

Business Transformation in the Era of Al-SAP Innovations for Mining & Metals

Vimal Gaba Global Head Mining & Metals, IBU Process Industries and Natural Resources, SAP



Industry trends

- SAP Strategy driving business transformation
- Solutions & innovation examples with AI
- Summary

Mining & Metals today

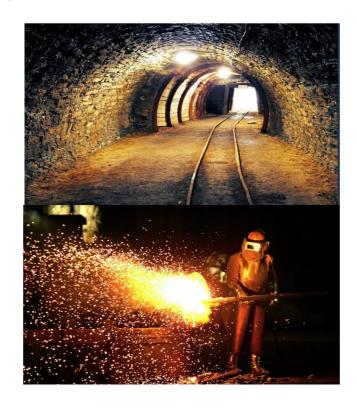
Driving factors shaping the industry for future

Growth (consolidation)

- Demand levers, Portfolio, M&A drivers.
- Prices neutrality, Ore quality
- Capital investments & lead times
- Productivity & Next gen talent

Supply Chains (reshaped)

- Disruptions & slowdown
- Energy transition & differentiation
- Geopolitics & trade policies
- Collaboration models, partnerships



Digital & innovations (anchor)

- Artificial intelligence
- Cloud, Data management framework,
- Cybersecurity
- Digital to next level,

Sustainability (accelerating)

- Climate & ESG, Purpose
- Decarbonization & Green investments
- Growth vs regulatory policy
- License to operate, Auditability

Energy Transition (crucial)

- Securing strategic mineral sources
- Midstream & downstream interests
- Project completion & commercial risks
- OEM race for critical minerals

Mining & Metals today

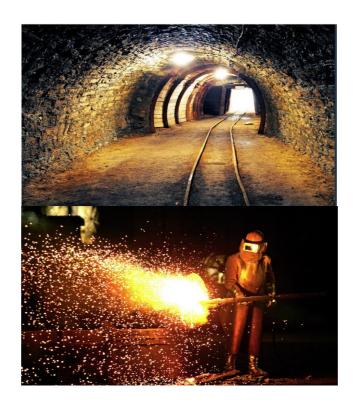
Industry themes & Outlook

Focus on Productivity

- Asset performance & unlock value
- Cost & Operations productivity
- Data driven insights
- Managing Talent & workforce

Resilience in supply chain

- Synchronized & Integrated planning
- Tracking & Traceability
- Logistics end to end
- De-risking & cost structures



Sustainability at the core

- Decarbonization investments
- Sustainability management & tracking
- Global / local standards
- Safety & health

Business models & boundaries

- Customer Channels (B2X)
- Collaboration & data exchange
- Networked processes
- Circularity & Recycling

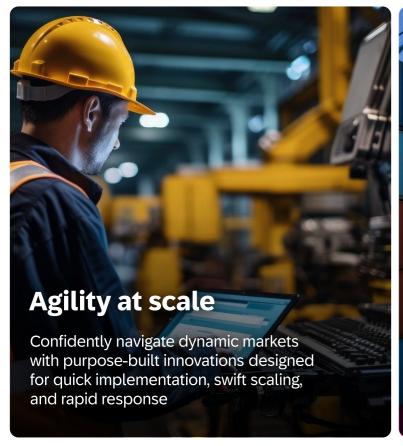
Technology led transformation

- Harness the Artificial intelligence Capabilities
- Productivity & Agility in business processes
- Cloud & Cybersecurity
- Digital to next level

- Industry trends
- SAP Strategy driving business transformation with AI
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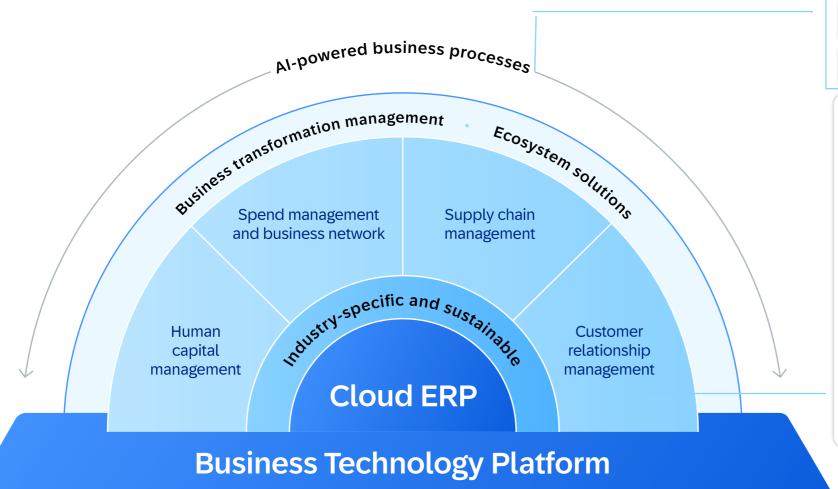
Our vision

We bring out the best in every business









SAP Joule

Al Services

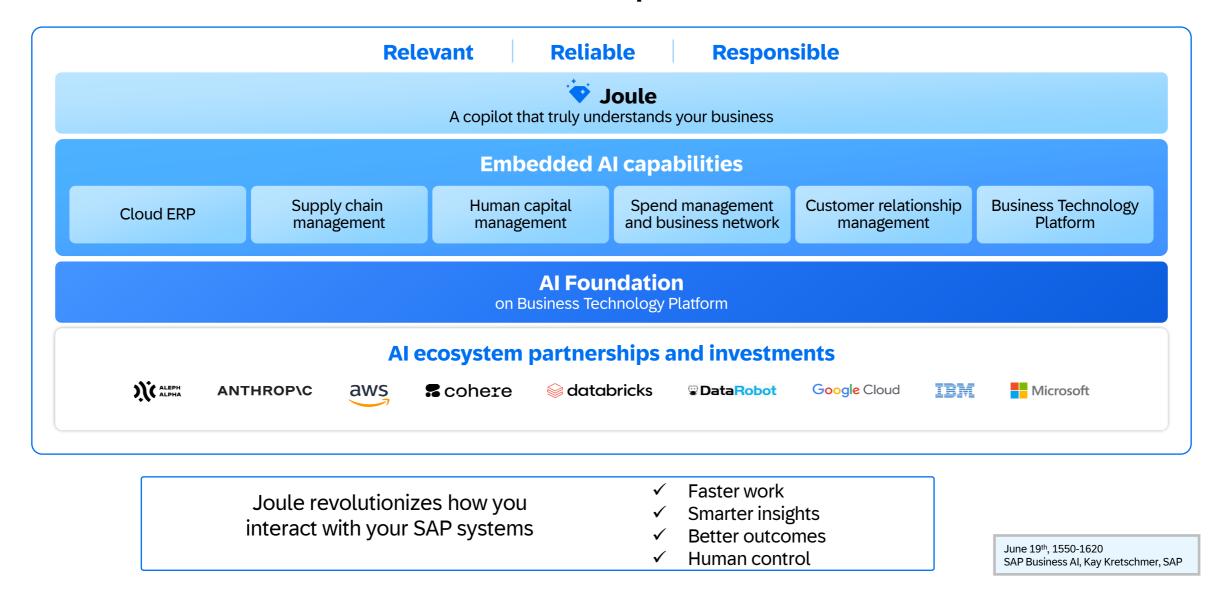
Generative Management

Mining & Metals topics

- Intelligent CX with AI
- Integrated product modelling
- Supply chain & order promise
- Intelligent asset management
- Smart factory/mining & Visual AI
- Sustainability & ESG
- Total workforce
- Business Networks

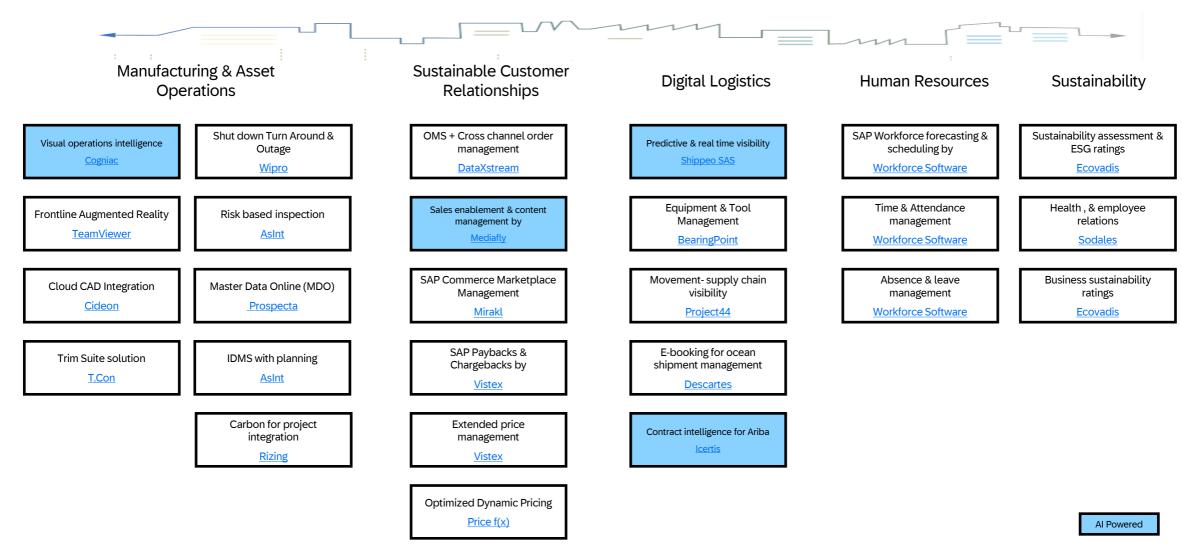
June 19th, 1710-1730 PM, Keynote Accelerating digital journey to Cloud, Chetan Trivedi. CIO Vedanta Resources

Business AI is embedded across the SAP portfolio



Ecosystem & Industry partners solutions examples

In Mining & Metals



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SAP Intelligent CX solutions to support metals industry



Deliver sales excellence

- ✓ B2B customer engagement
- ✓ Intelligent sales
- ✓ Streamline Lead-to-Cash process
- Dynamic pricing
- Engaging Experience for Customers
- Configurable products and solutions



Adopt digital customer experience

- ✓ Unified customer profile
- ✓ Direct digital sales to customers
- Customer self-service portal
- ✓ Digital indirect sales channels
- ✓ Omnichannel customer service
- ✓ Auctions for mining commodities



Pivot to new business models

- ✓ Products and services marketplace
- ✓ Outcome- & subscription based services
- Selling bundles and value-added services
- Supply chain transparency and traceability

Come together with S4, BTP, AI & Partner solutions

- Use past information and AI algorithm to predict opportunity timing and likelihood of success.
- Score customers based on engagement based on AI based "hug rank"

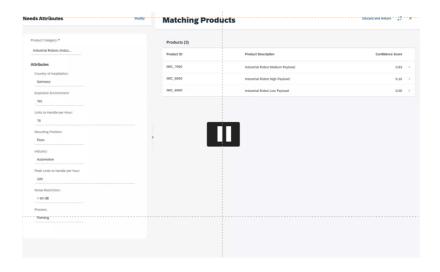
- Offer relevant recommendations based on customer behavior, purchase history, and browsing patterns
- Segment customers into a loyalty program and offer them exclusive discounts and promotions
- Predict and identify segments of customers that are at high risk to churn act upon it across all touchpoints.
- ✓ AI is leveraged to prioritize cases based on importance as well as customer sentiment.

June 19th, 1440-1510 Intelligent Lead to Cash, Liane Geber, SAP

SAP Intelligent Product Recommendation

Reimagine the customer experience for complex configurable products

- Digital sales assistant that leverages machine learning to streamline the quotation process and e-commerce customer experience for configurable products
- Provides AI based recommendation of optimal products and configurations to meet the customer's needs along with ML based prediction of lead time, price, CO2 footprint, etc.
- Out of the box integration with S/4HANA, SAP CPQ, SAP Commerce and a dynamically generated run time UI reduces time and effort to implement the solution



Purpose built machine learning application – No data scientist required by customer

Use of advanced ML models to reduce the effort required to maintain complex rules and provide insights that rules alone cannot offer





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Integrated product modelling for complex metal products

Driving Customer Centricity with seamless processes

Advanced Variant Configuration

- Support of multi level scenario for configurable materials
- Engineer-to-order for configured products
- aATP product allocation with VC Characteristic

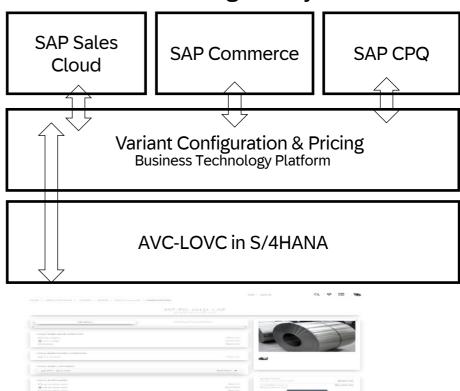
CPQ

- Connected omni-channel quote-cash
- Single shared source of product, configuration, and pricing data with back office integration- S/4HANA, VC /AVC, CPQ, Commerce Cloud

Configuration & Pricing Service-

- One Configuration Service on SAP BTP Consumer does not need to know whether it is a VC or AVC model
- Same dependency processing by Configuration Service and S/4HANA backend for AVC models – no deltas

Model once configure anywhere



June 20th , 1500-1530 Transforming to customer centric digital platform, Renuka Kulkarni, AM/NS India

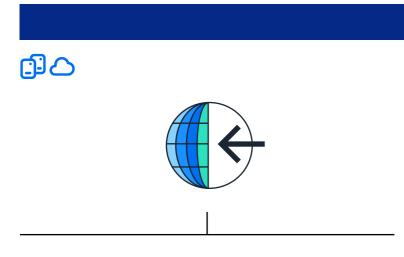


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SAP Supply Chain Planning Platform

Connect strategic and operational planning with real-time visibility and execution



Execute

SAP S/4HANA

Productionn planning and scheduling, order promising (aATP) and MRP

Create a feasible master production schedule and rough cut capacity plan to feed manufacturing and production planning and scheduling



Plan

Digital Business Planning

SAP Integrated Business Planning (IBP) for Supply Chain

S&OP, Demand, Response & Supply, Inventory, Control Tower, DDMRP

- Synchronized Planning for Production
- Digital Twin of the entire supply chain
- Predictive and Prescriptive Decision Support
- Real-time scenarios and Intelligent Visibility
- Impact Analysis & Optimization
- · MRO inventory planning

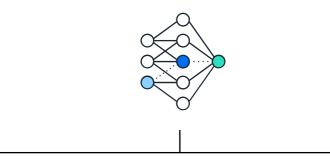


Innovate

SAP Business AI

Leverage AI technology to improve forecast accuracy, user experience, master data quality & manage supply chain risk





Collaborate

SAP Business Network

High scalability with access to trading partners (including suppliers, logistics providers, and customers) for collaborative planning and execution

SAP Analytics Cloud (SAC)

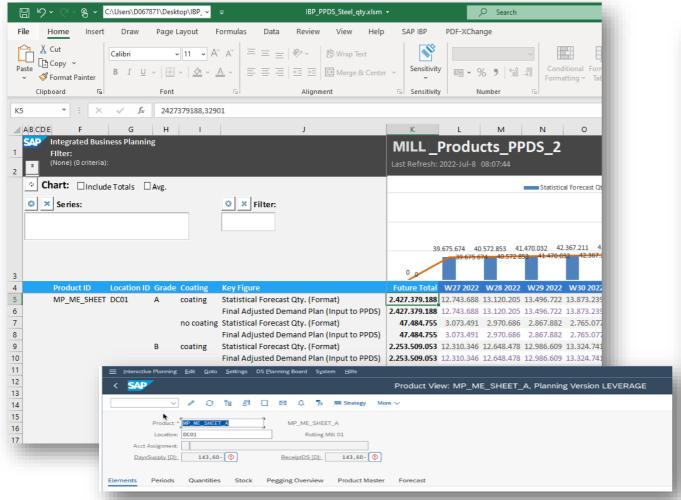
Financial planning, steering and financial impact analysis on enterprise level

June 19th, 1515-1545 SAP DSC strategy: Achim Rink, PM, PPDS

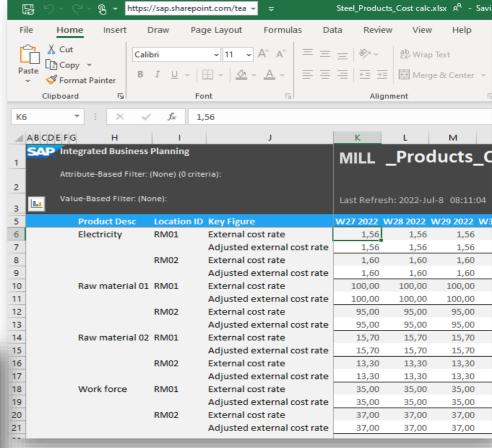
SAP Digital Supply Chain Planning - SAP IBP

Scenarios for Integrated Supply Chain Planning for Configured Make-to-Order

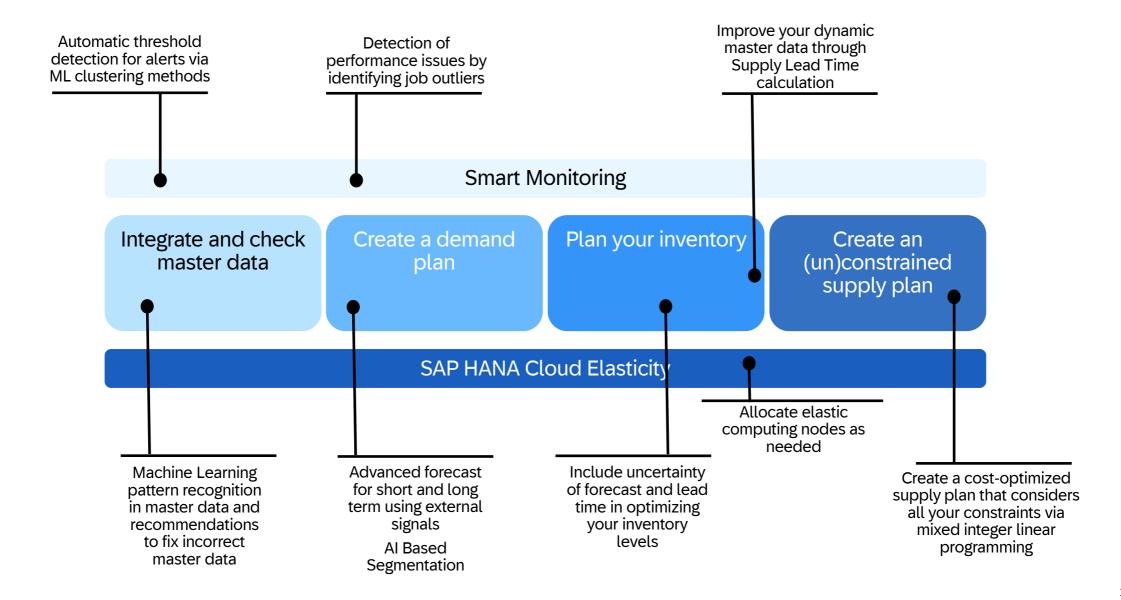
Planning on Attribute Level with Planning Variant



Cost Calculation and **Profitability Simulation** (e.g. with energy and raw prices)



Business AI embedded in SAP IBP



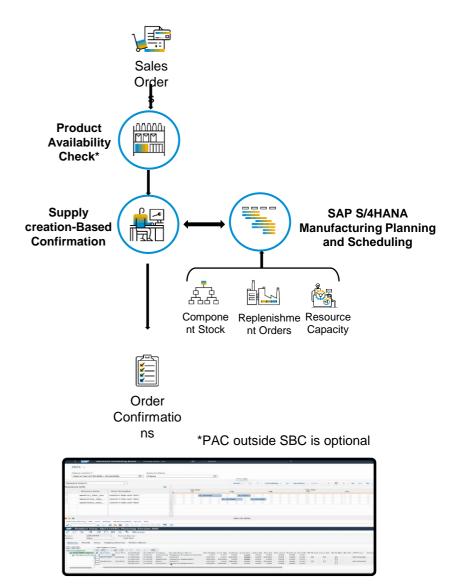
Confirm orders based on manufacturing constraints with aATP

What the Business Needs:

- Provide order commitment dates in real time to customers for products in make-to-order(MTO) / assemble-to-order(ATO) / Configure-to-Order scenario.
- Consider manufacturing capacity and raw material availability constraints during order confirmation.
- > (re)Schedule planned orders on critical resources to fulfill demands during order creation/change.

Supply creation-Based Confirmation integrates order promising with manufacturing, to provide accurate confirmation dates in real time, while creating the necessary supplies, considering manufacturing constraints.

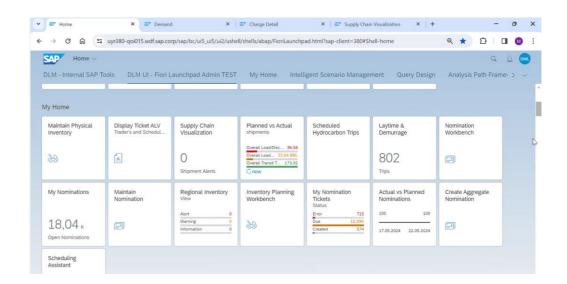
- ✓ Flexibility to decide where the availability check to be carried out -Production Planning-Based Availability Check (PPAC) or Product Availability Check (PAC) with supply creation.
- Support of Product Allocation check prior to and after Supply creation-Based Confirmation.
- ✓ Support Characteristics Dependent Planning & Block Planning.
- ✓ Check against both time continuous and bucket-oriented capacity

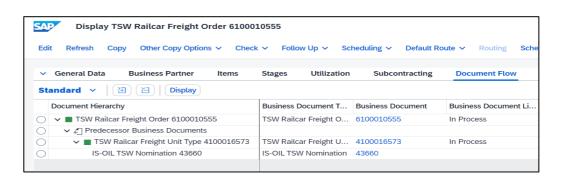


SAP Transportation Management based Freight (Shipment) Costing integration

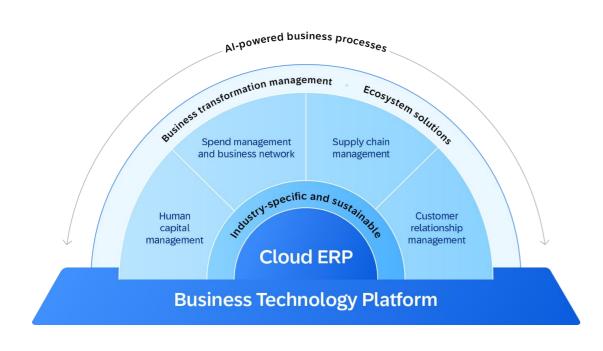
Key Feature with TSW / Oil & Gas / Mining

- Integration of TSW nomination/ actualization with TM for freight costing
- Integration of TD shipment/ Load & Delivery confirmation with TM for freight costing
- Utilization of TM standard process flow: FU (via FU building rule) => FOR/ FB
 => FSD
- MD Mapping: TSW locations, TD transportation connection points, vehicle type, event type
- TM integration relevance at TSW movement scenario level, TD bulk shipment type level
- TSW integration in planning and execution
- TD integration at load or delivery confirmation (config.)
- Enhancement of Doc flow in TM and IS-Oil
- Bi-directional navigation between IS-Oil and TM objects
- Integration Monitoring and reprocessing
- Integration validation in TSW/TD for missing customizing, objects mapping, pegging, etc.





June 19th, 1135-1205 Transforming Steel logistics with SAP TM, Joan Ral Gene, Celsa Group

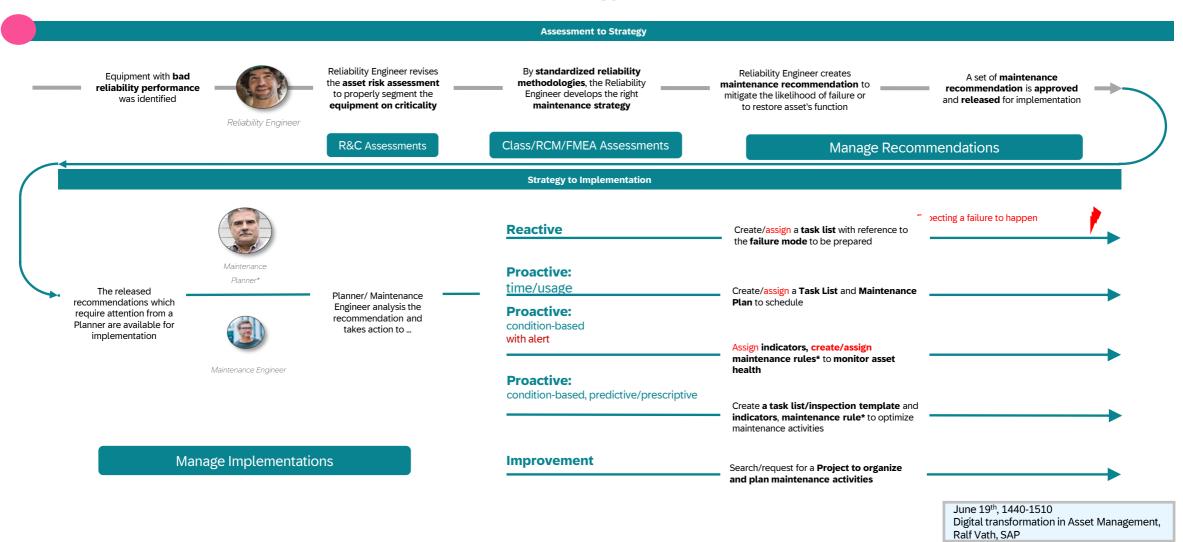


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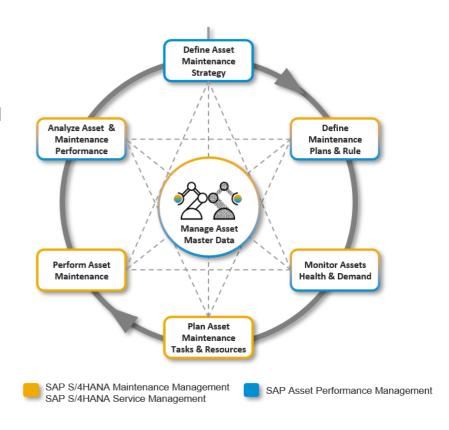
Intelligent Asset Management (convergence of EAM & APM)

E2E Process example: Define Maintenance Strategy & Set Maintenance Plans, Task Lists, Rules



SAP Asset Performance Management (APM)

- Risk & Reliability Management: Assess risk & critically of the equipment with user-friendly templates & UI. Apply Strategy, RCM, FMEA & other tools to understand equipment functions, functional failure, modes etc..
- Recommendation Management: Determine maintenance recommendations based on risk/criticality, functions, failure modes etc.
- Implementation Management: Implement approved recommendations by linking maintenance objects such as Rules, Task List and Maintenance Plan to drive optimal asset maintenance.
- Rule Management: Configure rules based on maintenance recommendations using strategies eg risk, condition-based, predictive etc. Generate alerts, manual or automated notifications
- Al-based Predictive Maintenance*: Apply AI (Artificial Intelligence) to determine asset remaining useful life, predictive failures, detect anomalies, and prescribe recommendations.
- Performance Management: Blend asset reliability, asset health (including IoT), maintenance performance and financial data for analysis and decision support



Solution & Innovation Examples with Partners

Intelligent Asset Management

AsInt- Applications (Apps extending SAP IAM capabilities)

AsInt's Asset Intelligence Solutions offer various functionalities tailored to meet specific industry requirements. Here is the summary of **some key functionalities in areas of mechanical integrity** like RBI, IDMS and Thickness Monitoring



- Identify and prioritize inspection tasks based on asset criticality and risk levels.
- Proactively mitigate risks in high-consequence areas. Conduct comprehensive hazard assessments to ensure safety compliance.
- Industry accepted Inspection management App embedded within SAP
- Monitor and manage asset thickness to ensure optimal performance and safety compliance.

Industry-Partner Solutions

More Information
Visit: SAP AppStore

Partner Booth- AsInt

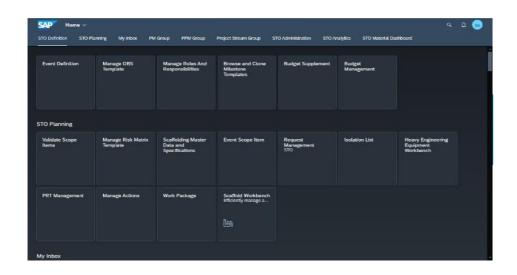
Solution & Innovation Examples with Partners

Intelligent Asset Management

WIPRO STO 360 (Apps extending SAP IAM capabilities)

SAP Cloud native solution for Plant Shutdown Turnaround and Outage Management

This is end to end solution built on SAP BTP for all those industry clients with SAP as the Enterprise Resource Planning Platform who Prepare, Plan, Execute Small -Medium-Large plant shutdowns for various maintenance activities



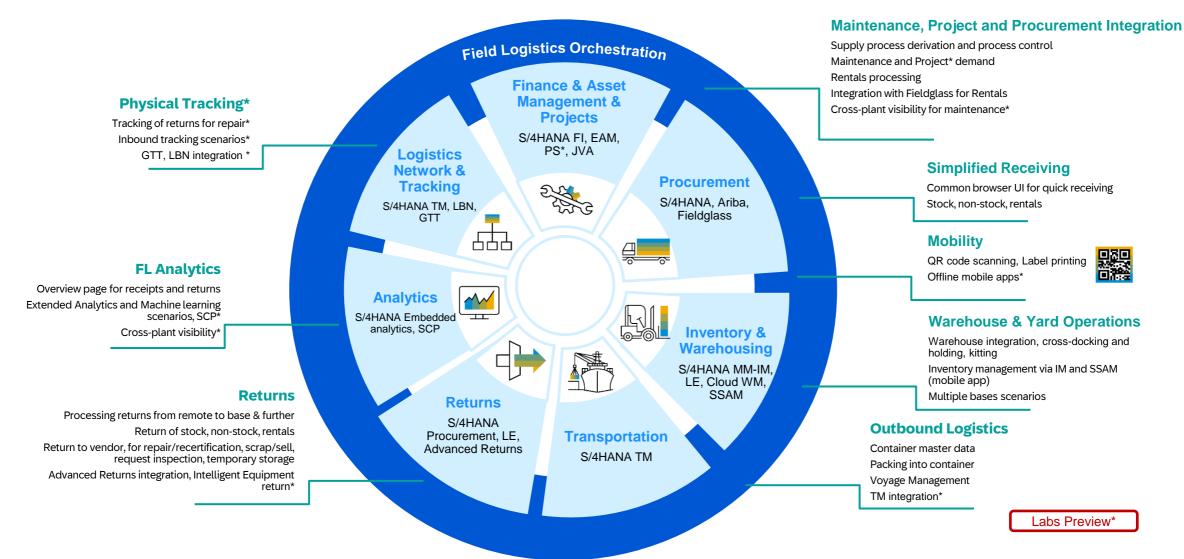
- The project management module of Shutdown-Turnaround-Outage events streamlines multiple facets of the projects there by increasing the efficiency, ensuring smoother coordination during execution, reducing delays and maximizing productivity.
- Centralizes all the maintenance tasks through work orders, enabling a comprehensive evaluation or justification to be submitted to the relevant experts for review and approval through well-defined workflows.
- A central platform for project teams to collaborate, communicate, and track the status of work packages enabling better visibility and control over project activities, facilitating efficient project planning, execution, and monitoring. It facilitates improved collaboration among stakeholders.

More Information
Visit: SAP AppStore

Industry-Partner Solutions

SAP S/4HANA Field Logistics

Addressing the needs at remote mine sites



^{*} Planned solution scope, subject to change by SAP SE or its affiliated companies at any time for any reason without notice

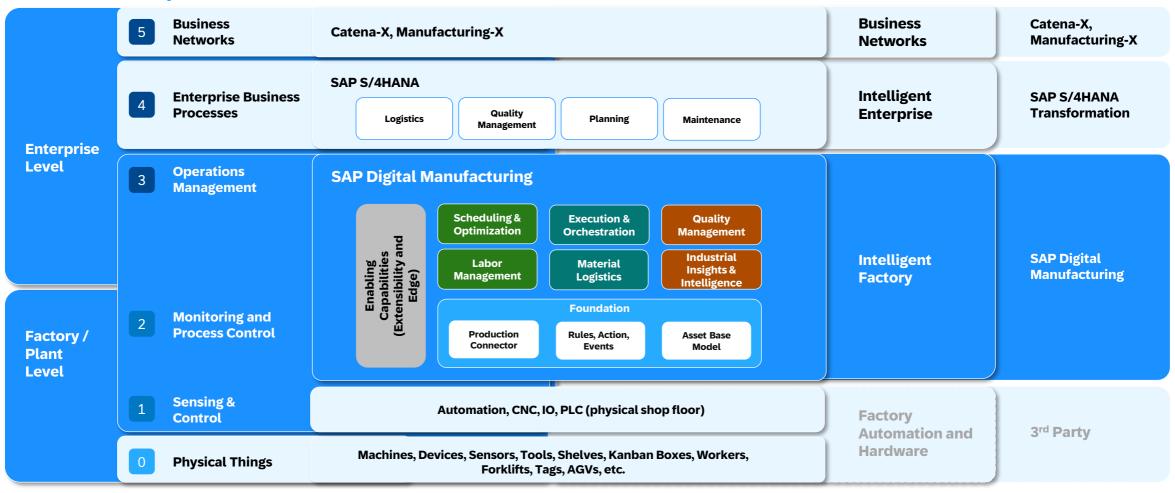


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SAP Digital Manufacturing

Solution Blueprint



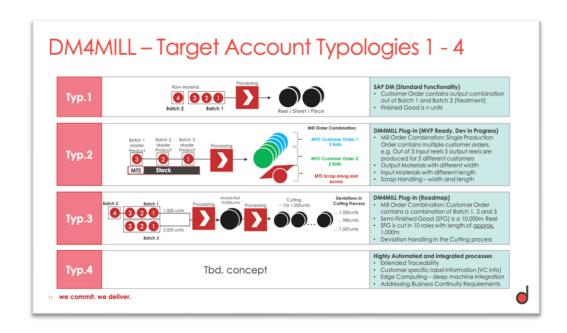
Transform SAP MII to SAP Digital Manufacturing

June 19th, 1550-1620 SAP Digital manufacturing strategy: Claudius Link ,SVP, SAP

SAP Partner Example – Delaware DM4MILL Co-Innovation

Transform SAP MII to SAP Digital Manufacturing

- SAP plans to support partners by enabling for extending DM to meet the requirements of Mill industry
- Focus is to make SAP DM ready for mill industry.
- Pilot customers can provide ideas and requirements
- Mill-specific assessment through SAP Elevate program for moving from ME / MII to DM
- Specific Information about the Partner >>> d.DM4Mill
- Customers & further partners welcome



Partner Booth Delaware

Trimming with SAP S/4HANA Public Cloud

TRIM SUITE by T.CON

TRIM SUITE

Boost efficiency, improve transparency and increase profit with optimized trim planning

User-friendly, SAP-integrated solution for trim optimization Calculates optimized cutting plans with adjustable optimization goals. Covers production of reels and sheets, as well as profiles and rods. Single-stage (simplex, duplex, multiplex aggregates) and multi-stage division processes, Quality Trim

- ✓ Production planning
- ✓ Waste optimization
- ✓ Cutting plan creation
- ✓ Optimal utilization of defective raw materials
- ✓ Cutting of profiled goods



Trim Suite solution T.Con

Partner Booth- T.Con

Resilient Supply Chain & Smart Factories

Visual AI Partnership for Manufacturing





Collaboration between







YouTube: https://www.youtube.com/watch?v=k6Bkjc12 mM

Customer Story: https://www.sap.com/about/customer-stories/smart-press-shop.html

"Having an inspection algorithm that monitors the whole operation is a huge added value for our customers "



Hendrik Rothe, **Managing Director** Smart Press Shop GmbH & Co. KG



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Building blocks towards a roadmap for Sustainability



Corporate View



Emissions



Value Chain View



Product footprint



Value chain transparency



Circularity





Costs. value drivers

Calculate, report and reduce corporate emissions

Manage risk, steer towards corporate **ESG** targets

Identify opportunities to reduce product footprints

Share data across ntier supplier network for end-to-end visibility

Serve new customers markets, track and reduce resource use

Analyze value drivers, costs impacts or **improvement** scenarios

SAP S/4 EHS HANA Environment Management

SAP solutions for Incident Management; Human Resources: Finance, etc.

SAP Sustainability Control Tower

SAP Sustainability Footprint Management

SAP Business Network

SAP Sustainability Data Exchange SAP Green Token

SAP Business Network for Material Traceability

SAP Green Ledger, Various

June 20th, 1.50PM to 2.20 PM Harnessing technology for greener tomorrow-Juliana Bruwer SAP

There is a need to link the broader business challenges to a corporate roadmap for Sustainability

Business AI in Sustainability

Automate the need to map emission factors from LCA (Life Cycle Assessment) databases to ERP materials.

Reduce time and manual effort of mapping emission factor data.

Increase confidence for non LCA-experts.

Automate Emission Factor Mapping with AI

Generate draft reports for periodic internal or external reporting based on the ESG data available in SAP Sustainability Control Tower.

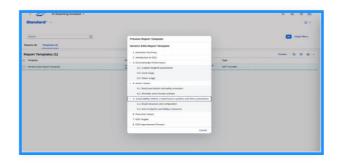
Reduce time & efforts of creating sustainability reports.

Generate ESG Reports with AI

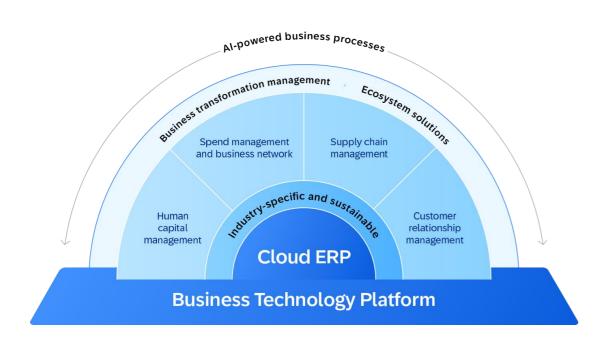
SAP Ariba Category Management: Generative AI-enabled features can assist category managers by generating recommendations in the solution's category segmentation, market dynamics, and cost structure tools.

Procurement related Accelerate category strategy development with AI









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SAP Total Workforce Management

Unified management of internal & external workers with a single view

COMBINES External Workers

and

Internal Workers to create a single, global view of entire workforce



Total Workforce Management

SAP SuccessFactors

SAP Fieldglass

- ✓ Integration into Organizational Structure (positions, org-charts, dynamic teams)
- Enable External Worker Access to Global HR Services (e.g. Learning)

Ability to connect further with:

- ✓ SAP Analytics Cloud Reporting
- ✓ SAP Work Zone central entry point that brings all SAP (and third party) solutions together





- Onboarding
- Compliance
- ✓ Time & Attendance
- ✓ Full Lifecycle Management ("Req-to-Pay")





- ✓ Onboarding
- Compliance
- Time & Attendance (for Invoicing)
- ✓ Full Lifecycle Management ("Req-to-Check")

June 20th, 11.55AM to 12.25 PM SAP Success Factors Time Management- Frans Smolder SAP

AI example with SAP SuccessFactors & SAP Fieldglass

How can I help ve

AI-powered copilot for Time Off and Clock in Clock out

Engage with conversational AI:

Time Off:

- ✓ View Holiday Calendar
- ✓ View Time Off
- ✓ View Leave Balance
- Create Time Off (Navigational)
- ✓ View Time Off Instructions (Navigation)
- √ View Team Absence (Navigational)
- ✓ Approve workflow requests

Time Tracking:

✓ Clock in and clock out

Recent Delivery 1H 2024

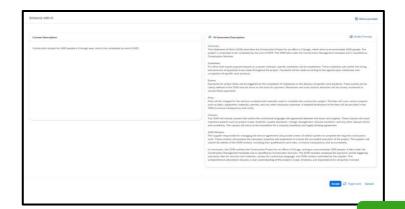
Done. Your time event has been recorded on Jan 30

Time Management | Joule – Adaptive

Experiences and AI

Al-powered SOW description

- •Lack of automation from purchasing event to trigger on/off boarding process leading to HSE and Security Risks.
- Compliance to all Policies and Procedures
- •Ensuring contractors have the right skills, certification & qualification



Available Now

Al generated description-

Create comprehensive SOW descriptions with ease in SAP Fieldglass

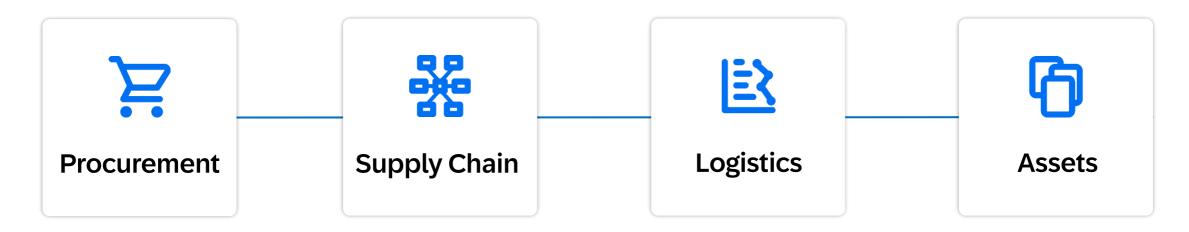


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Collaboration with Business Networks

Single platform to orchestrate processes across company boundaries



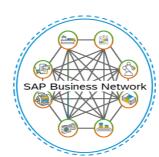
- Visibility across procurement process
- Trading partner search and directory
- Supplier discovery & order collaboration

- Visibility across E2E supply chain
- Inventory & quality
- Forecast & Inventory collaboration

- Visibility across logistics supply chain
- Freight collaboration
- Material Traceability

- 360° asset visibility
- Full asset reliability
- Collaborative maintenance & service

Connecting people, processes, and systems across partners, digitizing transactions via network and creating transparent, resilient, and sustainable supply chains



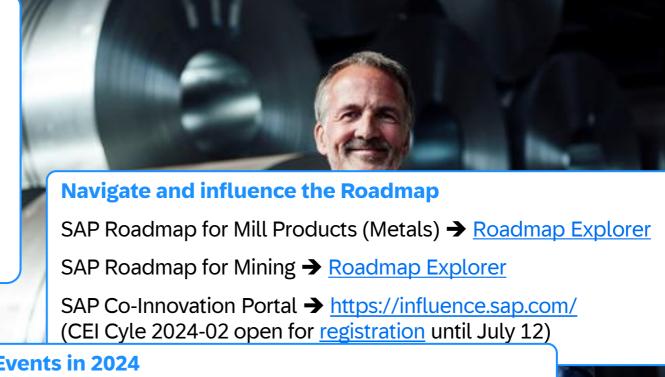
- Supply Chain Collaboration
- Freight collaboration, track & trace
- Collaborative asset maintenance
- Carbon & sustainability data

- Industry trends
- SAP Strategy driving business transformation
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- Summary

Summary – Mining and metals

Best-in-Class Solutions

- Industry focused direction
- Ongoing investments in SAP solutions with strong focus on AI technologies
- Growing partner solutions portfolio
- Various influence channels for customers
- Defined industry roadmap
- Long term commitment



More local Community Events in 2024

Q3 2024 SAP Metals Day MEE, Germany

Aug 28 SAP Innovation Day for Mining, Jakarta

Oct 14-16 ASUG Best Practices, Houston, US → 2024 ASUG Events

Oct 29-30 SAP Metals, Mining and Mill Industries (MMMI) Summit, Perth, Australia

What's in today and tomorrow The perfect place to meet the Mining & Metals community



Mining and Metals Live Customer Case Studies:

- Keynote: Accelerating Digital Transformation Journey Leveraging SAP Cloud (see Keynotes)
 Chetan Trivedi, CIO, Vedanta Resources
- CELSA Transforming Steel Logistics with SAP Transportation Management Joan Ral Gené, CIO, CELSA Group
- Glencore Zinc's Journey to S/4HANA with a Global Template Juan Fuica, Global Project Manager, Glencore
- Unlocking the Power of the Request-to-Order Automation: An Integrated Journey
 Marcelo Bittencourt Gerceski, OtC SAP Architect, ArcelorMittal Nippon Steel Calvert
 Max Jegorovcev, CEO, CLARITY
- Transforming Vale: Becoming a Data-Driven Enterprise with SAP Datasphere
 Stella Michirefe, Global IT Data & Platforms Architecture, Vale S.A.

 Marko França, Global ERP Support Vale S.A.
- Driving thyssenkrupp Rasselstein's Competitive Edge with Digital Material Passports
 Mario Kossmann, Vice President Digital Solutions, thyssenkrupp Rasselstein
- SSAB's Journey Towards Fossil-Free Steel
 Niko Korte, VP, Head of Fossil Free Business Platforms, SSAB
- Moris: How to Transform Your Business to Prepare 5 Tons of Steel in 50 Seconds Marek Majerek, Head of IT, Moris Bartłomiej Petryka, Head of Purchasing, Moris
- AM/NS India: Transforming to a modern, customer centric digital platform for competitive advantage and profitability
 Renuka Kulkarni, Senior Leader, Arcelor Mittal Nippon Steel India

Driving decarbonization in hard-to-abate industries
 (insights gained from pilot in steel and aluminium to enhance data exchange)
 Xijuan Liu, RMI

Keynotes

- How to Successfully Drive Continuous Innovation with SAP Rainer Steffl, CIO, Mondi
- Keynote: Accelerating Digital Transformation Journey Leveraging SAP Cloud Chetan Trivedi, CIO, Vedanta Resources
- Keynote: From Strategy Bottleneck to Business Differentiation Gustavo Franco, Chief Customer Officer, RHI Magnesita
- Innovate, Adapt, and Excel Unleashing Your Industry Potential with SAP
 Sven Denecken, SVP & Chief Marketing and Solutions Officer for SAP Industries and CX, SAP
- "Be water, my friend." Making Industrial Companies Move Like Bruce Lee
 Stefan Weisenberger, Global VP, Head of IBU Process Industries & Natural Resources, SAP

Panel Discussions

- Customer Panel: AI in Manufacturing Tales from the Edge
- Experiences on the road to Cloud with SAP RISE
- Panel Discussion with Industry Councils
 Emma McKay, Chairperson SAP Metals Council
 Patrick Thompson, Co-Chairperson SAP Chemicals Council, more names to be announced

Thank you.

Contact information:

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