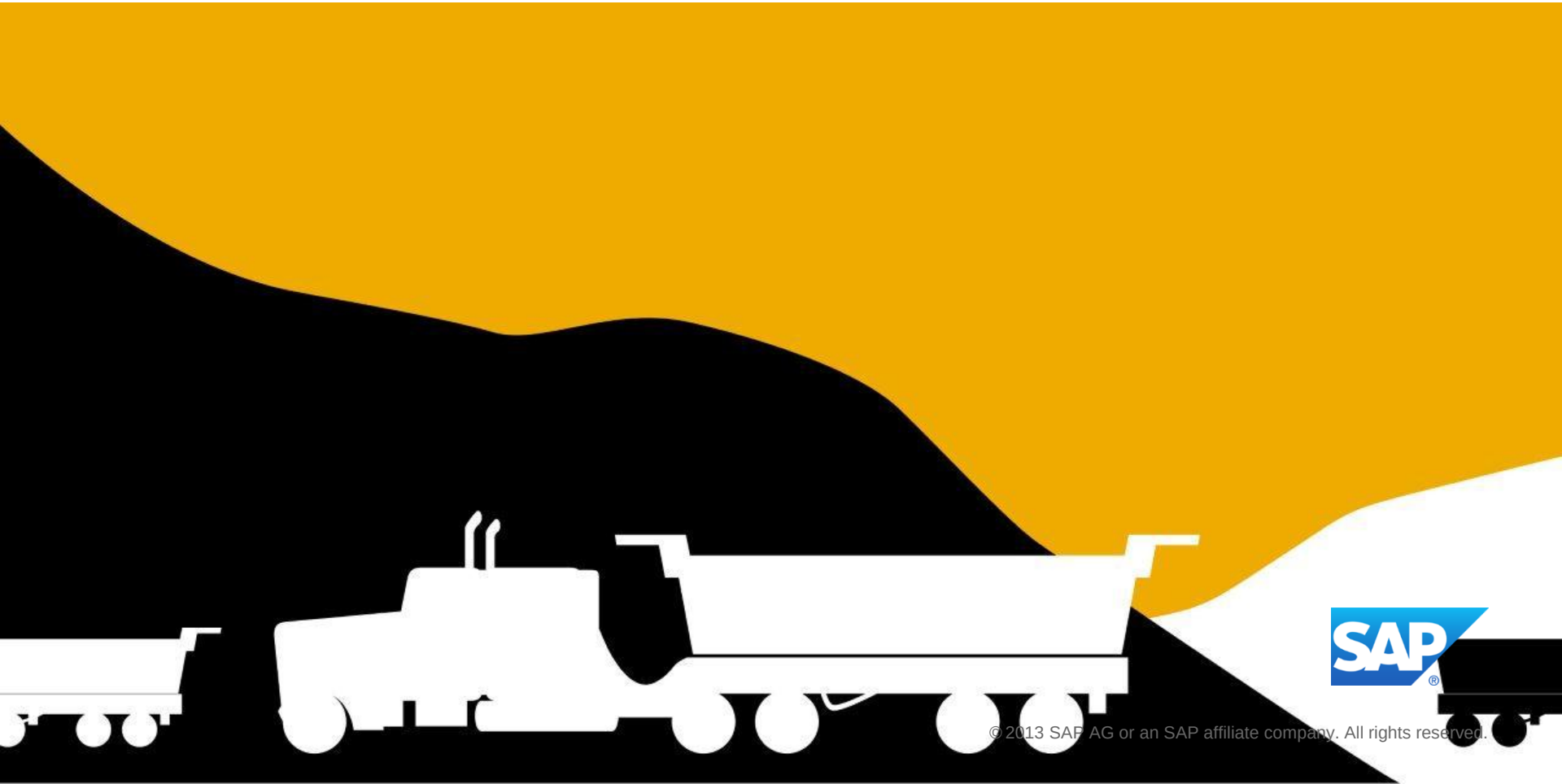
Mine Operations and Performance Management



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Deliver on Production Plans

Production Plans

Efficient Processes

Streamlined Manufacturing

SAP Innovations

Due to globalization, regulatory requirements, and shifting demands, mining companies face increasing needs for asset performance, safety, and efficient operations.

10%

Higher capacity utilization when production personnel can monitor production and parametric data in real time

Source: SAP Performance Benchmarking

In today's economy, companies must cope with shifting demands, including the rapid growth that is occurring in emerging countries. The location and performance of assets becomes more and more important in order to stay competitive.

Operations often lacks visibility into the status and performance of assets, and operational data is not integrated with enterprise resource systems. Volatile procurement and sales prices require operational excellence in planning and execution of core business processes. Furthermore, regulatory requirements are increasing for every process manufacturer.

Operational excellence is key in balancing on-time delivery goals with costs. Synchronizing production with planning, scheduling, maintenance, and quality management adds enormous value.

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Establish Efficient Processes

Production Plans

Efficient Processes

Streamlined Manufacturing

SAP Innovations

Optimize asset performance and utilization with quality.

SAP solutions address these challenges in many ways. They help synchronize business and operating functions, provide data-driven decision support, and proactively manage risk and safety. Mining companies must improve asset performance and increase productivity and efficiency by increasing visibility into production processes and sharing best practices.

SAP software integrates the entire plan-to-produce process, including enterprise-level planning and scheduling, plant-level operations, production execution, batch production, and quality control and assurance.

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Streamlined Manufacturing Saves Costs

Production Plans

Efficient Processes

Streamlined Manufacturing

SAP Innovations

Best-run companies use solutions for data management and process integration from SAP to support the collection of real-time data from the shop floor to maintain batch traceability and genealogy. Embedded quality and compliance controls enable process manufacturers to manage exceptions and address nonconformance through corrective and preventive actions for batches. This level of production control produces the following benefits:

- Increased throughput
- Improved on-time delivery rates by setting predictable and shorter cycle times
- Better asset utilization
- Satisfaction of inventory targets

18%

Lower manufacturing cycle time where KPIs can be monitored, measured, analyzed, and controlled easily and automatically

Source: SAP Performance Benchmarking

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SAP Innovations

Production Plans

Efficient Processes

Streamlined Manufacturing

SAP Innovations

Technology investments from SAP provide enormous benefits for production scenarios in the mining industry. They help customers rapidly adapt their plans to changing demands, improve quality and manufacturing profitably, and satisfy customers.

Big Data – With the SAP HANA platform users can analyze huge volumes of business operations, quality, and customer data as it develops in real time and derive actionable intelligence from it.

Mobile – Mobile apps from SAP enable every aspect of your business to run faster and more efficiently by providing employees with access to critical intelligence anytime, anywhere.

Cloud – The cloud in its many forms provides a new way to unlock extraordinary potential that allows businesses to run faster and better.

Analytics – Analytics solutions from SAP work with a variety of data sources, including both SAP and non-SAP applications, to deliver actionable insight for your business.

SAP has led IT innovation for business for 40 years. Today's new technologies will enable companies in the process industry to plan better and provide business users with access to the insight needed to improve every aspect of enterprise operations.

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Enable High Efficiency

Solution Overview

Production Planning/Execution

Plant Performance Management

Sustainable Operations

Operations and Maintenance

Efficient Manufacturing Operations

Why SAP?

Production Planning and Execution

Reliable, real-time information that connects the plant and the business

Plant Performance Management

Aligned plant-level and enterprise operations

Sustainable Operations

Plant-wide automation and integration for production control

Asset Operations and Maintenance

Optimal equipment reliability, repair reduction, and worker safety

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Efficient Manufacturing Operations for Process

Solution Overview

Production Planning/Execution

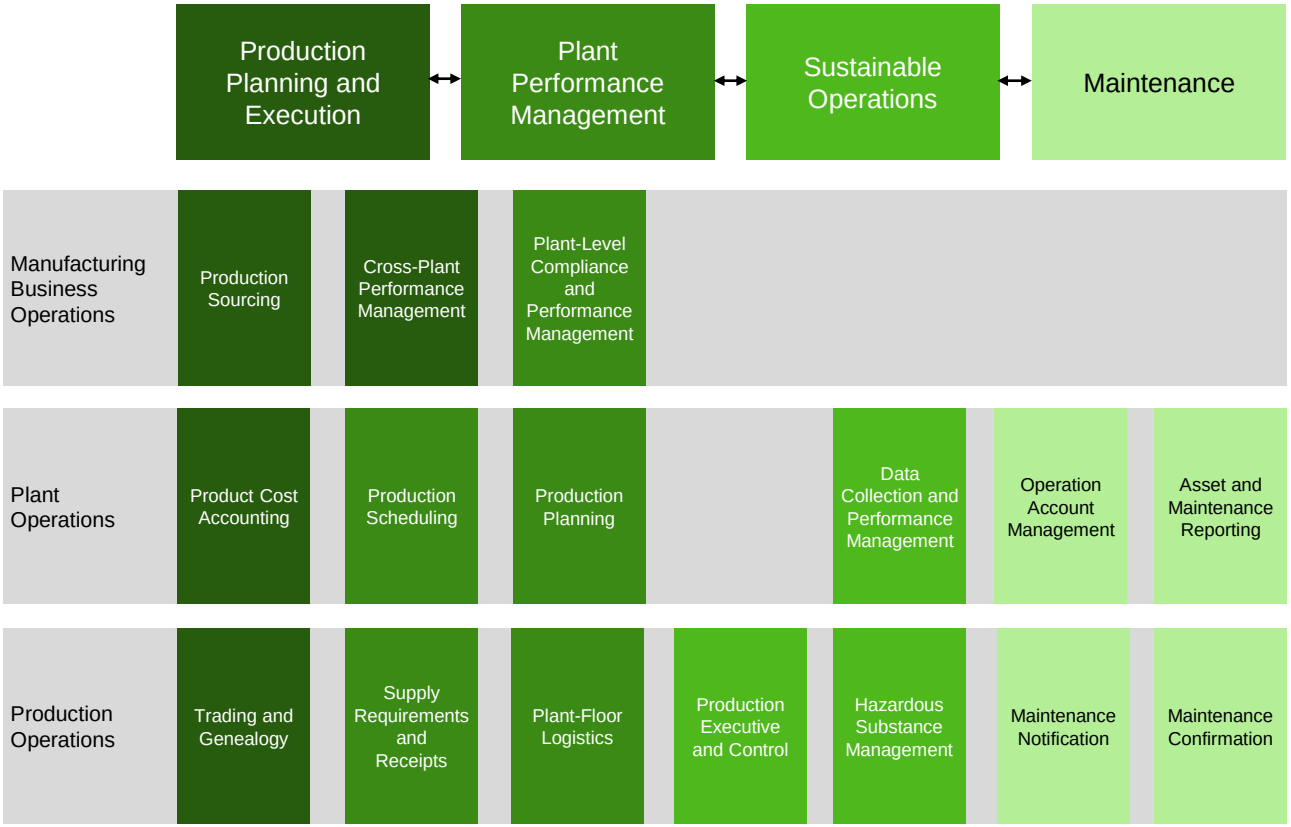
Plant Performance Management

Sustainable Operations

Operations and Maintenance

Efficient Manufacturing Operations

Why SAP?



Efficient production operations for the mining industry enable highly efficient processes through smooth integration.

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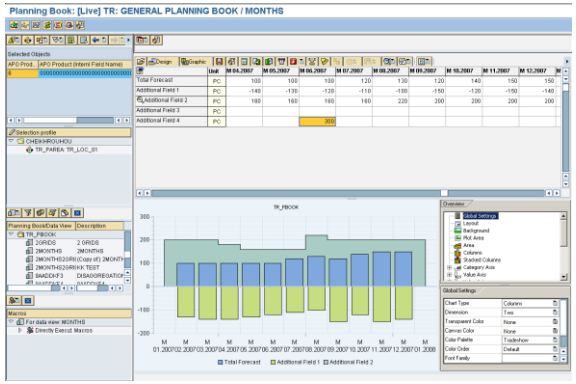
Production Planning and Execution

Solution Overview

Production Planning and Execution

- Capabilities
- Benefits
- SAP Innovations

By connecting all functional areas, SAP software equips process manufacturers to generate feasible manufacturing plans and make sourcing decisions that account for demand and capacities.



10%

Higher capacity utilization where production personnel can monitor processes, materials, operations, and exceptions in real time

Source: SAP Performance Benchmarking

With SAP software, mining companies can perform product cost planning – and then compare planned and actual costs to analyze variances. A complete as-built history, mapped to where-used information, enables timely corrective action and the management of any nonconformance detected during a product's lifecycle.

This leads to more efficiency and streamlined operations across the enterprise. Furthermore, role-based analytics deliver real-time data to help evaluate the impact of plant performance on the business.

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Global Coordination, Local Execution

Solution Overview

Production Planning and Execution

Capabilities

Benefits

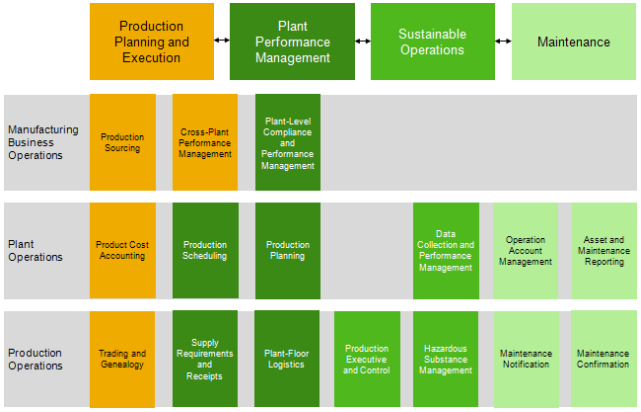
SAP Innovations

Manage deviations between forecasts, planned deliveries, and supplier performance.

Realize closer collaboration with internal and external suppliers to align production, quality and performance plans with performance targets.

Maintain service levels through rapid planning – considering production, supply constraints, and inventory levels.

Gain real-time visibility into operations to optimally manage cross-plant performance.



10%

Higher capacity utilization when manufacturing managers can track and manage the alignment of strategic manufacturing and operational objectives

Source: SAP Performance Benchmarking

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Plan and Execute Efficiently

Solution Overview

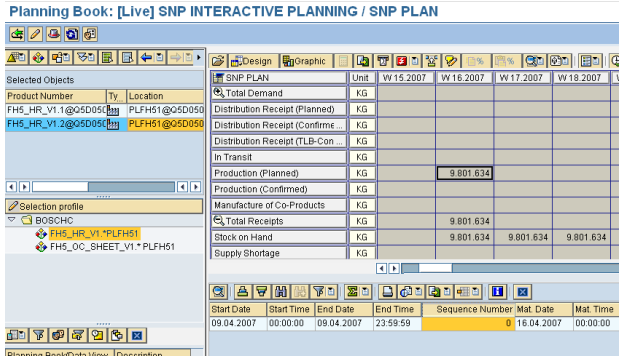
Production Planning and Execution

Capabilities

Benefits

SAP Innovations

Combine global coordination with local execution to adapt quickly to customer order changes. This enables the enterprise to plan effectively while the plant executes efficiently.



18%

Higher production plan adherence for process manufacturers where process control is through pull-based production schedules rather than shop orders

Source: SAP Performance Benchmarking

SAP solutions help companies integrate and align 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 production operations and increases efficiency across the operational continuum.

This in turn drives down bottom-line costs and cycle times. It also increases overall equipment effectiveness and eases compliance with the myriad environment, health, and safety regulations that manufacturers face, reducing both the costs of compliance and the risk of noncompliance.

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Innovations for Production Planning and Execution

Solution Overview

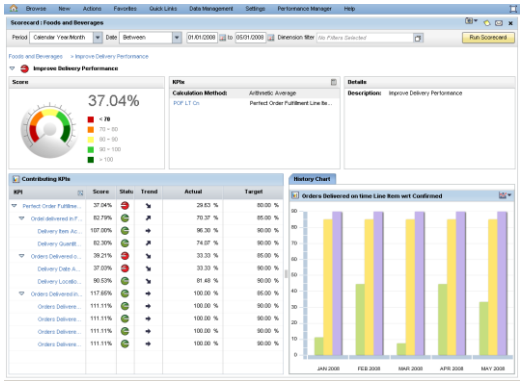
Production Planning and Execution

Capabilities

Benefits

SAP Innovations

SAP innovations improve production planning and execution processes along the supply chain.



53%

Of organizations report a big gap between the availability of Big Data and their ability to analyze it for insights

Source: SAP Performance Benchmarking

Use of in-memory technology enables much faster planning, leading to increased productivity and better adaption to volatile demands.

With the SAP HANA platform, users can analyze huge volumes of data in real time.

Mobile applications from SAP provide your employees with access to critical intelligence anytime, anywhere.

The cloud provides a new way to unlock potential that allows businesses to run faster and better.

Analytics solutions from SAP deliver actionable insight for your business.

SAP has been an innovation leader for 40 years. Today's new technologies will enable companies in the process industry to better plan, better monitor, and better execute in their business.

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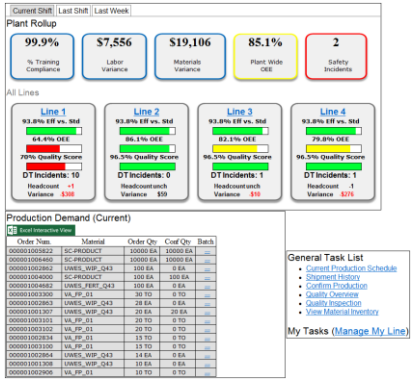
Plant Performance Management

Solution Overview

Plant Performance Management

- Capabilities
- Benefits
- SAP Innovations

Plant performance management provides real-time data collection and visibility into mine and processing operations and the ability to define and calculate local metrics for measuring operational performance.



38%

Lower raw material and WIP inventory where KPIs can be monitored, measured, analyzed, and controlled easily and automatically

Source: SAP Performance Benchmarking

When operations managers receive real-time alerts about operational issues or missed performance thresholds, they can react in real time to adjust local production planning and execution. Lack of visibility can lead to over- and under-correction of a problem, which can cause operational inefficiencies.

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Global Visibility to Plant Performance

Solution Overview

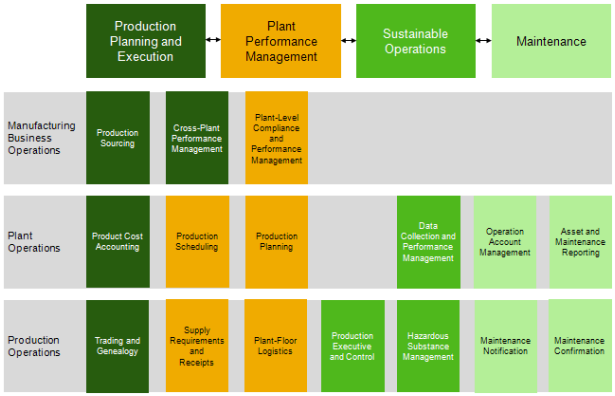
Plant Performance Management

Capabilities

Benefits

SAP Innovations

SAP software provides plant-level visibility to local execution across multiple, disparate plant systems. This helps your company measure operational performance, quickly react with necessary operational adjustments, and close the loop between its global, enterprise strategy and its local plants' execution.



11%

Higher production plan adherence for process organizations where equipment's status and usage are tracked in real time

Source: SAP Performance Benchmarking

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Reducing Costs While Maximizing Utilization

Solution Overview

Plant Performance Management

Capabilities

Benefits

SAP Innovations

You can eliminate wasteful activities while maximizing resource utilization. Do it by using integrated, standardized practices to optimally plan and schedule production.

21%

Lower FTE costs in organizations where KPI exceptions can be quickly understood and used to pinpoint root causes of problems

Source: SAP Performance Benchmarking

SAP software integrates knowledge and disparate software solutions by reporting live data and passing it in a generic way to other systems. This enables operational organizations to quickly connect and integrate a wide range of manufacturing systems for reporting and system collaboration.

For the business, this means communication and data sharing in near real time to resolve operational issues.

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Innovations for Plant Performance Management

Solution Overview

Plant Performance Management

Capabilities

Benefits

SAP Innovations

The SAP Manufacturing Integration and Intelligence application gives an enterprise context to manufacturing systems.

31%

Lower inventory where KPIs can be monitored, measured, analyzed and controlled easily and automatically

Source: SAP Performance Benchmarking

Visibility into plant performance data is now easier with the new key performance indicator (KPI) framework and plant information catalog functionality that makes your data readily accessible.

The same data that exists locally is reported centrally so that you have a single version of the truth.

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Sustainable Operations

Solution Overview

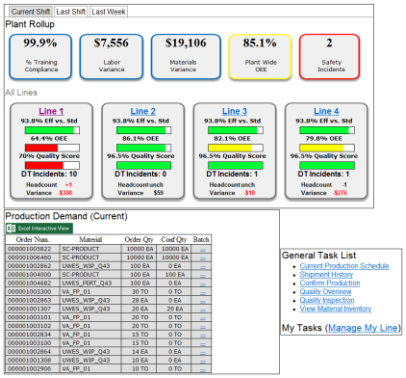
Sustainable Operations

Capabilities

Benefits

SAP Innovations

Integrated SAP software provides the continuous, in-process control that process manufacturers need for sustainable execution of batch-managed materials.



11%

Higher equipment effectiveness for process manufacturers when the quality system supports root cause analysis and advanced product quality planning

Source: SAP Performance Benchmarking

Built-in batch reports on the lifecycle of a batch and its quantities support product traceability. Receipt management functionality enables the creation and management of receipts and process instruction sheets, which production operators can use to meet product quality standards.

And the automated transfer of production results – along with real-time updates on production KPIs – enhances decision making at all levels.

The results include consistent product quality across batches, quick response to changes, and optimal use of production assets.

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Automate Production Execution

Solution Overview

Sustainable Operations

Capabilities

Benefits

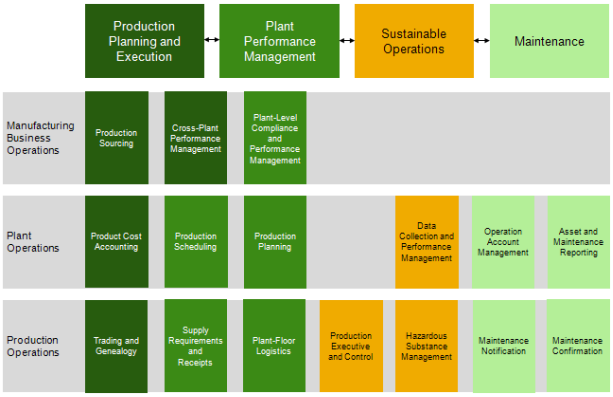
SAP Innovations

SAP software enables the automated delivery of electronic work instructions and collection of production and resource information on the shop floor.

Product record traceability and accountability are available to facilitate compliance.

Companies can access bottleneck information from the shop floor in real time.

Quality controls embedded in the production process help ensure good first-pass yield rates.



32%

Lower inventory where control of processes is through pull-based production schedules rather than shop orders

Source: SAP Performance Benchmarking

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Increase Performance Through Integration

Solution Overview

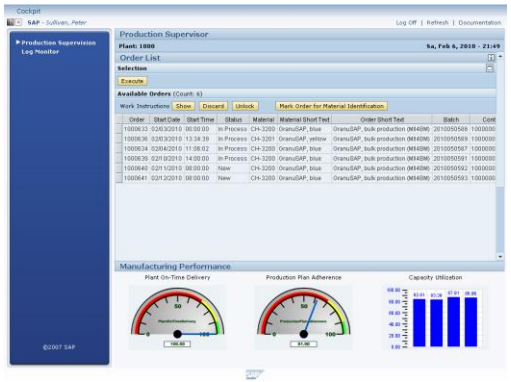
Sustainable Operations

Capabilities

Benefits

SAP Innovations

Integration of manufacturing controls with industry standards delivers higher customer satisfaction and confidence in product quality while reducing costs.



Through production control you can increase your throughput, have predictable and shorter cycle times, and lower work in process. With automated data collection from plant floor activities, you can build and maintain complete as-built records to support product traceability and genealogy. With integrated and embedded quality and compliance controls in the production process, you can manage exceptions and address nonconformance through corrective and preventive actions.

With integration to manufacturing execution processes and real-time data from the plant floor that is available anywhere in the entire enterprise, you can achieve higher manufacturing efficiency. The ability to collect real-time manufacturing data provides you with increased manufacturing visibility and a continuous loop of information throughout the product lifecycle..

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Innovations for Sustainable Operations

Solution Overview

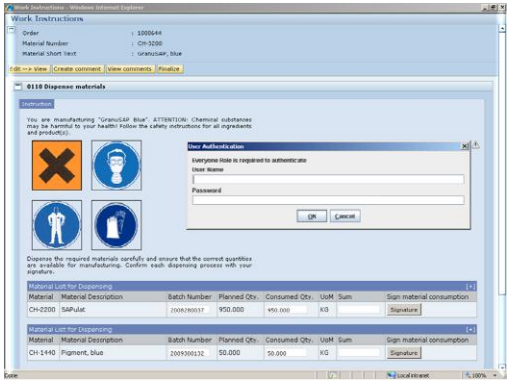
Sustainable Operations

Capabilities

Benefits

SAP Innovations

SAP innovations help manufacturers adapt rapidly to changing conditions, enhance productivity, and ensure sustainability.



48%

Of organizations foresee a need for having predictive modeling and complex optimization techniques on Big Data analysis

Source: SAP Performance Benchmarking

The plug-and-play connectivity to plant applications and automation systems in the SAP Manufacturing Integration and Intelligence application enables perfect integration from “top floor to shop floor.” User interfaces specifically tailored to worker needs in each industry enhance productivity. With the SAP HANA platform, users can analyze huge volumes of data in real time.

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Mobile apps from SAP provide employees with access to critical intelligence anytime, anywhere. Analytics solutions from SAP deliver actionable insight for your business. SAP has been an innovation leader for 40 years.

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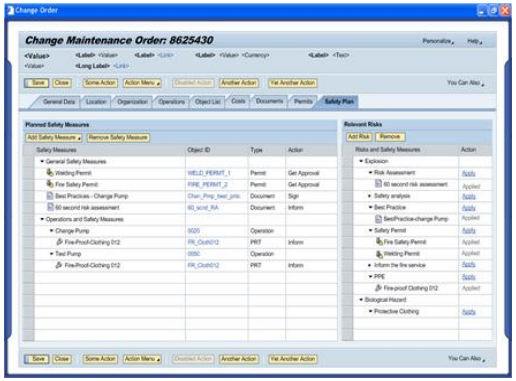
Asset Operations and Maintenance

Solution Overview

Asset Operations and Maintenance

- Capabilities
- Benefits
- SAP Innovations

Solutions for operations and maintenance from SAP support optimization of maintenance execution. You can minimize breakdowns by efficiently executing work orders while safely conducting maintenance.



11%

Higher equipment effectiveness for organizations that have a quality system in place to support all quality management capabilities

Source: SAP Performance Benchmarking

SAP software supports clear procedure development, makes resource availability visible, and provides access to relevant information at every step of execution. All this facilitates planning, doing, closing, and checking history of equipment reliability, asset usage, and maintenance processes.

You can develop visual work instructions to clarify procedures, promote safety information, and visualize the steps of each repair. You can also process integrated work clearances and permits for otherwise restricted areas.

Using mobile apps from SAP, you can access, transfer, complete, and manage assigned work orders on the go.

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Optimizing Maintenance Execution

Solution Overview

Asset Operations and Maintenance

Capabilities

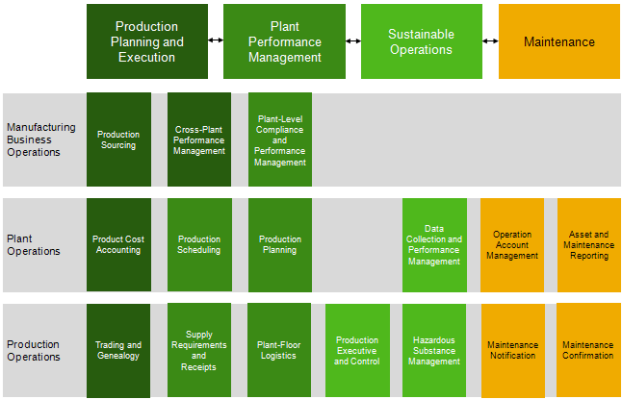
Benefits

SAP Innovations

How do you make sure your assets are up and running?

Schedule and Plan

- Define your maintenance activities.
- Outline the time to do the work.
- Select the proper person for the job.
- Make the necessary tools available.
- Compile task lists and associated documents.



11%

Higher asset productivity where root cause analysis is carried out for reactive maintenance issues and addressed proactively for the future

Source: SAP Performance Benchmarking

Utilize Asset Viewer

Technicians can use the asset viewer in SAP software to search and find asset-related information quickly and easily.

Clarify Safety Procedures

Provide clear safety procedures for all repair activities based on predefined safety plans outlined on a job card. If technicians need special permits to enter an asset environment, they are integrated into the process and tracked by the system.

Keep Maintenance History

Maintenance technicians should be able to instantly access the complete maintenance history of an asset to track what has already been done.

Provide Visualized Information and Documentation

This documentation gives maintenance technicians the information they need to make informed and timely decisions.

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Minimizing Asset Downtime

Solution Overview

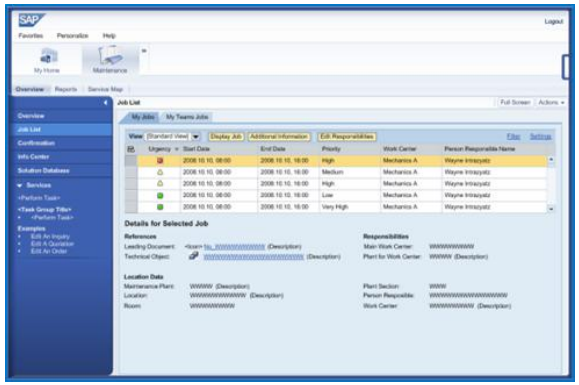
Asset Operations and Maintenance

Capabilities

Benefits

SAP Innovations

Usage of assets improves because they become available when needed. Resource hours and material requirements occur as planned. Clear, proven maintenance processes reduce repair time and work backlog.



Increase your usage of maintenance resources through optimized processes and ready access to relevant information during the performance of maintenance tasks.

Reduce unplanned downtime and outages because of the improved operating equipment efficiency that results from optimized asset maintenance processes.

Help minimize equipment breakdowns and maximize mean time between failures.

Reduce mean time to repair or replace by increasing equipment reliability. Implement more efficient maintenance processes.

Use up-to-date visual information to help increase efficiency of technicians.

Facilitate maintenance staff safety by tracking and controlling permit-to-work processes.

Reduce environment, health, and safety penalties and fines by integrating job execution documentation and safety standards for easier compliance.

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Solution Overview

Asset Operations and Maintenance

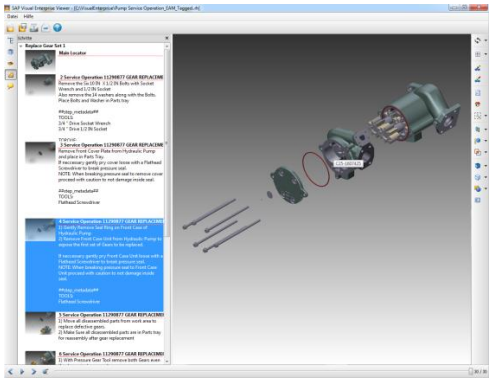
Capabilities

Benefits

SAP Innovations

Improving Technician Effectiveness with Visual Work Instructions

Visual enterprise models use 3-D animation and other visual work instructions to illustrate asset repairs step by step.



Visual Work Instructions

The integration of 3-D models showing step-by-step instructions of a repair procedure using visual enterprise applications from SAP can dramatically improve technician effectiveness.

Visual work instructions can accelerate the repair process and improve productivity while minimizing asset downtime, documentation time, and publishing costs.

Visual work instructions serve as a way to store and access the knowledge of older, experienced technicians for training younger ones.

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Manufacturing Value Map

Solution Overview

Production Planning/Execution

Plant Performance Management

Sustainable Operations

Operations and Maintenance

Efficient Manufacturing Operations

Why SAP?

Efficient Manufacturing for Process	Production Planning and Execution	Plant Performance Management	Sustainable Operations	Asset Operations and Maintenance
Manufacturing Visibility and Performance	Plant Performance Management	Operations Monitoring	Continuous Improvement Management	Asset Visibility and Performance
Outsourced Manufacturing	Collaborative Manufacturing	External Processing	Subcontracting Core	

Efficient manufacturing operations for process industries enable highly efficient processes through smooth integration.

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Why SAP?

Solution Overview

Production Planning/Execution

Plant Performance Management

Sustainable Operations

Operations and Maintenance

Efficient Manufacturing Operations

Why SAP?

SAP Business Suite software and manufacturing solutions help companies align operations with corporate objectives. They synchronize manufacturing processes with business processes, achieve continuous improvement, and optimize IT investments.

SAP software provides:

- A comprehensive portfolio of closed-loop processes across planning, execution, and asset management
- Low total cost of ownership with native integration that reduces integration costs over both the short term and the long term
- Adaptability and configurability to leverage existing plant investments
- Comprehensive solutions that support any manufacturing style
- Fast time to value that has been demonstrated through the strong network of SAP customers
- The power of Big Data, cloud computing, mobile devices, and intuitive analytics to align your processes across the supply chain

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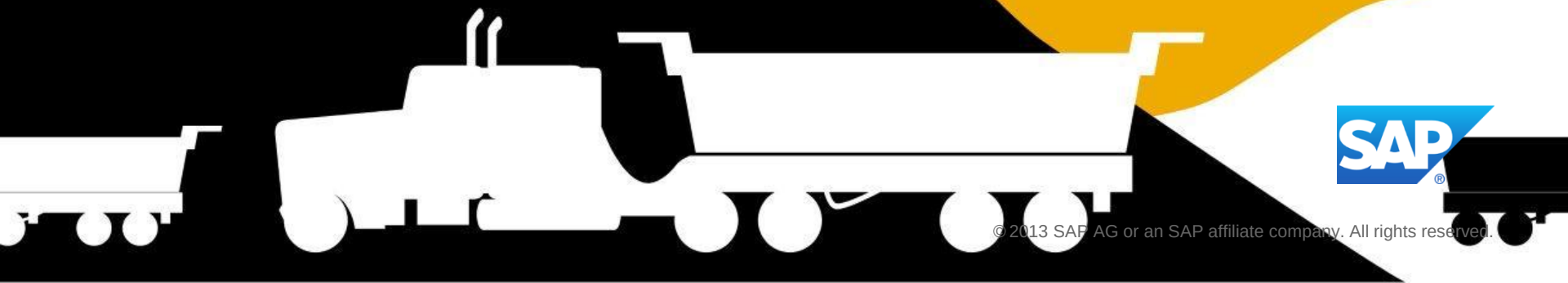
http://scn.sap.com/community/manufacturing



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