

# EFFICIENT MANUFACTURING OPERATIONS FOR AUTOMOTIVE COMPANIES

## HIGHLY EFFICIENT OPERATIONS TO LEAD THE COMPETITION

With highly efficient operations, you can meet customer requirements consistently, reduce manufacturing costs, and ensure standards compliance – all key to leading the competition. How can you gain such efficiency in the automotive industry? With software and services from SAP and our partners.

Price pressure, more-demanding customers, new regulations, and globalization – these forces are driving automotive manufacturing suppliers to deliver higher quality products at ever lower costs. Executives worldwide must find new ways to meet customer requirements consistently, reduce manufacturing costs, and ensure compliance with quality and safety standards.

Yet even with these gains, there remains more work to do to run manufacturing operations efficiently in a competitive – and increasingly regulated – industry. Indeed, complying with the myriad environmental, health, and safety regulations adds yet another level of complexity. Automotive organizations need to find ways to reduce both the costs of compliance and the risk of noncompliance while continuing to increase operational efficiency.

Increasing the efficiency of manufacturing operations can help meet these goals, yet for many automotive organizations, a key impediment to efficient operations remains the disconnect between enterprise and plant systems. This results in unsynchronized business processes and inadequate use of resources, which in turn leads to operational inefficiencies that increase the risk of missing delivery targets and running operations at excessive costs.

How can you achieve these goals? With integrated software and world-class services from SAP and our partners.

### Meet Customer Requirements

For many manufacturers there still exists a huge gap between the enterprise and the plants. That disconnect prevents visibility into operations and creates inefficiencies that make it all but impossible to adjust plans quickly in response to changes in customer orders and production mix. Additionally, information latency can cause poorly coordinated manufacturing activities, supplier and delivery delays, an increased likelihood of rework, and ultimately a decrease in customer satisfaction.

Simply connecting systems will not fully overcome these challenges. World-class manufacturers are going further, integrating and aligning core processes to achieve transparency between the top floor and the shop floor across even the most widely distributed manufacturing operations. This approach facilitates comprehensive insight and management of your manufacturing operations and increases efficiency across the operational continuum. This, in turn, drives down bottom-line costs and cycle times while increasing overall equipment effectiveness.

Integrated software from SAP can help you bridge this gap by connecting your enterprise and plants – whether in one location or around the world. Information can flow between enterprise and plant systems in real time, using ISA95 standards to enable business process interoperability.



Such connections create the visibility required to run efficient manufacturing operations. You are better positioned to coordinate globally while executing locally, plan effectively, and execute efficiently on the plan. You can plan production in alignment with business objectives, manage manufacturing and supply constraints, and maintain inventory levels in keeping with service levels. Moreover, with software from SAP you can monitor and analyze the factors affecting lead times and respond more quickly to changes in customer orders so as to meet customer delivery commitments consistently.

### **Reduce Manufacturing Costs**

At the plant level, on a day-to-day basis, it is critical to manage production and materials optimally, according to plan. Inefficiencies on the top floor, though, can lead to operational inefficiencies on the shop floor. A poor-quality plan, for example, can lead to infeasible production schedules, wasteful activities, and excessive inventories – all of which contribute to higher operating and inventory costs.

SAP provides integrated software and services that can help you optimize production planning and scheduling across your globally distributed manufacturing operations. You can use this software to integrate and standardize production operations as well as manage plant-floor activities in real time and at levels that support your Six Sigma strategy. In addition, SAP delivers complete support for lean adaptive

manufacturing operations at all levels of the organization. The software bridges the shop floor with the enterprise top floor to enable you to reliably produce to targets and deliver year-after-year improvements in on-time delivery, cost, and quality. Furthermore, SAP® software delivers all necessary functionalities for kanban and lean level scheduling aligned with heijunka methods, and it provides analysis of scenarios and replanning efforts to level demand or resolve issues. With support for lean manufacturing, just-in-time (JIT), and other continuous-improvement initiatives, you can optimize day-to-day operations, eliminate waste, reduce operating costs, and lower inventories to ensure sustained operational performance.

### **Ensure Compliance with Quality and Safety Standards**

Whether at the product level or the process level, regulatory noncompliance can affect your company through fines, penalties, negative publicity, loss of customers, or the prohibition against selling your products in the market. Simply put, compliance is critical to the development and sale of products and responsible, sustainable corporate profitability.

Manufacturing controls play an essential role in supporting your compliance with quality and safety standards. Integrating such controls within your operations can help you reduce safety risks even as they help you improve product quality. Software from SAP can help you place

and manage these crucial manufacturing controls. You can embed quality, environmental, health, and safety controls in the production processes and use these controls to manage compliance.

For example, workflow tools within SAP applications can help you drive inspection processes and enable corrective action, including quarantining specific components, if necessary, and issuing quality alerts through supplier Web portals. The software can even provide tracing and reporting functionality to help you analyze root causes for compliance failures. Furthermore, SAP software addresses the requirements of automotive suppliers who need to comply with advanced product quality planning (APQP), failure modes and effects analysis (FMEA), and TS16949 qualification mandates. And SAP partners can extend support for manufacturing controls even further.

### **Software and Services for Efficient Manufacturing Operations**

Integrated software and services from SAP and our partners can provide you with the functionality you need to manage the entire plan-to-produce scenario. These include your key business processes for enterprise planning and control, plant-level operations, manufacturing intelligence and collaboration, manufacturing execution, product quality, safety and environmental compliance, lean manufacturing, and Six Sigma. Several applications comprise this integrated solution.

The **SAP ERP** application helps you streamline your manufacturing process – from planning and scheduling through sequencing and execution to monitoring and analysis – and improve efficiency along your entire value chain. SAP ERP is completely compatible with the JIT and kanban methodologies.

The **SAP Supply Chain Management (SAP SCM)** application enables collaboration, planning, execution, and coordination of the entire supply chain network.

The **SAP Lean Planning and Operations (SAP LPO)** application extends the value of SAP manufacturing solutions by providing lean planning and scheduling functionality for plant execution.

The **SAP Manufacturing Integration and Intelligence (SAP MII)** application provides the direct connection between business operations and shop-floor systems. It ensures that all data that affects manufacturing is visible in real time – including information about orders, materials, equipment status, costs, and product quality. The application also delivers a rich set of manufacturing visualization and analytics tools that support your Six Sigma initiatives.

The **SAP Manufacturing Execution application by Visiprise** provides a powerful means for managing and controlling shop-floor and manufacturing operations. Integrated with SAP ERP, the application facilitates the flow of information between the production floor and the rest of the enterprise.

The application also facilitates processes including test, repair, and traceability. Working together, these integrated applications can help you align manufacturing operations and resources between the core enterprise and plants and achieve high efficiency from end to end with:

- Complete visibility across the operational continuum
- Streamlined operations from the top floor to the shop floor
- Integrated quality and safety controls

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, SAP NetWeaver allows organizations to compose and enhance business applications rapidly to drive business change.

In addition, the SAP Services organization can help assess your manufacturing processes and present a clear road map toward excellence in 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.



Automotive manufacturing suppliers worldwide must find new ways to meet customer requirements consistently, reduce manufacturing costs, and ensure compliance with quality and safety standards.

### **An End-to-End Solution for Operational Excellence**

With integrated software from SAP, you can realize the following benefits:

- Consistently meet customer requirements
- Reduce total and unit manufacturing costs
- Ensure compliance with quality and safety standards

### **For More Information**

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

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## Summary

With highly efficient manufacturing operations, automotive manufacturing suppliers can become poised to meet customer requirements more quickly and consistently, reduce total and unit manufacturing costs, and ensure compliance with quality and safety standards. SAP® software can help you by delivering industry-leading functionality tailored to the needs of the automotive industry. Suppliers in all tiers can provide to key personnel and partners the appropriate operational views, with fast access to data across all functional areas of their business.

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## Challenges

- Disconnected manufacturing processes and systems
- Lack of visibility across manufacturing operations
- Operational inefficiencies from the top floor to the shop floor
- Insufficient controls to comply with quality and safety standards

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## Supported Business Processes and Software Functions

- **Enterprise planning and control** – Establish an achievable master plan aligned with customer requirements, business objectives, and constraints; and control manufacturing activities across all plants
- **Plant-level operations** – Plan and manage manufacturing lines, schedules, and resources on a daily basis
- **Manufacturing execution** – Execute production according to schedule while considering exceptions and deviations in real time
- **Manufacturing intelligence and collaboration** – Gain insight into manufacturing activities and performance while ensuring collaboration
- **Product quality, safety, and environmental compliance** – Ensure that your products and processes comply with appropriate regulatory guidelines and standards
- **Lean and Six Sigma** – Manage manufacturing activities at Six Sigma levels, and benefit from complete support for lean initiatives
- **JIT** – Manage material flow

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## Business Benefits

- Meet customer requirements consistently
- Reduce total and unit manufacturing costs
- Ensure compliance with quality and safety standards

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## For More Information

Call your SAP representative or visit us online at [www.sap.com/solutions/executiveview/operations/run-efficient-manufacturing](http://www.sap.com/solutions/executiveview/operations/run-efficient-manufacturing).

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