



Highlights

- Improve operating margins through optimal asset utilization
 - Facilitate compliance with health, safety and environmental regulations
 - Improve responsiveness through better asset and performance visibility
 - Minimize disruptions through higher levels of automation
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Integrated Service Management for chemicals and petroleum

Increasing operational efficiency

As the pace of change continues to accelerate, organizations in the chemicals and petroleum (C&P) industry face a number of significant challenges. Industry assets such as pipelines, plants, rigs and refineries require tremendous amounts of capital and skilled resources to be maintained and managed, while newer production assets are growing increasingly complex as they rapidly become digitized “smart” devices. At the same time, the C&P workforce is transitioning from a retirement-age workforce to a younger and less experienced one. As such, security, reliability, standardization and cost containment become increasingly important. With most equipment continually running at or near capacity, any downtime can quickly erode already tight margins, with revenue irrevocably lost as a result.

Simultaneously, the nature of modern production requires continual access to new supplies—yet crude oil deposits are often located in areas that are difficult to access from both a physical and a geopolitical perspective. And as in many industries, C&P organizations face a number of compliance issues with health, safety and environmental regulations.

With all of these changes and challenges occurring, many C&P organizations are increasingly looking to information solutions to help maximize asset utilization, to control escalating capital and operating costs, and to improve operating margins.



Typically, however, most organizations have numerous siloed applications deployed across the enterprise at both the business and production level, each with its own unique reference and data model. The result is an incomplete view of operations, which can make the task of ensuring assets are efficiently managed and maintained that much more challenging.

To drive profitability, C&P organizations need innovative processes and business models—with shared data, processes and workflows—to help improve operational efficiencies and reduce the cost of doing business. By converging siloed systems into a unified structure, Integrated Service Management enables the type of business innovation that allows organizations to increase production yield while lowering maintenance costs. With comprehensive tools and processes, Integrated Service Management can help bring high-quality, profitable products to market while synchronizing capacity with demand.

Integrated Service Management: a unified solution

To provide a fully functional plant with operational systems for processing chemicals and petroleum, organizations need end-to-end visibility across each of the assets that comprises operations—their preventive service histories, measures and calibrations, and real-time information about how equipment is operating.

Integrated Service Management provides a unified solution that can offer C&P organizations a way to understand and control how their systems are operating and meet demanding security and compliance requirements. As part of an effective business and IT integration strategy, Integrated Service



Integrated Service Management helps chemicals and petroleum organizations address industry needs, from asset management and workforce dynamics to environmental impact.

Management focuses on the visibility, control and automation needed to answer the challenges of providing superior operations:

- *Visibility: see your business in real time.*
 - Gain an understanding of systems, assets and operations; deliver real-time insight; and access rich historical reports.
- *Control: govern your organization and minimize risk.*
 - Integrate assets across business and IT to reduce risks to services and your corporate reputation.
- *Automation: accelerate tasks and processes.*
 - Build greater agility into your operations and speed service delivery by reducing manual intervention.

A service management context can help C&P companies support the most pressing needs, including operating margins, asset management for both operational and IT assets, creating more efficient processes to drive quality and performance, and meeting safety and compliance requirements.

Leverage a single view across the enterprise

Many C&P organizations have critical operations information scattered across disparate systems, applications and departments. Few common definitions or standards exist; offshore applications and other upstream applications often have different configurations of data and data naming conventions. Each application has its own unique reference and data model, and there can be millions of process tag information entities that are not conveyed in the context of the equipment they represent.

An important component of Integrated Service Management is IBM Maximo® for Oil & Gas, which supports the IBM Integrated Information Framework (IIF) for C&P. Maximo for Oil & Gas is an industry-specific extension of the IBM Maximo Asset Management solution, offering the most complete support for as-installed and as-maintained asset management requirements. Rated one of the highest-performing enterprise asset management solution suites in the industry, Maximo for Oil & Gas offers its users full asset and work management support as well as solutions for managing IT infrastructure assets or systems and inventory procurement management.¹

Together, the IBM IIF for C&P and Maximo for Oil & Gas provide C&P organizations with an end-to-end view of each asset, to show how both upstream and downstream processes are operating from a health, maintenance and asset point of view—as well as the manufacturing and maintenance process itself—and optimize them to increase efficiencies. The products also employ easy-to-use dashboards and an open, service oriented architecture (SOA) for greater insight into assets.

The solution also includes the Reference Semantic Model. Based on industry standards, the model accesses a large and complex array of disparate C&P assets—and incorporates them with a common understanding of each asset and its location—into a single view. With this increased visibility, key users and systems have a better understanding of security, compliance and service level status to enable business decisions that can help decrease operational costs and increase overall efficiencies.

In addition to greater visibility, IBM Maximo for Oil & Gas and the IBM IIF for C&P offer control and automation capabilities to address a broad range of C&P industry areas, including asset management for business and IT operational assets, monitoring the SOA infrastructure and risk and compliance management, as well as security and storage management.

Choose Integrated Service Management for the chemicals and petroleum industry

Today's C&P organizations rely on IT to provide the data and capabilities to overcome operational disconnects, unnecessary risk and incomplete decision making. Integrated Service Management solutions such as IBM Maximo for Oil & Gas and the IBM IIF for C&P can help optimize infrastructure utilization and availability through a flexible and configurable infrastructure—to help reduce costs and exploit new opportunities.

Through visibility, control and automation, these solutions can help address some of the biggest issues in the industry today—and prepare for the challenges of tomorrow.

Visibility

- View entire oil field metrics in a fast and intuitive graphical interface and drill down into operational details
- Create and maintain consistent representations for equipment state, relationships, unit operations, measurement data, reports, vendor specifications and more
- Perform deeper and more sophisticated analysis of oil field production, viewing all key process indicators and measurements in the right business context, for both real-time decision making and operational planning

Control

- Monitor data and key process indicators based on thresholds and sophisticated historical models
- Simplify massive real-time data based on configurable settings with events and alerts
- Facilitate collaboration across field supervisors, process engineers, maintenance supervisors and asset owners
- Centrally manage security and audit policy for enforcement points

Automation

- Invoke predefined actions for both system-based processes and human interactions
- Work with intelligent, predictive, sophisticated alerts that drive information and action to both human and system participants
- Provide an open enterprise data and process automation integration framework for existing and new manufacturing applications

The components of the Integrated Service Management for C&P solution offer the following features:

- Track, monitor and manage all critical assets, including IT, to support and improve asset availability, reliability, utilization and performance.
- Understand and evaluate interdependencies and risks between IT components and supported business processes.
- Support high availability through comprehensive monitoring and event correlation.
- Protect data from failures and other errors by storing backup, archive, compliance and disaster-recovery data.
- Provide executive dashboard visibility.
- Help ensure only authorized individuals can access project assets, from simple sign-on to more complex security infrastructure deployments.
- Automatically gather data from IT systems log files to analyze and report on policy exceptions.
- Offer IT threat management to help network and server infrastructure attacks.
- Help monitor the Web services layer of IT architectures and drill down to application or resource layers to identify the source of bottlenecks or failures and pinpoint services that take the most time or use the most resources.
- Optimize performance and availability of the IT infrastructure. Through a single, customizable workspace portal, proactively manage health and availability of the infrastructure, including operating systems, databases and servers, across distributed and host environments. Detect bottlenecks and potential problems in essential system resources and help automatically recover from critical situations to ensure business-critical applications are up and running.
- Help manage, identify and access resources that span companies or security domains.
- Provide a secure, policy-based way to set up new accounts and passwords quickly for employees and customers.
- Offer a security information and event management (SIEM) platform designed to improve the effectiveness, efficiency and visibility of security operations and information risk management.
- Deliver real-time, centralized monitoring of complex networks and IT domains.
- Help visualize the health of critical business services and associated service level agreements (SLAs).
- Help increase operational agility by aligning IT operations to business priorities.

For more information

To learn more about Integrated Service Management for C&P organizations, contact your IBM Business Partner or visit ibm.com/tivoli

About Tivoli software from IBM

Tivoli® software offers an Integrated Service Management platform for organizations to deliver quality service by providing visibility, control and automation—visibility to see and understand the workings of their business; control to effectively manage their business, minimize risk and protect their brand; and automation to optimize their business, reduce the cost of operations and deliver new services more rapidly. Unlike IT-centric service management, Tivoli software delivers a common foundation for managing, integrating and aligning both business and technology requirements. Tivoli software is designed to quickly address an organization's most pressing service management needs and help proactively respond to changing business demands. The Tivoli portfolio is backed by world-class IBM Services, IBM Support and an active ecosystem of IBM Business Partners. Tivoli clients and Business Partners can also leverage each other's best practices by participating in independently run IBM Tivoli User Groups around the world—visit www.tivoli-ug.org



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¹ Gartner: IBM Maximo Asset Management recognized as leader in Enterprise Asset Management space. "Magic Quadrant for Enterprise Asset Management for Manufacturing" September 2008.



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