

## IMPROVING ASSET VISIBILITY

# SAP® SOFTWARE DELIVERS INSIGHT DRIVING OPERATIONAL IMPROVEMENTS

Organizations can increase uptime, narrow process variability, control maintenance costs, react faster to process upsets, and satisfy customers more consistently if they can gain greater visibility into their operations and asset performance. Software from SAP can help you gain this visibility.



If the executives on the top floor had greater visibility into events and processes on the shop floor, what could you gain? What if a vice president of manufacturing could take in, at a glance, the real-time status of plant-floor operations in multiple locations? What if that executive could drill down into the operational details at a particular plant to see real-time information about production rates and yields, quality and safety metrics, and energy consumption and emission? Or, when seeing an exceptional situation, drill down still further, gaining insight into the actual performance of individual machines in a facility thousands of miles away?

With these insights, your organization would have the ability to manage operations more effectively, improve uptime and plant performance, achieve higher product consistency and quality, lower costs and increase profits, deliver goods on time more reliably, and satisfy your customers more consistently.

Those are highly desirable outcomes that software from SAP can help you realize.

### Using Role-Appropriate Dashboards

To gain greater control over your manufacturing operations, integrated software from SAP can help you link the systems that manage and monitor your production environment with the systems you use to plan and manage your business. SAP® software can help you aggregate and act upon the information that is important to your enterprise, whether your shop floor or production environment relies on:

- A management execution system (MES)
- A laboratory information management system (LIMS)
- A supervisory control and data acquisition (SCADA) system
- A historian system
- Any other type of system

The software can automatically upload data to business applications, though clear user interfaces enable shop-floor workers to enter information manually if needed. Plant employees can use role-based dashboards to view the aggregated information at precisely the operational levels they need to do their jobs effectively.

### For Plant Managers

Instant visibility into metrics such as overall equipment effectiveness enables plant managers to take quick action to maintain or improve rate, quality, yield, energy consumption, emissions compliance, product mix, and other indicators tied to plant operations. Plant managers also benefit from the ability to compare different production lines and plants, helping them establish best practices and drive optimal delivery of production orders to their highest performing locations. They can use this integrated software to communicate continuous improvement initiatives in real time and respond to unexpected deviations and exceptions before they affect the customer.

### For Line Managers

Real-time visibility into production, technical machine performance, and maintenance information helps line managers responsible for the operation and performance of individual production lines.

They can quickly follow up on problem areas identified by a plant manager, track progress toward improvements, and identify new areas for study. Built-in alerts can flag out-of-control situations and other exceptions, helping you rapidly make changes to improve performance and achieve manufacturing excellence.

#### For Reliability Engineers

Reliability engineers can take advantage of the insights enabled by this integrated software to support their continuous improvement and Six Sigma strategies. By taking advantage of the visibility enabled by these integrated tools, reliability engineers gain real-time insight into moment-by-moment fluctuations in asset performance. Dashboards can display the key performance indicators each person needs to track, configured according to specific organizational needs. At the same time, integrated

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reliability-centered maintenance (RCM) software can analyze input from all areas of the production environment and automatically refine maintenance programs for optimal performance.

### Drilling Down into the Detail

Integrated software from SAP also makes it easier for you to gain insight into operational details at a level that is right for each user. You might start with a view of manufacturing operations that shows high-level performance metrics at plants around the world. But what if one plant is showing an alert condition? By clicking on a single plant, the view drills down into greater levels of detail for just that plant – how individual lines are performing within the plant, for example. Click again, and the visibility sharpens to show the details associated with just the one problematic line.

While a vice president of manufacturing may never want to drill down so deeply as to see real-time alarm information from a single machine on the shop floor, a line manager or reliability engineer would definitely want that level of insight – and software from SAP can provide it. The plant manager might have real-time visibility into all the lines at a plant and can drill down into each line for more insight. The reliability engineer might have visibility into each system – viewing real-time performance information in one dashboard panel and suggestions for ways to improve performance in another.

### Acting on Consolidated Input

Manufacturing facilities produce information from a wide range of sources – shop-floor equipment, emissions control systems, quality tracking systems, and more. There are other systems that support these systems, too – maintenance systems, monitoring systems, and the like. Visibility into the systems

on the line is critical, but effective action requires a level of visibility that goes beyond the components on the line itself. You need to be able to consolidate information from multiple sources – the equipment and the maintenance systems that support them, for example – to make the best decisions possible about the equipment and the line.

Again, the integrated applications from SAP have been designed with these needs in mind. The software includes connectors that are already configured

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to integrate a wide range of commonly used systems – and it allows you to construct custom-built connectors to integrate virtually any production system.

Similarly, while the kinds of visibility described so far benefit an organization striving to increase the productive yield of manufacturing processes and plants, this same visibility can also help streamline the broader supply chain itself. Managers interacting with this integrated software can readily see how production capacity is balanced and how they might move or reallocate production streams in the face of fluctuations in demand. Your business decision makers can gain

greater visibility into information about orders, materials, equipment status, costs, and product quality. With this visibility you can become a more adaptive manufacturer, better able to replenish your supply network profitably while increasing your ability to respond effectively to unpredictable change.

### Software and Services for Gaining Asset Visibility

Integrated software and services from SAP and our partners can provide you with the functionality you need to gain visibility into your assets. Several applications comprise this integrated solution.

The **SAP® ERP** application helps you streamline your manufacturing processes – from planning and scheduling through sequencing and execution to monitoring, quality management, and analysis – and improve efficiency along your entire value chain.

The **SAP Manufacturing Integration and Intelligence (SAP MII)** application provides the direct connections between business operations and shop-floor systems. It helps ensure that all data that affects manufacturing is visible in real time – including information about orders, materials, equipment status, costs, and product quality. The application delivers preconfigured connectors to many commonly used production environment systems, as well as a rich set of manufacturing visualization and analytics tools that support your Six Sigma initiatives.

Underlying these integrated applications is the **SAP NetWeaver®** technology platform. SAP NetWeaver unifies technology

components into a single platform, providing the best way to integrate all systems running SAP or non-SAP software. SAP NetWeaver also helps organizations align IT with their business. As the foundation for service-oriented architecture (SOA), SAP NetWeaver allows organizations to compose and enhance business applications rapidly to drive business change.

Working together – and with other applications as your organizational needs dictate, such as the SAP Supply Chain Management application or Meridium RCMO – these integrated applications can help you gain visibility across the entire operational continuum. SAP MII is powered by the SAP NetWeaver technology platform, which enables an organization to reduce IT complexity and obtain more business value from its infrastructure investments. SAP MII and SAP NetWeaver support the ISA-95 standard, which provides uniform terminology, concepts, and models for integrating enterprise resource planning (ERP) systems with MES and process control systems. Prebuilt connectors enable you to consolidate information from many different sources and to gain the insight you need to manage your operations with peak effectiveness.

In addition, the **SAP Services** organization can help assess your manufacturing processes and present a clear road map to gaining increased visibility within your manufacturing operations. Using best business practices developed during more than 105,000 business engagements in 120 countries, SAP Services can help you keep your manufacturing operations running at peak levels in support of your business goals.

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### Translating Insight into Control

In summary, greater insight into the activities and events taking place within your manufacturing operations can drive operational improvements across the enterprise. The real challenge is gaining visibility into these operations. Integrated software from SAP can help. You can gain greater visibility into – and increased control over – complex, heterogeneous, multiplant environments. You can improve your ability to manage shop-floor operations from the top floor, improve up-time and plant performance, improve product consistency and quality, lower costs, increase profits, and better serve your customers.

### For More Information

To learn more about how integrated software from SAP can help your organization improve asset visibility, call your SAP representative today or visit us on the Web at [www.sap.com/solutions/executiveview/manufacturing/improve-asset-visibility/index.epx](http://www.sap.com/solutions/executiveview/manufacturing/improve-asset-visibility/index.epx).

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## Summary

Integrated software from SAP can help an organization gain greater visibility into – and control over – manufacturing operations. Together the SAP® ERP application, SAP Manufacturing Integration and Intelligence application, and SAP NetWeaver® technology platform – along with other software as needed – integrate plant-floor systems with core enterprise applications. All employees involved in plant operations can use role-based dashboards to gain precisely the operational visibility they require to do their jobs effectively.

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## Business Challenges

- Gain role-appropriate visibility into complex, heterogeneous, and globally based manufacturing operations
- Improve responsiveness to changing plant conditions
- Identify and respond to manufacturing plant issues and exceptions more rapidly
- Integrate manufacturing-floor operations with business drivers to streamline the supply chain

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## Key Features

- **Manufacturing asset utilization** – Set up alerts for out-of-control conditions, calculate and compare overall equipment effectiveness, rapidly drill down for sources of poor performance
- **Business planning** – Match enterprise resource planning data on orders and production planning, correlate to actual plant experience, and adjust operations immediately as needed
- **Plant maintenance** – Gain insight into the real-time status of operating equipment, and leverage this insight for improved uptime and reliability

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## Business Benefits

- **Increased uptime** within manufacturing operations due to real-time alerts
- **Greater product consistency** through greater visibility of quality results and faster reaction to in-process results
- **Lower costs** through improved insight into manufacturing processes and controls that drive meaningful improvement projects
- **Higher profits** through optimized performance and reduced waste
- **Increased responsiveness** to changing market conditions or customer requests

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## For More Information

Call your SAP representative or visit us online at

[www.sap.com/solutions/executiveview/manufacturing/improve-asset-visibility/index.epx](http://www.sap.com/solutions/executiveview/manufacturing/improve-asset-visibility/index.epx).

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