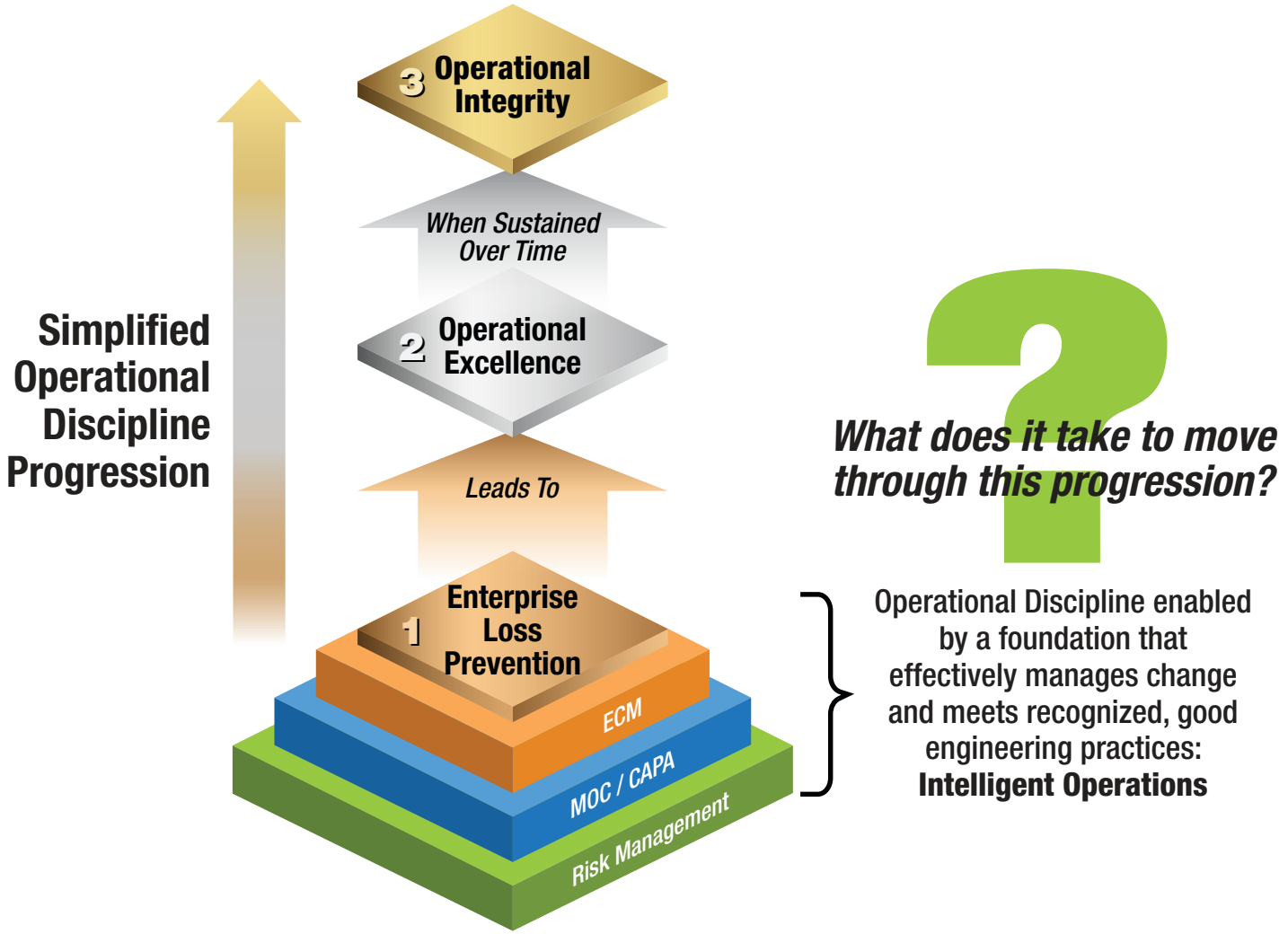

Figure 5 – Key elements of Intelligent Operations work together to generate sustained Operational Excellence over time

Achieving Maturity

Because all types of risk have the potential for financial impact, companies are starting to broaden their view of risk management to include non-EHS areas such as supply chains, operations, maintenance, capital projects, and engineering. The result is strategic risk management with a comprehensive risk registry, as seen in Figure 6.

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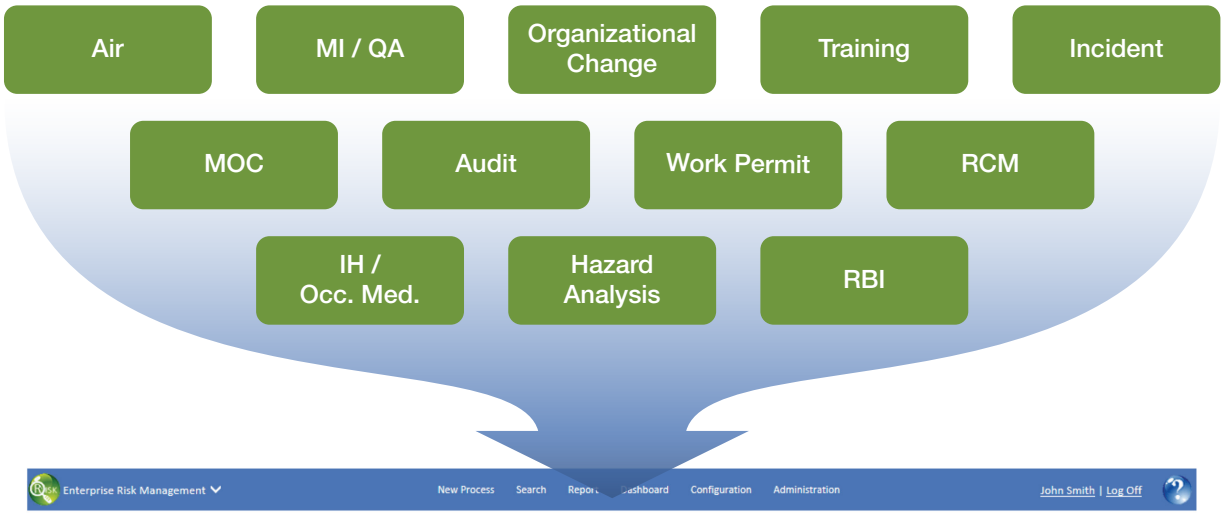
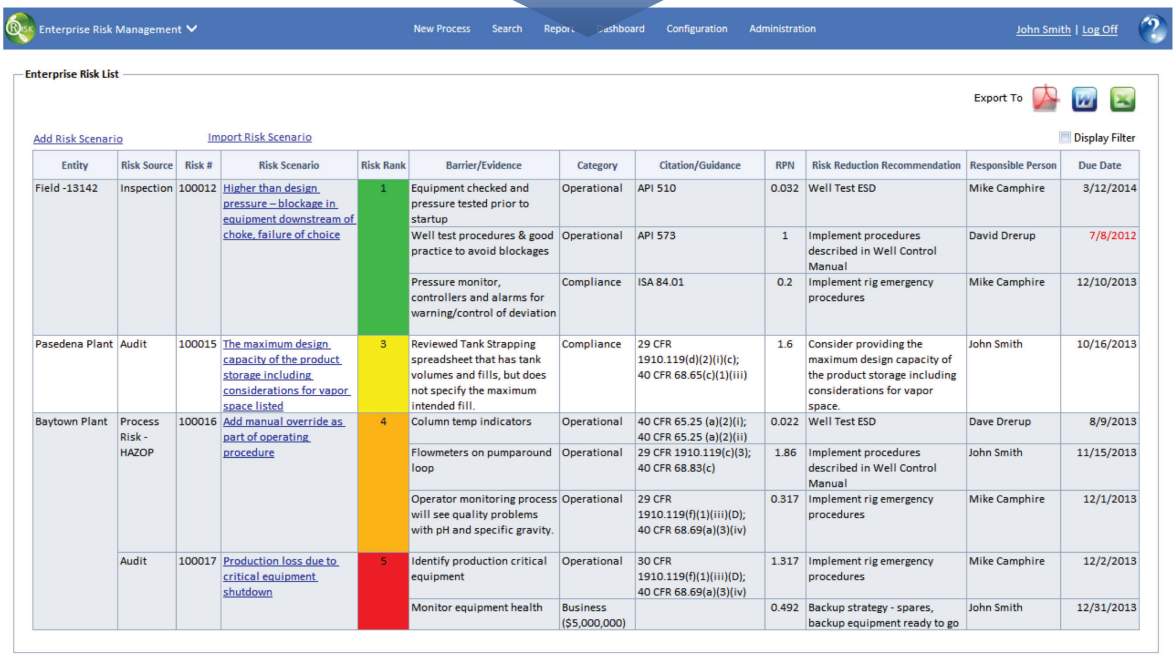
How do we manage all these items and prioritize?

ASSEMBLE RISK CONTRIBUTORS





Entity	Risk Source	Risk #	Risk Scenario	Risk Rank	Barrier/Evidence	Category	Citation/Guidance	RPN	Risk Reduction Recommendation	Responsible Person	Due Date
Field -13142	Inspection	100012	Higher than design pressure – blockage in equipment downstream of choke, failure of choice	1	Equipment checked and pressure tested prior to startup	Operational	API 510	0.032	Well Test ESD	Mike Camphire	3/12/2014
					Well test procedures & good practice to avoid blockages	Operational	API 573	1	Implement procedures described in Well Control Manual	David Drerup	7/8/2012
					Pressure monitor, controllers and alarms for warning/control of deviation	Compliance	ISA 84.01	0.2	Implement rig emergency procedures	Mike Camphire	12/10/2013
Pasedena Plant	Audit	100015	The maximum design capacity of the product storage including considerations for vapor space listed	3	Reviewed Tank Strapping spreadsheet that has tank volumes and fills, but does not specify the maximum intended fill.	Compliance	29 CFR 1910.119(d)(2)(i)(c); 40 CFR 68.65(c)(1)(iii)	1.6	Consider providing the maximum design capacity of the product storage including considerations for vapor space.	John Smith	10/16/2013
Baytown Plant	Process Risk - HAZOP	100016	Add manual override as part of operating procedure	4	Column temp indicators	Operational	40 CFR 65.25 (a)(2)(i); 40 CFR 65.25 (a)(2)(ii)	0.022	Well Test ESD	Dave Drerup	8/9/2013
					Flowmeters on pumparound loop	Operational	29 CFR 1910.119(c)(3); 40 CFR 68.83(c)	1.86	Implement procedures described in Well Control Manual	John Smith	11/15/2013
					Operator monitoring process will see quality problems with pH and specific gravity.	Operational	29 CFR 1910.119(f)(1)(iii)(D); 40 CFR 68.69(a)(3)(iv)	0.317	Implement rig emergency procedures	Mike Camphire	12/1/2013
	Audit	100017	Production loss due to critical equipment shutdown	5	Identify production critical equipment	Operational	30 CFR 1910.119(f)(1)(iii)(D); 40 CFR 68.69(a)(3)(iv)	1.317	Implement rig emergency procedures	Mike Camphire	12/2/2013
					Monitor equipment health	Business ($5,000,000)		0.492	Backup strategy - spares, backup equipment ready to go	John Smith	12/31/2013

Figure 6 – OESuite® Risk Registry

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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

Figure 7 – A basic ORM maturity model utilizing the concepts from Intelligent Operations

Our view of ORM maturity progression, as shown in Figure 7, is focused on production and profitability. Why is that? Compliance is the natural outcome of holistic ORM; a facility that doesn't properly protect its privilege to operate (via protecting its people, plant, and communities) will not have any opportunity to continue operations or produce product. So ultimately, focusing on ORM does encompass compliance assurance.

When companies mature to holistic ORM, they enable a high reliability organization and operational integrity. They can then leverage their efforts to increase efficiency while reducing their operational risks. The tactical asset outcome is reduced maintenance and inspection costs. Companies can focus on improving how they manage their critical assets, while learning from equipment failures and automatically updating their asset strategy library. Templates can be created for similar manufacturing facilities to greatly reduce the time to value realization.

The Next Generation APM approach from OS further integrates people, process, procedures, human engineering, and technology – keeping equipment strategies up to date and moving beyond a primary focus on maintenance to achieve new production efficiencies and to reduce cost, equipment downtime, and incidents.

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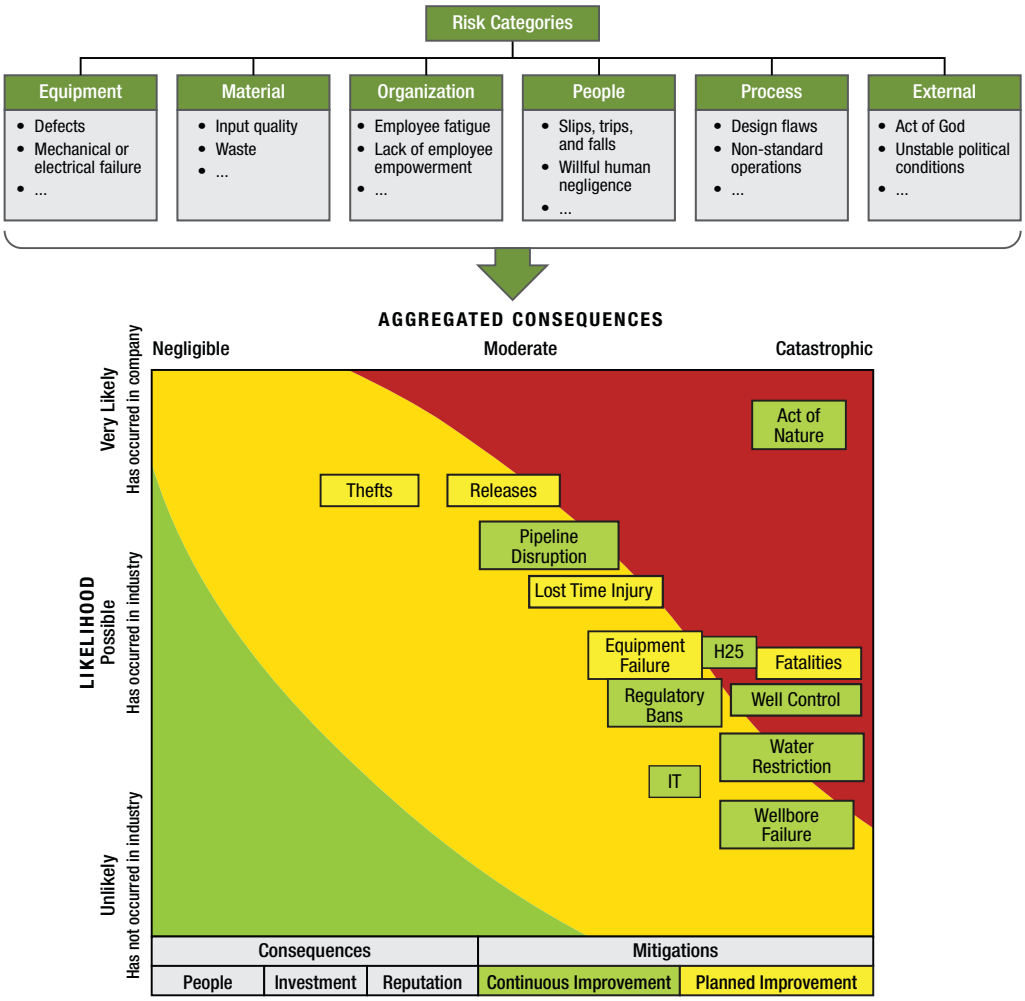
Summary

In reality, an organization's risk profile is constantly changing due to change in its portfolio, economic cycles, and as other external influences manifest. Companies must consider how to deal with the dynamic nature of operational risk because it positively impact incidents, safety, and compliance along with reducing production losses and enhancing management of change processes.

Equally important, risk must be viewed through the lens of a risk registry that aligns with the organization's risk tolerance and business objectives. At OS, we put our decades of experience to work immediately to accelerate your organization's journey to enhanced ORM and a more integrated, holistic view of your risks, opportunities, and outcomes.

Figure 8 – Risk Distribution for an Energy Organization



To achieve the full benefits of ORM, companies need the five foundational elements and must progress through the three ORM maturity levels.

Companies must consider how to deal with the dynamic nature of operational risk. OS helps companies develop a structured process to focus efforts and drive the desired results of comprehensive ORM.

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

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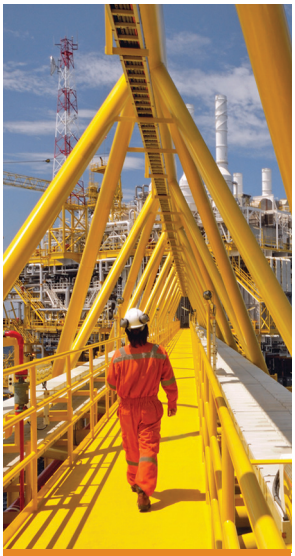
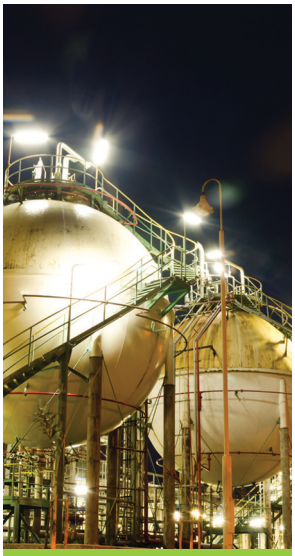
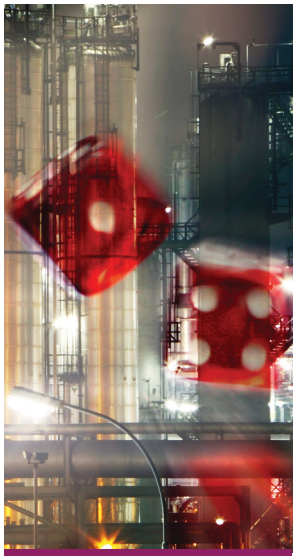

Workforce


Assets

Operations

Compliance


Risk

Operational Sustainability® makes operational excellence simple.

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**.

Schedule your free consultation and demo today.

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