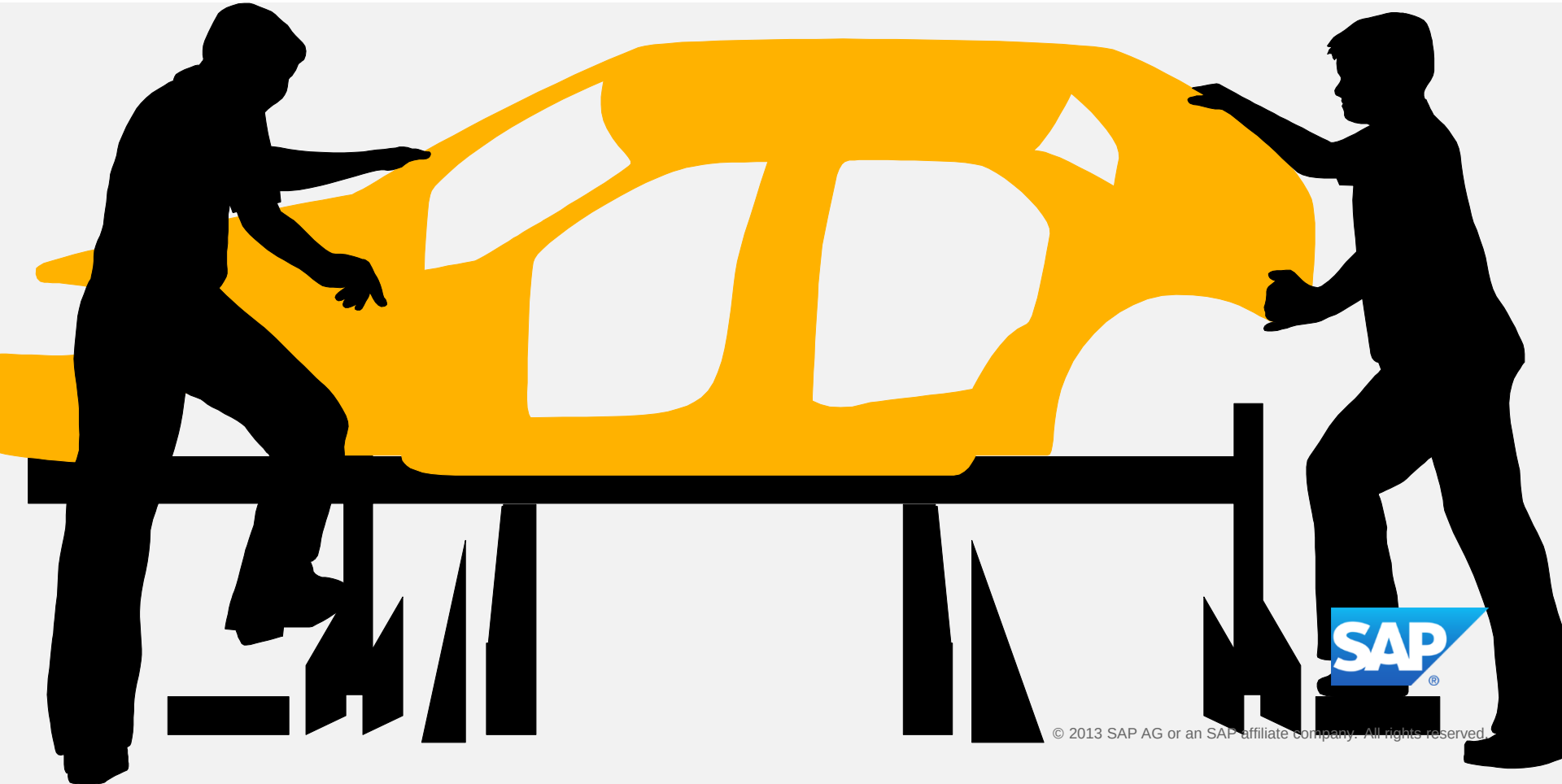
Make to Order for Automotive Companies



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Make-to-Order Production for OEMs

Make to Order

Operational Excellence

Configurable Products

SAP Innovations

Lack of supplier and customer visibility leads to long waits, costly rework, and slow delivery. Original equipment manufacturers (OEMs) need a framework for constant innovation to achieve savings, supply transparency, and timely delivery.

It can be difficult to get visibility into the quality of your suppliers' products and the changes in your customers' buying behavior. Yet fluctuations in both supplier quality and customer demand often result in poor production planning, which in turn leads to inefficient scheduling on the shop floor.

Problems also arise when there is no coordination between your planning, purchasing, manufacturing, and distribution departments. This causes longer wait times, excessive rework, and issues with delivery and quality – not to mention underutilized assets and capacities. Raw material sits unused in warehouses due to procurement issues, and fill rates drop due to inaccurately measured supply and demand. Productivity decreases while storage costs add up.

Make-to-order processes improve flexibility with fast replanning in light of production constraints. Clear visibility can help optimize resources, lower cost, meet customer needs, and improve quality.

11% higher capacity utilization with make to order when pull-based production schedules control processes

Source: SAP Performance Benchmarking

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Enable Flexibility with Make to Order

Make to Order

Operational Excellence

Configurable Products

SAP Innovations

Integrated and connected operations give you complete visibility and maximize efficiency across manufacturing. They help reduce total and unit costs, meet customer demand, and comply with quality standards. Better scheduling and manufacturing efficiency help you maintain delivery dates and improve resource utilization.

With the SAP ERP application and SAP Advanced Planning and Optimization (SAP APO) component, you can realize the benefits of make-to-order production. Integrated product and process engineering (iPPE) lets you manage all data for model mix planning, enabling flexible master data maintenance. Drag-and-drop functionality and integrated bill-of-material maintenance streamline operation. iPPE also supports routing and factory layout to optimize production lines in a mix model environment.

Component requirement planning with a rapid planning matrix lets you efficiently plan component requirements in a high-volume, high-variance environment. Model mix planning and sequencing optimize the usage of production lines. High-volume backflush for discrete industries (DI) updates material stocks quickly and accurately.

SAP APO helps your business handle a wide variety of product lines, streamlines operations, and improves visibility in supply chain planning by increasing coordination with vendors.

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Increase Manufacturing Efficiency

Make to Order

Operational Excellence

Configurable Products

SAP Innovations

Make-to-order (MTO) processes provide a continuous framework to cut costs, improve quality, and meet delivery dates. SAP APO supports make to order by increasing visibility across the value chain, enabling fast reaction to demand changes. This helps ensure a smooth supply to market and higher level of service. The software prevents production breakdowns by quickly identifying bottlenecks and accommodates a high variance in product configuration.

- Fast replanning
- Ability to consider production constraints in different time spans
- Model mix planning for multiple production lines with different line network
- “What if” simulation functionality to improve plans and schedules
- Accurate inventory with near real-time backflush
- Fewer production disruptions

11%

Higher labor utilization with make to order when companies allocate machinery and tools correctly and monitor their usage

Source: SAP Performance Benchmarking

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SAP Innovations

Make to Order

Operational Excellence

Configurable Products

SAP Innovations

Automotive companies need to leverage technology in order to accelerate the pace of innovation. Big Data, analytics, enterprise mobility, and cloud computing are all key to the cost-effective delivery of sales and service excellence.

SAP is investing heavily in the future of five distinct technology areas: Analytics, Applications, Cloud, Database and Technology, and Mobile. Integrated throughout the enterprise, these technologies can help transform automotive companies. When you can innovate faster, increase quality, manufacture efficiently, and deliver excellent sales and service, you can increase profitability and gain competitive advantage.

Accelerating the pace of innovation requires insight and improved collaboration. Solutions for enterprise mobility and cloud computing from SAP extend your work platform and provide a flexible, secure working environment for global teams.

Becoming more agile and efficient while avoiding disruptions across the extended value chain requires close scrutiny of your key performance metrics. Running real-time analytics with the SAP HANA platform helps make the best use of all data, no matter the source.

And the ability to exploit Big Data can be critical to successful customer interactions.

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Production and Customer Needs

Solution Overview

Make to Order (SCM)

Model Mix Planning and Sequencing

Manufacturing and Logistics

Why SAP?

Make to Order

SAP APO enables make-to-order processes that integrate and connect operations, support lean Six Sigma methods, and optimize visibility and efficiency across manufacturing operations. It helps reduce total and unit manufacturing costs, meet customer demand, and comply with quality and safety standards.

Model Mix Planning and Sequencing

The model mix planning functionality of SAP APO helps you create short- and mid-term plans for production lines, factoring in resource capacities, shift models, supplier or production constraints, and engineering changes. It balances resource usage with delivery reliability and production restrictions.

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E2E Solution Process Map

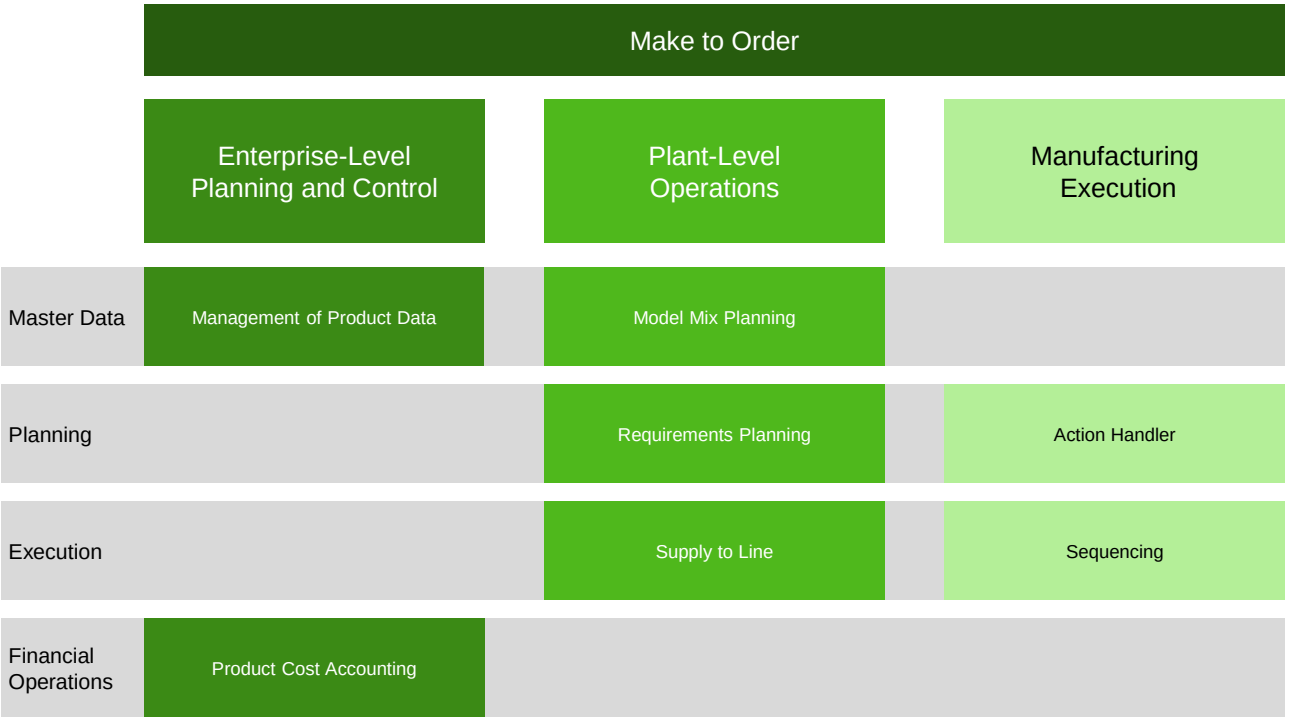
Solution Overview

Make to Order (SCM)

Model Mix Planning and Sequencing

Manufacturing and Logistics

Why SAP?



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Make to Order for Automotive Companies

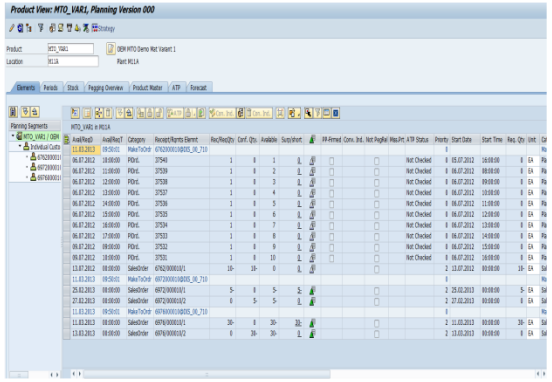
Solution Overview

Make to Order (SCM)

Capabilities

Benefits

The make-to-order functionality of SAP APO offers total visibility to help you improve efficiency across operations, cut total and unit costs, meet customer demand, and comply with quality standards.



13%

Higher production plan adherence when customer delivery dates are integrated with material availability and manufacturing conditions to create optimized schedules

Source: SAP Performance Benchmarking

The solution helps you streamline, accelerate, and automate your processes for manufacturing a large volume of highly configured vehicles. It enables fast and accurate planning, development, confirmation, and prioritization of customer demands. It also helps you monitor supply chain activities, track material shortages, and adjust manufacturing performance based on demand.

You can facilitate simulations and improve insight into material constraints and labor capacity. This results in better scheduling management, higher throughput, and reduced work in progress while decreasing delays and disruptions.

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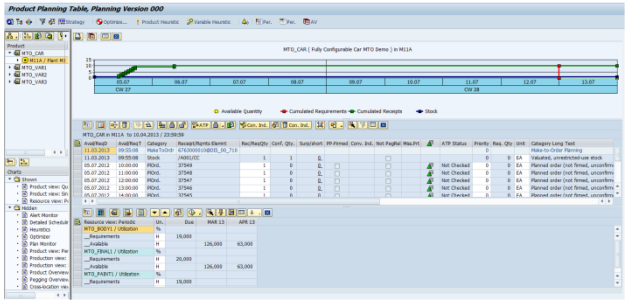
Improve Operational Excellence

With the make-to-order functionality of SAP APO, automotive companies like yours can streamline, accelerate, and automate their processes for manufacturing large volumes of highly configured cars, trucks, and buses.



23%

Lower days in inventory for raw materials when the quality system allows purchasing and production to share data

Source: SAP Performance Benchmarking

You can facilitate simulations and update production plans to reflect changes that come in during the day of production. The solution also improves insight into material capacity and labor constraints.

The result? You can improve scheduling, generate higher throughput, reduce work in progress, and minimize delays and disruptions.

The solution also allows you to offer customers a wide range of configuration options. It empowers planners by giving them complete visibility into sales, product costs and characteristics, material stock information, and related product development. And by providing integration between engineering and production, it results in reliable product data for planning and execution.

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Improve On-Time Delivery Through Collaboration

Solution Overview

Make to Order (SCM)

Capabilities

Benefits

The make-to-order functionality of SAP APO improves on-time delivery by providing a framework for collaboration between stakeholders throughout the supply chain, from engineering to distribution.

14%

Higher production plan adherence with make to order when plans are integrated with demand, production, and transport

Source: SAP Performance Benchmarking

This framework helps personnel across your supply chain work together towards cutting costs, meeting customer demands, and adhering to quality standards. It makes it easier to manage and stick to schedules, which leads to higher throughput, predictable cycle times, lower work in progress, and expedited activities. By optimizing production based on lean manufacturing principles, you can deliver the right product – on time and at less cost.

The solution helps you balance supply and demand, allowing you to evaluate solutions for potential supply issues and contingencies for possible demand situations. Its lean master data structure provides flexibility in maintaining master data and a unified data model to help ensure consistency in engineering, planning, production execution, and costing.

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Model Mix Planning and Sequencing

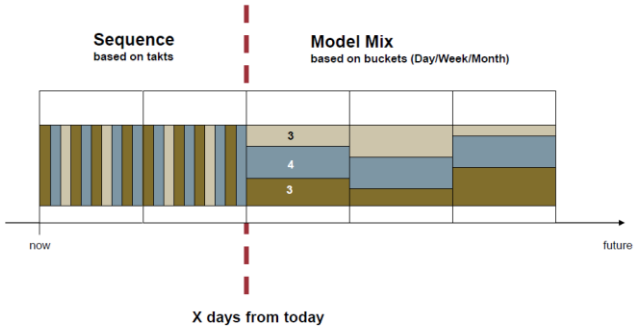
Solution Overview

Model Mix Planning and Sequencing

Capabilities

Benefits

With model mix planning, SAP APO lets you create effective short- and mid-term production plans for your manufacturing lines. It factors in resource capacities, shift models, and engineering changes.



30%

Fewer days in inventory for finished goods when flow manufacturing, line balancing, demand management, mixed-model planning, lean execution, and kanban are automated

Source: SAP Performance Benchmarking

Model mix planning and sequencing help you develop, manage, and accelerate production schedules based on “takt” time (the pace of production to meet demand). An integrated master data model helps manage engineering-to-manufacturing transitions. The solution lets you use resources more efficiently, develop production plans and shift models, monitor supplier and production constraints, and handle engineering changes. It also integrates materials management with the supply-to-line process. You can cut costs, integrate production lines, coordinate production and sales, streamline processes, and improve on-time delivery.

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Optimize Mixed-Model Production

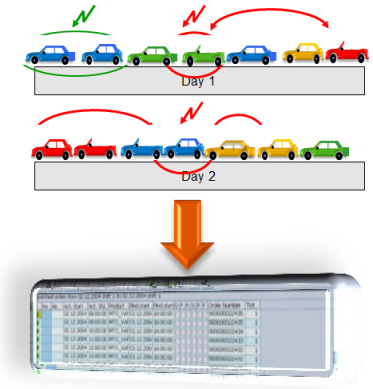
Solution Overview

Model Mix Planning and Sequencing

Capabilities

Benefits

With the model mix planning and sequencing functionality of SAP APO, you can optimize resources with a balanced line sequence. The solution supports pull-driven line replenishment and accounts for production constraints in various time spans.



The sequencing board features a complete overview of sequenced vehicles in production and their characteristics, a list of backlogged vehicles, and the percentage of production line utilization.

6%

Lower order lead time with what-if modeling and evaluation of multiple scenarios based on changing parameters

Source: SAP Performance Benchmarking

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Drive High-Volume Production of Highly Varied Configurations

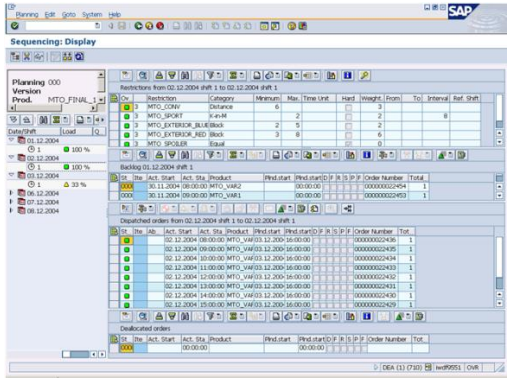
Solution Overview

Model Mix Planning and Sequencing

Capabilities

Benefits

Model mix planning and sequencing can optimize the production of your model mix in a high-volume production environment that includes numerous configuration options.



Model mix planning streamlines manufacturing operations by determining a balanced line sequence that optimizes resource utilization. It supports pull-driven replenishment and improves supply chain visibility. Designed for flexibility, it lets you consider different constraints in various time spans.

The solution also improves customer satisfaction and lowers costs by considering delivery dates and optimizing capacity usage.

Takt-based scheduling and manufacturing integration result in an efficient and collaborative supply process by integrating just-in-time and just-in-sequence methodologies.

Interactive sequencing offers a convenient drag-and-drop feature that facilitates order slotting. Plus, you can easily search orders based on certain characteristics.

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Automotive Value Map

Solution Overview

Make to Order (SCM)

Model Mix Planning and Sequencing

Manufacturing and Logistics

Why SAP?

Operational Procurement and Inbound Logistics	Operational Procurement	Inbound Logistics		
Lean Manufacturing	Production Planning and Scheduling	Lean Six Sigma Analysis	Poka Yoke Processing	Manufacturing Execution
Make to Order	Make to Order (SCM)	Model Mix Planning and Sequencing		
Outbound Logistics	Sales and Logistics Planning	Sales and Logistics Execution		

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Why SAP?

Solution Overview

Make to Order (SCM)

Model Mix Planning and Sequencing

Manufacturing and Logistics

Why SAP?

The best-run automotive organizations rely on SAP software.

- Seventy-nine percent of the Global Fortune 500 companies are SAP customers.
- One hundred percent of the top-scoring companies in the Dow Jones Sustainability World Index rely on SAP software.
- Eighty-five percent of the top 100 most valued brands in the world are SAP customers.
- Each day 77,000 vehicles are manufactured by automotive companies that are SAP customers.
- Over 3,000 automotive companies worldwide rely on SAP software.

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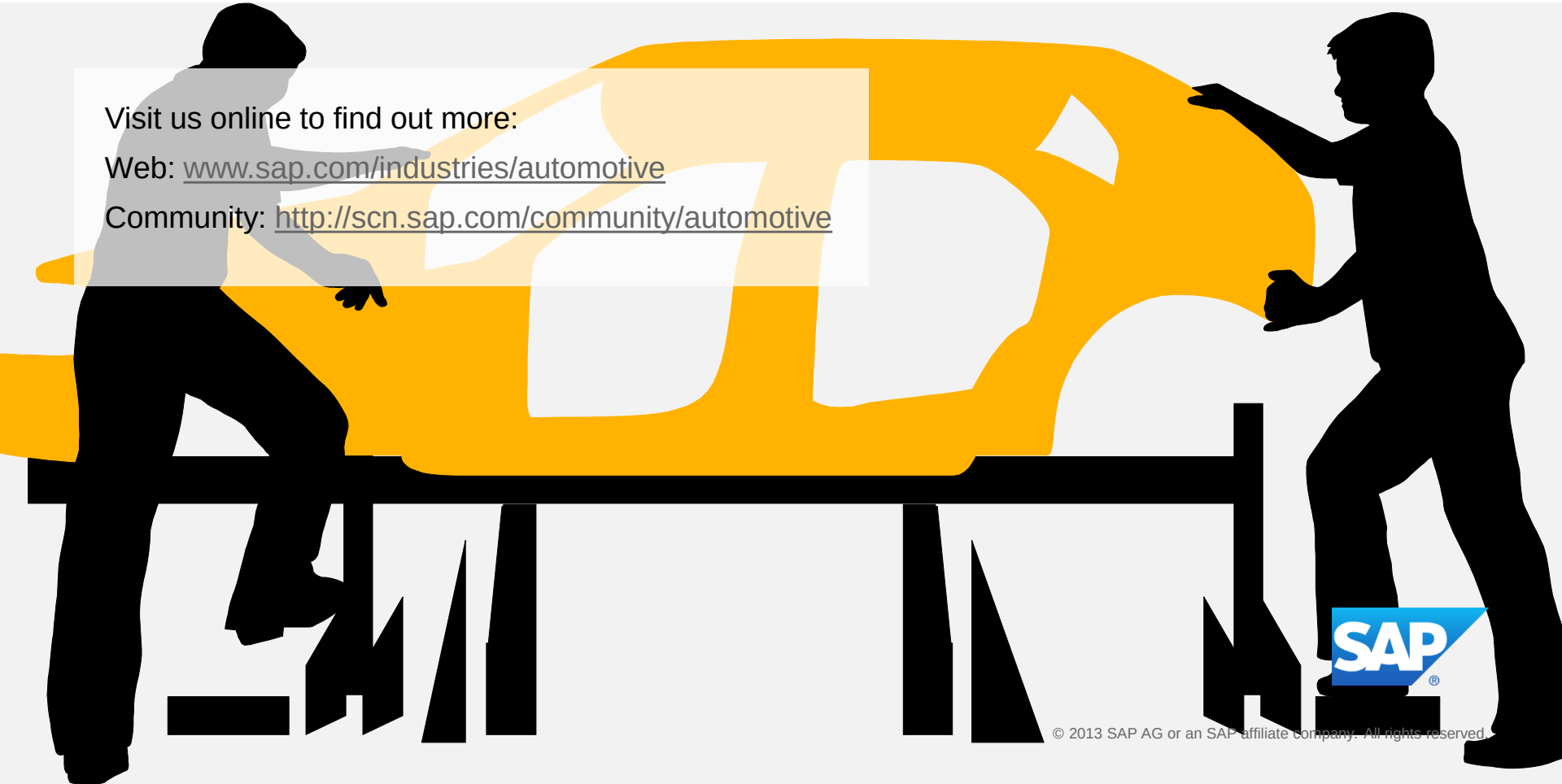

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