

# Best practices for improving HS&E, reliability and quality

*Integrating health, safety and environmental processes with work and asset management*



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## Highlights

- Provides a central application for reporting all incidents spanning work, personnel, safety, health, and environmental areas
  - Supports all manner of investigations to analyze recurring incidents or defects when root cause analysis or after action review is required.
  - Provides traceability into historical incidents, defects, work orders, and earlier corrective actions.
  - Ensures transparency and visibility across operations, safety, maintenance, and engineering domains.
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The primary objective of Health, Safety, and Environment (HS&E) initiatives is to reduce overall risk, to comply with appropriate regulations, and to create a safe yet efficient operating environment for a company. Achieving this objective is as much about standardizing HS&E practices as integrating these practices with day-to-day operations management. IBM Maximo®—the market leader in asset management—provides a foundational enterprise platform that integrates Health, Safety, and Environment processes with work and asset management data and processes to provide a single view of your personnel, facilities, assets, and operations.

IBM Maximo provides unparalleled HS&E capabilities for audit management, incident reporting, risk assessment, maintenance, quality assurance, inspection, management of change, condition reporting, and training. When coupled with Maximo's proven capabilities in work management, scheduling, preventative maintenance, job plan creation, monitoring, document control, reporting and collaboration; the solution provides a closed-loop management platform focused on execution excellence. Existing Maximo customers can benefit by linking HS&E activities to specific assets, classes of assets, or locations; providing a complete venue to view and manage associated risks and compliance.



IBM Maximo's solution for Health, Safety, and Environment provides key extensions to Maximo Asset Management to provide strategic applications for incident management, risk assessment, safety reporting, and management of change. This Maximo solution for HS&E includes many features, such as:

- **Incident Management**—Because incidents occur across organizations doing work around assets and equipment in challenging and often hazardous locations, Maximo provides a central application for reporting all incidents spanning work, personnel, safety, health, and environmental areas. This better practice allows companies to consistently associate incidents to related assets, locations, people, impacted areas and organizational-wide issues for improved analysis and trending. Maximo's powerful workflow, business rules, and resource management can automatically assign personnel to address urgent issues, automatically associate the incident to other related issues, and escalate for root cause analysis, solution planning, and service resolution.
- **Investigations**—Supports all manner of investigations to analyze recurring incidents or defects when Root Cause Analysis (RCA) or After Action Review (AAR) is required. Provides complete traceability into historical incidents, defects, work orders, earlier corrective actions/solutions or virtually any other type of HS&E activity pertinent to the investigation. Some example capabilities include:
  - Impact Assessment of the Incident (Issue) and Global Issue Management
  - Root Cause Analysis
  - Documentation of solutions with derivative benefits and risks
  - Documentation of Lessons Learned
  - Identification of 'bad' actors and contributors to analysis and solutions
- **Change Management**—Full management of change process capabilities, integrated with investigations, incidents, work management and other applications. Maximo provides transparency and visibility across operations, safety, maintenance and engineering domains of all types of changes, including safety plans, environmental controls, mechanical, operating procedures, and maintenance job plans. Maximo's Management of Change functionality offers a well structured, controlled process for planning, reviewing, approving, and implementing changes, which will ultimately improve communications and collaboration, drive more efficient operations and ensure safer working conditions and operational compliance.
- **Non-Conformance Management**—Safety and reliability depend to a great extent on conformance to policy, engineering standards, regulatory requirements, and specification and parameters that have been tested, proven safe, and approved. Maximo HSE Manager provides non-conformance management capabilities designed to automate, manage, and streamline for identifying, evaluating, reviewing, and handling on non-conforming engineering specifications, materials, components, parts, and processes.
- **Competency Management**—Improves competency assurance through capabilities for adding, modifying and updating competencies of the workforce, associate competency requirements to permit and certificate requirements, and identification and validation of competency requirements on job plans and work orders.

- **Operating Policy**—Governance application for structuring your operating policy, operating and maintenance strategies. Your operating policy is linked to your operating procedures and maintenance plans. Performance standards, regulatory drivers, predominant failure modes, production targets, etc.—dictate your operating policy. Operators Policy, integrated with work management, management of change and other asset management applications improves collaboration across operations, maintenance and engineering resources.
- **Operating Procedures**—Capabilities for documented structured, step by step operating procedures—instead of relying on unstructured text files. This approach better integrates operations and maintenance resources. For example, operating procedures can be placed into a maintenance job plan when work from both groups is required to complete work. This approach better supports compliance. Operating Procedures, integrated with work management, management of change and other asset management applications improves collaboration across operations, maintenance and engineering resources.
- **Operators Log**—Electronic log used by shift operators for recording and qualifying events which occur during an individual's shift watch. The application tracks shift staffing, plant operating parameters, log entries, associated qualifying data, and web/document links on an individual plant unit and/or staff position basis. An Operators Log, integrated with work management, incident management and other asset management applications raises the bar for collaboration across operations, maintenance and engineering domains.
- **Training Tracking**—Maximo makes personnel qualification and skills tracking a centerpiece of its resource management functions to ensure employees have the proper skills to safely and efficiently perform their jobs. Maps job roles (for both employees and contractors) to required training and competencies. Maintains a complete history of all personnel job roles, certifications, training, and current qualifications. Automates alerts and notifications for upcoming training requirements, expiring certifications, or re-training needs. Aligns qualification requirements to work tasks to enforce safe work standards. Integrates to third party training management and HR systems to maximize corporate standards and data consistency.
- **Action Tracking**—Maximo provides a tracking application for actions resulting from regulatory and conformance audits, or other internal assessments. Action Tracking provides a vehicle for ensuring the findings and recommendations of internal and external surveys/audits and assessments are managed and tracked to closure.
- **Benefits and Losses**—Captures benefits associated with improvements or costs associated with incidents, failures, survey/audit findings, etc. Capturing benefits for proposed solutions or costs associated with planned or unplanned activities or events, provides insight into areas for improving operations and safety.
- **Failure Reporting**—Maximo's Failure Reporting provides a standard reporting mechanism for capturing metrics to support consistent Failure Reporting and Corrective Action (FRACAS) processes. Standard failure reporting provides enriched data for trending and predictive analysis for process improvements. The foundation to a good reliability and integrity program is a standardized better practice around failure reporting and root cause analysis.

- **Improvements**—Manages continuous improvement programs like Six Sigma or similar methodologies. Maximo provides an enterprise standard and better practice for capturing improvements at all levels and across all domains.
- **Regulatory Compliance**—Demonstrates efforts to comply with health, safety and environmental statutes. Requirements apply to assets and equipment in certain locations, and having work procedures in place to demonstrate, manage, evaluate and ensure compliance is a better practice. Maximo's Regulatory Compliance application identifies regulatory compliance against assets and locations, and associates job plans and work orders to these regulations to ensure compliance—significantly reducing the costs associated with compliance.
- **Risk Assessments**—As the centerpiece of a mature HS&E process, Maximo Risk Assessment is designed as an iterative document that links all associated HS&E activities and organizational data. Maximo helps to standardize how an enterprise manages risk in challenging operating environments. By integrating location, assets and equipment, job plans, work orders and management of change records with hazard identification provides a comprehensive solution for managing risk, improving safety, reliability and compliance. Each risk assessment will calculate consequence, likelihood, severity, risk ranking, risk-based priority, mitigated risk ranking, and mitigated priority to help users assess overall risk.
- **Risk Matrices**—With Maximo, you can model both probability and consequences of events supporting risk management processes. Standardizing how risk is modeled within an enterprise provides a common approach across operating locations, assets, equipment and different types of work. This better practice improves how an enterprise manages risk, promotes a safety culture, improves reliability and ensures compliance.
- **Solutions**—Searchable learning repository, associated with lessons learned, or with proven solutions having an operational, maintenance or engineering context. This better practice captures the environmental context, history, scenario and experience across operations, maintenance and engineering domains and stores that information in a learning repository. This offers a tremendous opportunity to expose this information in actionable and collaborative ways.
- **Defect Elimination and Hazards & Precautions**—Provides an integrated approach to manage and eliminate defects. Supports risk management and improved safety principles by providing greater visibility into risk associated with work requirements in hazardous locations and around hazardous assets and equipment.

IBM Maximo Health, Safety and Environment Manager is well suited to meet key business and IT requirements, such as:

<b>Business &amp; IT Requirements</b>	<b>IBM Maximo HSE Manager</b>
A <b>central repository</b> or <b>database</b> for all compliance information and a global system of record, with an understanding of the history, quality, and context of safety, operational, and engineering data.	A foundational enterprise platform that provides a <i>single view of your personnel, facilities, assets and operations</i> .
A <b>rules</b> or <b>workflow-based system</b> to ensure that procedures are followed, with the ability to identify specific events or exceptions of an incident or investigation.	All records and applications can be related and <i>linked</i> to one another ensuring <i>traceability</i> and accurate <i>auditing</i> of event progression, including plans, decisions, approvals, implementations, and validations.
<b>Integration with other applications</b> or data sources such as ERP or Enterprise Asset Management solution.	Maximo's <i>integrated business architecture and configurable workflow</i> allows organizations to easily model their processes in accordance with organizational and regulatory needs versus a rigid software-driven process.
<b>Reporting</b> and/or <b>analytics</b>	Maximo's role-based <i>Start Centers</i> allow users to quickly personalize their information, publishing <i>KPI's</i> , query-based charts & graphs, bulletin boards for work groups, or corporate communications.

## For more information

To learn more about IBM Maximo's solution for Health, Safety, and Environment, please contact your IBM marketing representative or IBM Business Partner, or visit the following website:

[ibm.com/software/tivoli/products/maximo-asset-mgmt](http://ibm.com/software/tivoli/products/maximo-asset-mgmt)

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