

## Analytics and AIM Enable Better Management of Project and Compliance Risks

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### Keywords

Operational excellence, Analytics, Asset Information Management

### Overview

Operational excellence (OpX) is the key to success in all asset-intensive industries. This includes excellence in operations management, asset performance, capital effectiveness, and environmental health and safety (EHS) compliance. To meet these goals, it's essential for organizations to

Managing engineering information and operational data are essential for operational excellence in process industries. While this need is clear, some organizations struggle to justify the necessary investments in proper information management.

manage both engineering information and operational data effectively. To do so, they must develop solid analytics capabilities and put asset information management (AIM) programs in place.

While the need is clear, some organizations struggle to justify investments in proper information management. This is the second report in a two-

part series of ARC Insights on the ways that analytics and AIM can improve performance in each aspect of OpX. The first report discussed the impact on operations management and asset performance.<sup>1</sup> This report reviews how analytics and AIM can improve capital effectiveness and EHS compliance.

### OpX Requires Good Information Management

OpX is an essential ingredient for market leadership in heavy process industries such as oil & gas, metals, bulk chemicals, and power generation.



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<sup>1</sup> See *Analytics and AIM Improve Operational and Asset Performance*, ARC Insight, June 21, 2012

Companies in these industries require large, complex, expensive plants and optimizing these investments is a central focus.

While ensuring high utilization of production assets is important, OpX involves more than just operations and asset management. The amount of capital required to build and sustain process plants is enormous and investors expect the organization to be prudent with capital and provide good returns throughout the asset lifecycle. The products these industries produce and the processes they use can introduce significant risks for people and the environment. Compliance with all regulations is critical to avoid stiff penalties and preserve the organization's license to operate. Many process organizations go further and set additional sustainability goals.



Operational Excellence Has to Balance Many Goals

### Different Goals Require Different Management Strategies

In the previous report, we discussed why excellence in operations management and asset performance required real-time performance management and continuous improvement. In these areas, the organization manages well-defined, repetitive work packages in a relatively stable environment and “excellence” means efficiency and effectiveness. Analytics and AIM help organizations achieve these goals through real-time visibility, historical trends, better information access, and better information sharing.

Managing capital effectiveness and EHS compliance involves some known tasks, but the bigger concern is managing the unknown, or the risk of events that could lead to major disruptions and catastrophes. No one knows which events will actually occur or what impact they might have. So organizations try to identify and deal with every potential hazard before

they become real issues. This is a different management challenge and the benefits of operational analytic and AIM benefits are different.



Organizations Need to Drive Performance and Control Risks

The following table illustrates the some of the differences between managing known and unknown events.

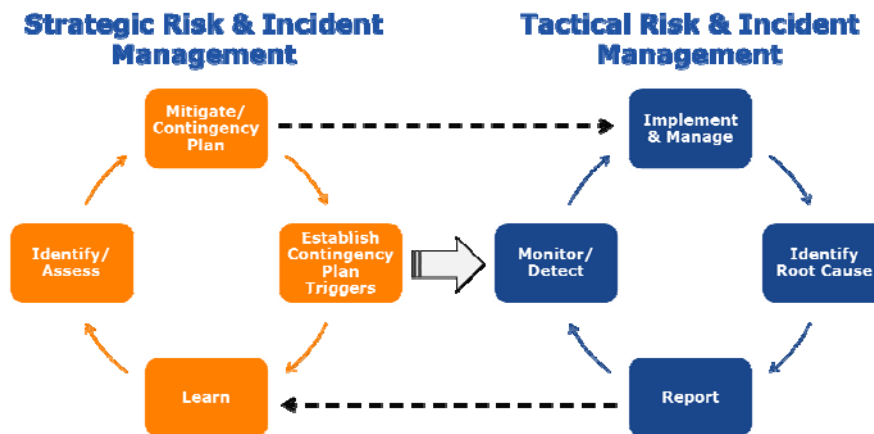
Issue	Managing the Known	Managing the Unknown
Goal	Operational Excellence	Business Continuity
KPIs	Efficiency Effectiveness	Incidents Containment
Mgmt. Strategy	Real-time Perf. Mgmt. Continuous Improvement Bus Process Automation	Risk & Incident Management Business Continuity Planning Bus Process Governance
Key Processes	Plan Execute Quality Control Monitor Performance Continuous Improvement	Identify/Assess Manage Risks Manage Incidents Compliance Reporting Continuous Improvement

Managing Known vs. Unknown Events

### **Analytics and AIM Enable Better Risk Management**

Risk management programs vary across organizations and functional areas like project management and EHS. But they all include steps to identify,

mitigate, and manage uncertain events. ARC Advisory Group's risk management model shows how the strategic and tactical elements can be integrated to create an effective, real-time, risk and incident management program.



**ARC Risk and Incident Management Model**

The strategic risk and incident management loop recurs every month or so and focuses on identifying everything that might impact the organization's goals, assessing their likelihood and potential impact, and developing mitigation strategies to reduce the likelihood and/or impact to tolerable levels. Contingency plans and risk triggers are also established for residual risks, so people know how to detect events and what to do when they occur. Tactical risk and incident management is a continuous, real-time loop that, ideally, should monitor all risk triggers and deal with any events that occur. Learning is incorporated into both loops to improve the organization's ability to deal with uncertain events in the future.

### **Risk Management Is Information-intensive**

Risk management is information-intensive and organizations need good information management tools to achieve excellence in capital effectiveness and EHS compliance. Operating personnel need access to trustworthy information about the facilities, processes, people, and the environment to identify potential threats. They also need good information management to ensure that revised procedures and policies are deployed to all workers and contractors. Much of this is specialized technical information, so "fit-for-purpose" solutions, like operational analytics and AIM are essential.

	Data	Documents
Capital Effectiveness	Risk triggers, project KPIs, economic indicators, commodity & labor market indexes, etc.	Asset technical documents, project scope and technical documents, project & asset histories, contracts, etc.
EHS Compliance	Risk triggers, current and historical data on energy, emissions, incidents, training, etc.	Audit & incident histories, regulatory developments, asset technical documents, HAZOP analyses, etc.

## Recommendations

Not surprisingly, it's difficult for organizations to quantify the benefits of operational analytics and AIM for risk management. Organizations differ significantly in their CAPEX and EHS management practices and IT sophistication, making comparisons difficult. Likewise, few organizations are willing to share financial information about the benefits they received from IT improvements. The fact that the benefits relate to reducing "bad" events adds to the challenge. No one ever sees the payoffs from things that never occur. But the table below provides some of the ways that ARC believes an effective operational analytics and AIM environment can be used to improve risk management in capital effectiveness and EHS compliance.

	Capability	Benefit for Managing the Unknown
Operational Analytics	Integration & Aggregation	Better process governance Broader visibility of risky activities
	Real-time KPIs	Earlier detection of risk triggers Better monitoring of lead/lag indicators
	Trend Analysis	Enables more advanced risk triggers Better monitoring of risk mgmt. effectiveness
	Slice & Dice	Root-cause analysis of risks and incidents
	Advanced Analytics	Identify contributing factors Build better risk mgmt. models
AIM	Higher Quality Info	Lowers risk of wrong information More trustworthy information increases use of procedures, etc.
	Better Info Usability	Lowers risks of lack of proper information Easier deployment of new procedures
	Easier Info Sharing	Extends scope of risk mgmt. programs Enterprise-wide visibility of risks & incidents Better mgmt. of lessons learned

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