Understanding the advantages of IBM Maximo software for EAM in asset-intensive industries

Contents

Introduction

Asset-intensive companies that use SAP for enterprise resource planning (ERP) are understandably likely to consider using SAP Plant Maintenance (SAP PM) for enterprise asset management (EAM). However, an ERP solution may not be sufficient to manage infrastructures in asset-intensive industries, where maximizing the lifetime performance of diverse and complex assets and minimizing the operational risks associated with them are critical priorities. In such environments, IBM Maximo® Asset Management software provides an EAM-focused alternative to ERP-driven SAP PM.

IBM Maximo software specializes in meeting the unique needs of asset-intensive industries such as oil and gas, petrochemical, manufacturing, nuclear power, gas and electric energy delivery, telecommunications, and transportation. IBM Maximo solutions for these industries deliver rich asset management capabilities, with enhancements that align to industry-specific goals around issues such as safety, reliability, and regulatory compliance. Other specific advantages of IBM Maximo solutions include:

- *Low implementation effort, cost and risk.*
- *Reduced training costs and improved usability to encourage adoption.*
- *A flexible architecture that aligns with changing business processes.*
- *Capabilities for converging IT and operational assets on one platform.*

Maximo software complements SAP ERP solutions by providing straightforward integration and interoperability with SAP. These qualities enable asset-intensive companies to combine robust EAM capabilities with their existing financial, supply chain and human resources (HR) applications.

Minimizing cost and risk for implementation and upgrades

Maximo software is built on a flexible, standards-based architecture that allows for fast initial implementation, ease of lifetime configuration, and straightforward migration to future releases. Initial investments are minimized, because IBM offers commercially supported software for integration with existing SAP ERP systems. Deploying Maximo software can save time and money over using SAP PM, which may require the purchase of new seat licenses for additional asset management users when the PM module is deployed. In addition, due to the high degree of interdependency among SAP modules, using the PM module may require configuration changes to other business-critical modules such as Procurement, Inventory and General Ledger. This may introduce enterprise-wide risk to stable supply chain and financials software implementations and necessitate the retesting of all affected SAP modules.

Once implemented, Maximo software can be upgraded at any time, in line with operational business requirements, independent of any ERP implementation. SAP PM, by contrast, requires all modules to remain at the same release level. Even with the new slip-stream updates, the effect of these updates across the entire SAP landscape is not easy to ascertain. This can be particularly problematic for companies in asset-intensive industries that may want to leverage new features in subsequent releases of the EAM functionality. To do

---

Maximo software adapts to current business processes and does not require a large training investment for operations staff to learn and use it.

so may require a lengthy and complex upgrade process, putting operational objectives at the mercy of the corporate IT upgrade strategy and jeopardizing the organization's ability to take advantage of asset management advances.

Designed for usability and ease of interaction
Maximo software adapts to current business processes and does not require a large training investment for operations staff to learn and use it. This is largely because organizations using Maximo software do not need to modify their activities to conform to a specific process model. While the SAP PM process model reflects SAP's view of EAM best practices, it is not necessarily appropriate for all businesses at all stages of maintenance maturity (see Figure 1), nor is it necessarily preferred or effective for all operating departments.

	Strategy	Organization Management	Planning & Scheduling	Maintenance Tactics	Performance Measures	Information Technology	Reliability Engineering
Excellence	Set corporate mtc. strategy/ asset strategy	Multiskilled, independent trades	Long-term & major project planning & engineering	All tactics based on analysis	OEM; bench marking, full cost database	Fully integrated, common database	Full value, risk analysis, RCM and root cause analysis
Competence	Long-term improvement plan	Some multiskilling	Good job planning scheduling & eng'g support	Some CBM, some PM, few surprises	MTBF/MTTR availability, separate mtc. costs	Fully functional; linked to financials & materials	Some FMECA used
Understanding	Annual improvement plan	Decentralize, mixed trade teams	Planning group established; ad hoc eng'g	Time- and use-based inspections. Some NDT	Downtime by cause; Mtc. costs available	Fully functional; stand alone	Good failure database; well used
Awareness	PM improvement program	Partly centralized for some trades	Troubleshooting support; inspection scheduling	Time-based inspections	Some downtime records; mtc. costs not segregated	Basic mtc. scheduling, some parts records	Collect data but make little use of it
Innocence	Mostly reactive breakdown mtc.	Highly centralized	No planning, little scheduling & no engineering	Annual s/d inspections only	No systematic approach; mtc. cost unavailable	Manual or ad hoc specialty systems	No failure records

Figure 1. Maintenance maturity profiles.*

Further, because Maximo software is not required to conform to a particular process model, it enables businesses to freely innovate for competitive differentiation and advantages. There is no highly centralized, financials-oriented focus to inhibit operating departments from achieving ongoing improvement in their own asset management practices. Rather, Maximo software's flexible workflow and business process configuration capabilities are explicitly designed to accommodate post-implementation changes to support new regulatory requirements, new user or customer requirements, and so forth. Maximo software adapts to the needs of the business, rather than forcing the business to accommodate the EAM application.

Maximo solutions empower end-user interaction with the system, driving efficiency and effectiveness across all operations roles from maintenance technicians to management decision-makers. Maximo software's straightforward and highly configurable user interface allows for the organic flow of business processes, so training requirements are minimal. It is designed around the needs of operations staff and offers great flexibility to support existing processes and information needs.

In addition, Maximo solutions have integrated and native mobile application support to deliver direct access to EAM information at the point of activity when it is needed. Mobile workers enjoy flexible data access in or out of coverage areas. While in coverage, they can update work in the field and access Maximo data in real time, thus providing instant feedback on job progress, inventory and asset conditions. While out of coverage, mobile workers can access data cached on their devices. Cached data is automatically synchronized with the Maximo server as the mobile worker moves in and out of coverage.

Maximo software is an EAM appli-cation that was built for this pur-pose from the ground up.

When employees have an EAM application that they are comfortable using and that they can easily use, even with mobile applications, operational risk diminishes, and solution effectiveness and business value rise. Ease of use reduces the risk that users will underutilize the solution, or, in the worst case, refuse to adopt it. Tools that don't provide the necessary functionality often lead to one-off customizations that are difficult to maintain and support. Only when the user community views a solution as a tool with which to accomplish their jobs more effectively—and accepts it as part of the normal working envi-ronment—will the larger enterprise realize the solution's projected business benefits.

Built for EAM from the ground up

Maximo software is an EAM application that was built specifically for this pur-pose from the ground up, as opposed to SAP, which is a financial application that also has asset management capabilities. This is why Maximo software enables users to focus on asset-related business processes and operational control, rather than on financial and accounting requirements. As an EAM-driven application, Maximo software can serve as a unified platform for managing all the critical assets that organizations depend on to run their operations, including production equipment, facilities, infrastructure, trans-portation, and IT hardware/software assets. Maximo software also supports advanced asset management activities such as predictive maintenance, reliability-centered maintenance and condition-based monitoring.

The Maximo software feature set includes asset, work and inventory man-agement capabilities combined with service management functionality. It tracks asset data including attributes, repair history, and so forth, as well as associated spares lists and "active" drawings with parts and components dis-played visually. Its work order management capabilities include advanced

An enterprise can run multiple industry solutions for different business areas on one Maximo software instance.

workflow and automated escalation features plus many predefined workflows to expedite rollout. No programming is required in order to configure workflows.

Maximo software customers in asset-intensive industries can also optionally leverage industry-specific solutions to address their unique asset management challenges. An enterprise can run multiple industry solutions for different business areas on one Maximo software instance. Industry-specific solutions available with Maximo software include:

- *IBM Maximo for Life Sciences, which provides asset management features tailored for life sciences organizations, including instrument calibration, support for corrective and preventive action (CAPA) processes, and compliance assistance documentation.*
- *IBM Maximo for Nuclear Power, designed for managing the life cycle of assets across nuclear plants and fleets with capabilities based on industry best practices defined in the Standard Nuclear Performance Model, including support for surveillance testing, corrective action, and calibration.*
- *IBM Maximo for Oil and Gas, which accommodates specialized information needs such as failure codes, asset specifications, location details, priority, compliance requirements, and condition for work, as well as defect, incident, and continuous improvement reporting capabilities.*
- *IBM Maximo for Transportation, which addresses stringent regulatory requirements while equipping fleet managers and maintenance officers with best practices to extend asset life, optimize parts management, reduce road calls, and increase planned maintenance.*
- *IBM Maximo for Utilities, which integrates work and asset management features such as compatible unit estimating (CUE) and GIS integration for water, gas, and electric utilities.*

- *IBM Maximo for Government, which addresses requirements unique to federal government contracting and personal property management, including current property ownership, stewardship, location, status, and mission readiness.*
- *IBM Maximo for Service Providers, which helps manage assets for multiple customers through a third-party outsourcing model or internally shared services model, in a single deployed instance, supporting detailed and accurate billing with a review and approval cycle, automatic notification and automatic assignments, customer agreements, and entitlement rules for services and pricing.*

Maximo supports advanced maintenance practices that are crucial in asset-intensive industries.

While both SAP PM and Maximo software support basic maintenance based on time or usage, Maximo supports advanced maintenance practices that are crucial in asset-intensive industries. Maximo software is designed to leverage reliability-centered maintenance (RCM), predictive maintenance, and financially optimized maintenance processes. Companies using SAP PM may require additional third-party solutions to leverage these processes.

Providing the ideal platform for asset convergence

An emerging market force that is shaping the future of asset management is asset convergence, which is driven by the growing sophistication of operating assets that incorporate IT hardware and software. Operating equipment—whether on the shop floor, in a power plant, or built into a facility—increasingly depends on IT for operation and maintenance. Assets are either connected to an IT network for the purposes of remote management and monitoring, or have IT embedded in the form of microprocessors, firmware, software, or storage devices.

More and more operating assets, including production, transportation, and facilities assets, have embedded IT components to improve their performance. For example:

- *Plant floor equipment increasingly incorporates operating system software and production software applications, and is connected to the IT infrastructure through IP addresses. These assets often use built-in condition monitoring systems for remote management, active RFID, microprocessors, firmware, storage devices, etc.*
- *Fleet vehicles, on road or rail, include onboard monitors as well as, increasingly, Global Positioning System (GPS).*
- *Building automation for climate control, security, and infrastructure management makes ever-wider use of computer hardware and software and mesh networks.*

IBM Maximo and IBM Tivoli integrated solutions fully embrace the vision of asset convergence.

IBM Maximo and IBM Tivoli® integrated solutions fully embrace the vision of asset convergence, and empower companies to manage IT and operating assets with the same EAM solution and business processes today:

- *IBM Maximo Asset Management provides a common workflow across operating and IT assets to efficiently manage complex industrial assets.*
- *IBM Tivoli Change and Configuration Management Database, IBM Tivoli Asset Management for IT, and IBM Tivoli Service Request Management are built on the same, standards-based technology as Maximo software, facilitating asset and business process management with support for IT processes based on IT Infrastructure Library® (ITIL®).*
- *IBM Tivoli Monitoring, IBM Tivoli Provisioning Manager, and IBM Tivoli Business Service Management can be leveraged to manage and monitor the health of onboard IT systems.*

Highlights

IBM Maximo Enterprise Adapter for SAP was developed to facilitate integration of Maximo software with SAP.

Integration and coexistence with SAP

Mature, best-of-breed, market-leading products like Maximo software must integrate easily with other vendors' technology in order to meet customers' needs. SAP is a widely used ERP system on which Maximo software integration efforts have been focused for many years. IBM Maximo Enterprise Adapter for SAP was developed specifically to facilitate integration of Maximo software with SAP.

This adapter, a fully supported IBM product, enables real-time information exchange between Maximo and SAP applications by providing bidirectional connectivity and prebuilt integrations between the two applications (see Figure 2). The adapter helps accelerate integration across modules typically implemented between Maximo software and SAP, including general ledger, accounts payable, inventory, purchasing, HR and projects. IBM boasts a global, diversified list of customers using both Maximo software and SAP.
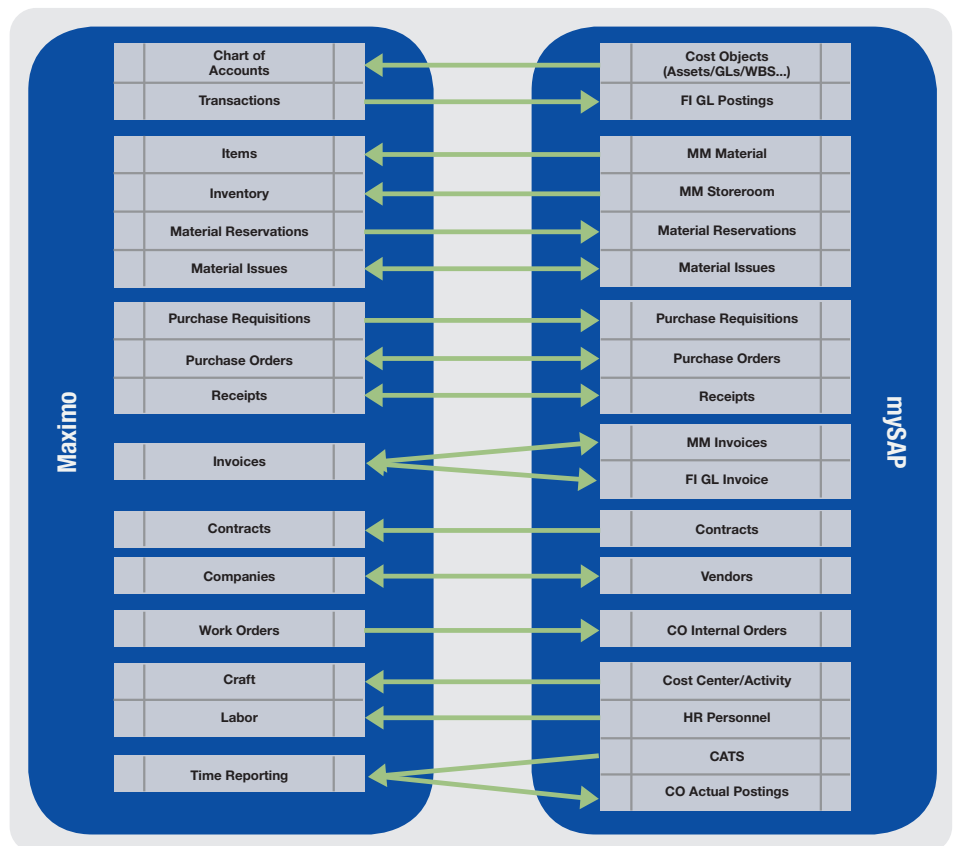
Figure 2. IBM Maximo Enterprise Adapter provides multiple prebuilt integration points between Maximo software and SAP.

Moving forward, as SAP positions the NetWeaver technology platform, along with the Enterprise Services Architecture, as the platform for deploying business solutions based on Java™ EE and Web services, the adapter makes it easier for IT organizations to integrate Maximo software with SAP. Maximo software's Java-based architecture complements NetWeaver technology very well. The NetWeaver platform allows both Maximo software and SAP to leverage their respective capabilities more effectively and efficiently through NetWeaver's composite application framework paradigm. Maximo software provides native integration with SAP applications via NetWeaver Process Integration (PI). This capability is provided through the IBM Maximo Enterprise Adapter for SAP, and no other middleware is required. However, customers with enterprise middleware such as the IBM WebSphere Integration Broker can continue to leverage their middleware investment by having the integration flow through their middleware of choice.

Conclusion

As organizations work to adapt to changing business requirements by moving toward industry reference standards, service-oriented architecture (SOA), and Web services, Maximo software provides the standards-based, services-enabled EAM solution that asset-intensive enterprises can count on. Maximo software combines best-in-class asset and service management processes that empower companies to address the convergence of IT and operating assets, clearly define expectations for asset performance, establish service-level agreements, meet industry-specific requirements, and enact automated response plans for proactive asset management. This level of integrated functionality is appropriate to a solution that is EAM-driven, rather than a component of a financially oriented tool.

Maximo software provides the standards-based, services-enabled EAM solution that asset-intensive enterprises can count on.

Maximo software also offers straightforward and reduced-cost integration with SAP, and many SAP customers are using Maximo solutions for EAM today. Doing so gives companies the best of both worlds: the business benefits of Maximo software's advanced asset management capabilities, combined with the ability to leverage existing investments in SAP systems.

For more information

To learn more about the advantages of choosing Maximo solutions for EAM in asset-intensive companies, contact your IBM sales representative or IBM Business Partner, or visit: **ibm.com**/tivoli/maximo

About Tivoli software from IBM

Tivoli software offers a 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, help minimize risk and protect their brand; and automation to help 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

IBM customers are responsible for ensuring their own compliance with legal requirements. It is the customer's sole responsibility to obtain advice of competent legal counsel as to the identification and interpretation of any relevant laws and regulatory requirements that may affect the customer's business and any actions the customer may need to take to comply with such laws.

*John Dixon Campbell and James Reyes-Picknell, *Uptime: Strategies for Excellence in Maintenance Management*, 2006.

Recyclable, please recycle

TIW14049-USEN-00