



Extending the Intelligent Enterprise for Mill Products and Mining with Co-innovation

Stefan Weisenberger, Frank Ruland, SAP SE
May 10th, 2017

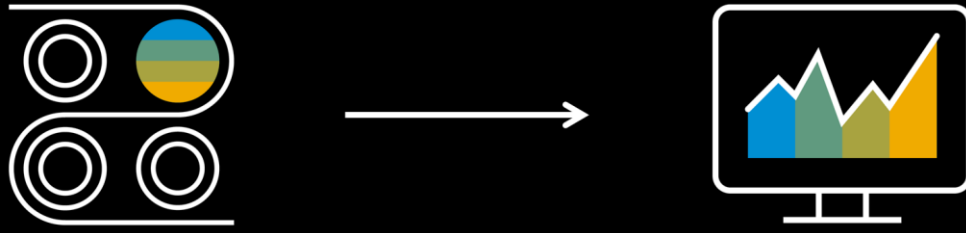
For SAP and SAP partner use only

Dynamics



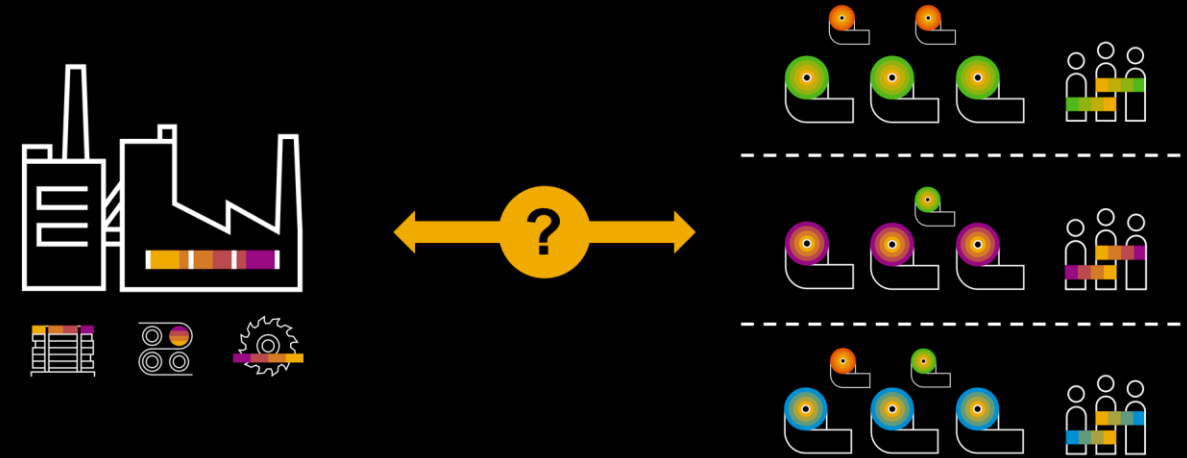
Priority 1: Innovative products at better margins

From production control to real-time profitability



Priority 2: Small lot sizes and individualization

The right product for the right customer



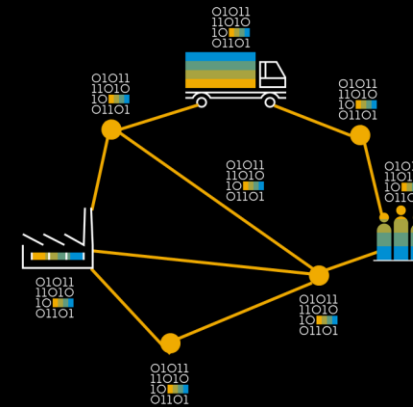
Priority 3: Customer collaboration

Real outcomes instead of just products



Priority 4: Value-added services – the art of the possible

Real-time tracking of production and logistics generates data for customer benefit



Digital trends transforming the mill and mining industry



New players enter and change business

321 Billion

Potential created value for mining and metals

68%

Of metals CEOs worry about new rivals from other industries disrupting their sector

<http://www.pwc.com/gx/en/ceo-agenda/ceo-survey/download.html>

World Economic Forum: Digital Transformation Intuitive: Mining and Metals Industry Executive Summary



Need for innovation is not debatable

87%

Of mining executives say companies that do not embrace Digital will lose their competitive position.

65%

Of enterprises are already using the Internet of Things

<https://451research.com/blog/419-today-65-of-enterprises-already-using-internet-of-things-business-value-found-in-optimizing-operations-and-reducing-risk>

Accenture Digital Mining Survey



Democratization of information is continuing

30 billion

Things will be connected by 2020

<https://www.emc.com/leadership/digital-universe/2014iview/internet-of-things.htm>

To transform metals companies, prioritize new business models and processes



1. Innovative products

Customers demand constant innovation, such as metals made from recycling material, new grades for specific characteristics such as strength, innovative coatings, and better processing capabilities.



4. Value-added services

Digitalization and interconnection of products and services create additional value. An example is to advise on the best usage of a complex product, which can drive new revenue opportunities.



2. Small lot sizes and individualization

Quick order completion and delivery of tailor-made solutions create additional value for customers.



5. Disintermediation

Companies will increasingly look up, down, and across their value chains to expand into additional markets.



3. Customer collaboration

Critical customer relationships need to be strengthened for sustaining high customer satisfaction and retention rates.

To transform mining companies, prioritize new business models and processes



1. Make mining more predictable and safer

Advanced predictive analytics and machine learning help predict failures or exceptions to support the right decision making, making mining more predictable and safer for the workforce.



2. Collaborate with customers, suppliers, and workers

Collaboration with customers, suppliers, and workers will strengthen relationships, digitalize the data exchanges, and make the business more agile, increasing profitability and digitalizing the worker.



3. Enhance operational and commercial agility

Enable commercial and operational agility through real-time decisions by bringing together IT and OT along the entire pit-to-customer process.



5. Increase productivity through automation

The mining industry will increase the level of automation to make work safer and the outcome more predictable, and increase productivity.

High performance delivers substantial rewards

SAP performance benchmarking shows that, compared with average performers, top performers in mill products achieve:

+30% **Growth in market share** by integrating offers across traditional and digital marketing channels

+17% **Return on assets** where asset management systems are fully integrated

-33% **Lead time** for order fulfillment when supply plans align with demand

+30% **Service level** creating greater customer satisfaction and profitability

+11% **Overall equipment effectiveness** on assets where equipment use is tracked in real time

High performance delivers substantial rewards

SAP Performance Benchmarking shows that, compared with average performers, top performers in mining achieve:

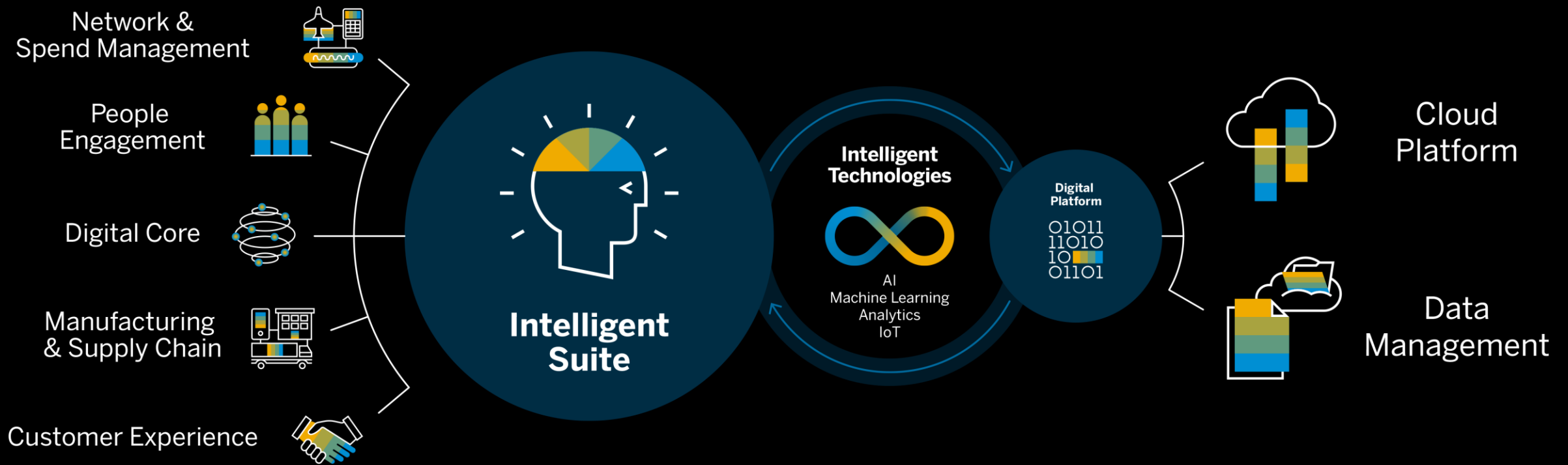
62% **Reduction in equipment outages** with reliability-based maintenance procedures and tools that increase asset availability

60% **Higher order compliance** with suppliers and terms working through the business network

41% **Lower inventory** where maintenance planning and scheduling takes into account skill levels and specific job requirements

76% **Higher margins** when financial systems provide insight into financial and operational performance

The intelligent enterprise in the experience economy



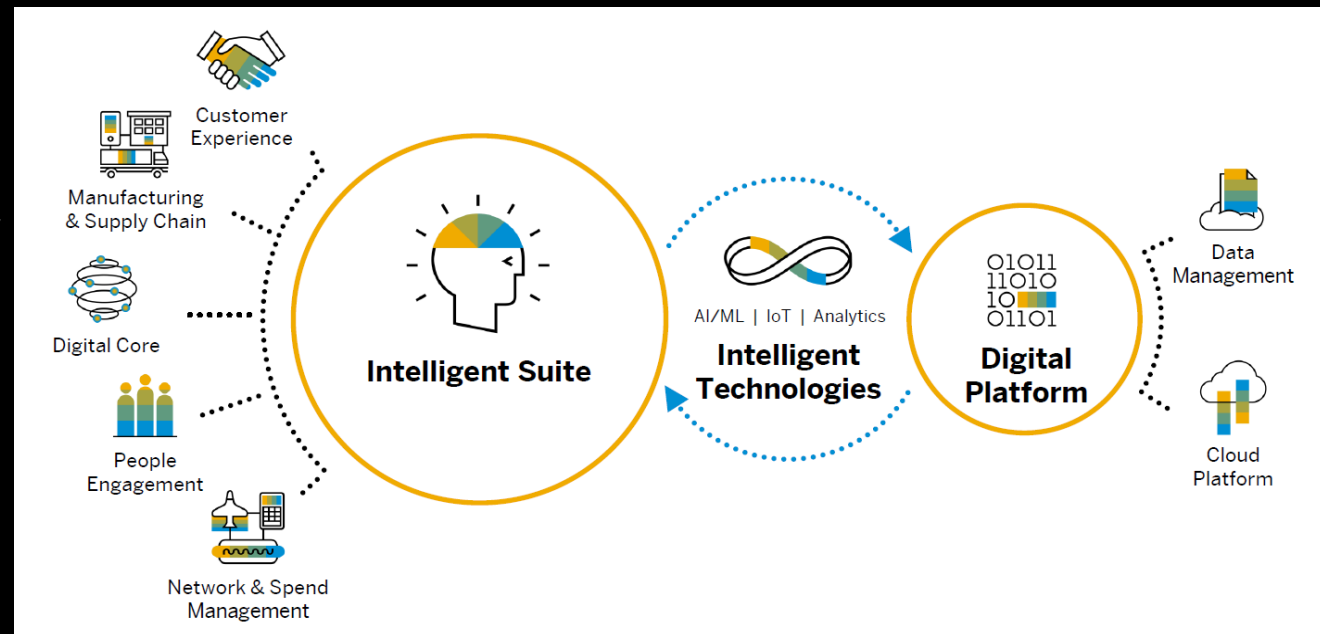
80% market standards to optimize for speed and simplicity

20% differentiation to extend and transform the business

Intelligent Suite & Platform

Advanced Order Management
Alternative Configure Price Quote
Manufacturing Execution Systems
Supply Chain Mgmt Models
Industrialized Digital Core
Industrialized Integration to 3rd Party
.....

Industrialized ML Models and Apps
Industry Analytics
...



Simple UX against standard APIs

Full blown applications on SCP with standard integration

SAP Production Configuration Services & SAP Product Configuration Intelligence

Examples

Smurfit Kappa – YouTube

Connecting Top Floor to Shop Floor
Why SAP MII Matters & Decision - Roland, Flexibel, Efficient, Supported

- It's an SAP product.
- Flexible tool set for building complete applications on common foundations.
- Business architecture (technical and/or at the shop).
- Control room, visualizing many lines.
- Integration with other SAP Products.
- Templates by SAP & 3rd parties e.g. Batch Manufacturing, OTR.
- Monitor our internal communication.

Great video with an overview of Smurfit's journey
Good overview of MES
Solution initially implemented by Movilitas (1st four sites)
Smurfit continues to rollout internally and prepare for future SAP digital supply chain expansion
Video outlines what they implemented, why, outlines all the integrations, business flows, etc.

<https://www.youtube.com/watch?v=FcopJ2ASvB8>

THE BEST RUN SAP

Use your data...

OPERATION MANAGEMENT SYSTEM

Home > K71 HUSIM, current dttR 06:00 - 14:00 22.10.2019

BOARD MACHINE

Machine efficiency: 96.9% (95%)
Line efficiency: 67.08% (65%)
Quality: 66.4% (64%)
OEE: 43.16% (42%)

Machine status: ● Ready to start ● Quality search ● Broken search ● Stuck search

12 © Tieto Corporation

T.CON

THE DIGITAL FUTURE | 019

1 PROCESS IMPROVEMENTS

SAP Cloud Applications

- Time-Slot Management**
 - For wastepaper deliveries
 - Controlled by quantity per day
 - Self-Service registration via mobile application
- Truck Registration**
 - Automated registration at entry by usage of plate detection with cameras
- External Storage Handling**
 - Integration of service providers
 - Applications for packing and label-printing

DIGITAL CORE

SAP HANA | SAP FIORI

LP. Solution Suite Highlights

- Print & Packaging Best Practices for S/4HANA**
Provides predefined configuration settings for core end-to-end business processes and functions.
- Pre-defined Product Structures for Sheet Fed Products**
This component for single or multiple parts products includes configurable assembly copy masters for various print and packaging product which enable a process-oriented specification of all production resources for single and multi-part products with S/4HANA standard transactions.
- LP. Technical Document Interface**
The interface exchanges specification data between S/4HANA and technical systems such as CAD-Systems for the creation of structural or graphical one-up designs and sheet layouts.

19

Our technical concept idea needed to be verified

C4C - SAP ERP Shared Usage - Project2Offer Process

Our hypothesis that we wanted to verify

We can bring in our VCPP-based specification into C4C to be able to configure our different product types incl dependencies

All our costing and pricing logics can remain in ERP (to avoid double maintenance)

At the same time, calling costing and pricing is speedy enough (returned within few seconds to C4C)

SIMPLE SAP ORDER MANAGEMENT

OMS+ IS AN SAP ORDER MANAGEMENT SYSTEM AND POINT OF SALE.

Datastream is transforming the way companies handle SAP order management. Your company is already running the most powerful ERP solution; empower your employees with DataStream's OMS+ to take your organization's sale and customer buying experience to new levels.

Supply Network Visualization (Data Model Review)

It is IBP system generated vector. Snap part 1

bizbrain technologies

TOTALLY INTEGRATED SAP / RPM OFFERING

SAP ERP Modules (S4/ECC) | **BPC** | **Lumira** | **SAP HANA Public Cloud**

HANA Integration Services, MII, PO/PI

RPM GLOBAL Mine Planning and Operational Systems

One Button Process

Call App: Create Notification

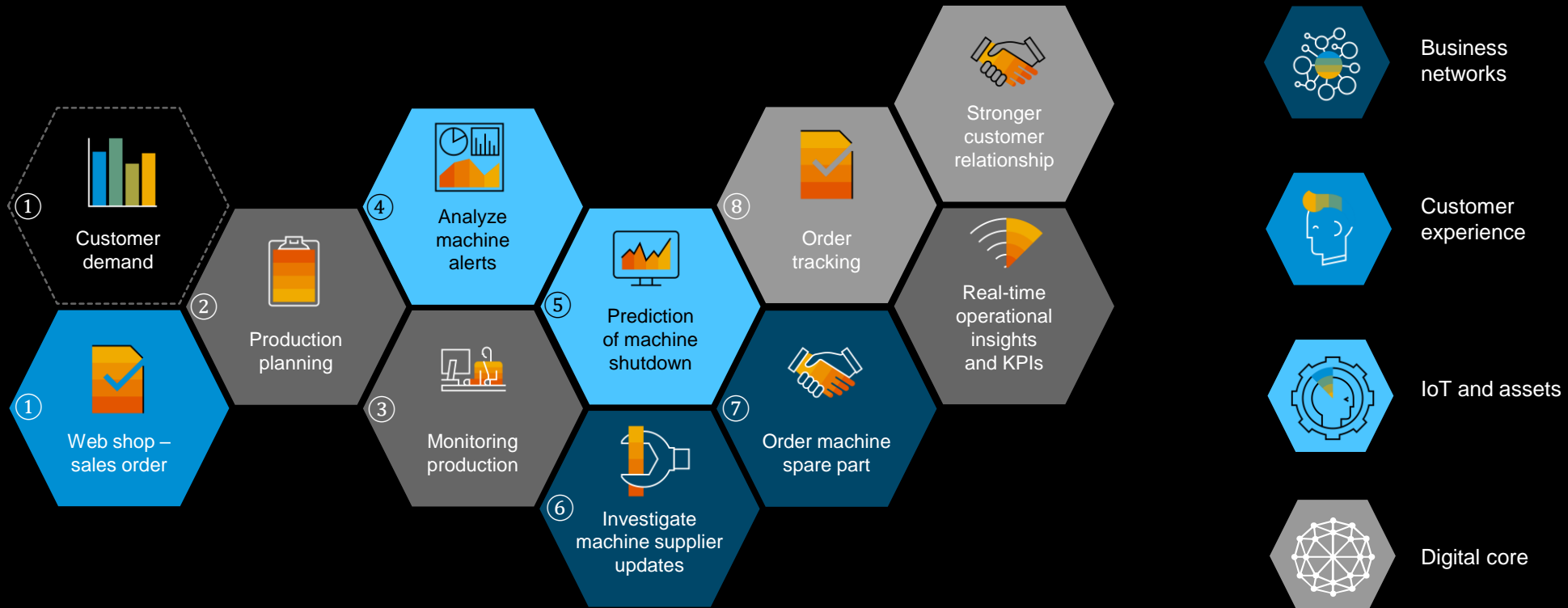
Input Parameters: FuncLoc= KAU1-00 4000; Prio=1; NotiType=11

The Bifore Company | UPM

Digital business scenario

Use sensor data to maintain assets proactively and to deliver the perfect order

Watch a video illustrating the scenario here



Digital business scenario: Real-time planning and execution lead to operational excellence



[View demo](#)

Innovative products at better margins

Simplifying Protective Packaging with SAP Hybris Solutions and SAP S/4HANA



Objectives

- Upgrade sales and customer management systems to more-effectively personalize and enhance customer experiences to increase lifetime value
- Provide proactive, relevant service to a diverse clientele
- Simplify and integrate disparate systems across departments to unify operations

Resolution

- Worked with TPC to deploy SAP S/4HANA and the SAP Hybris Cloud for Sales solution
- Completed the digital transformation project in 16 weeks

Benefits

- More-informed decision making using instant reports to the executive team that increase visibility into sales and customer support
- Enhanced agility with a simplified platform that allows real-time data sharing among sales, customer service, and business leaders
- Greater efficiency due to the elimination of duplicate data entry
- Simplified data analysis for more-effective and targeted selling

16 weeks

Implementation on schedule and within budget

360-degree

View of each customer account

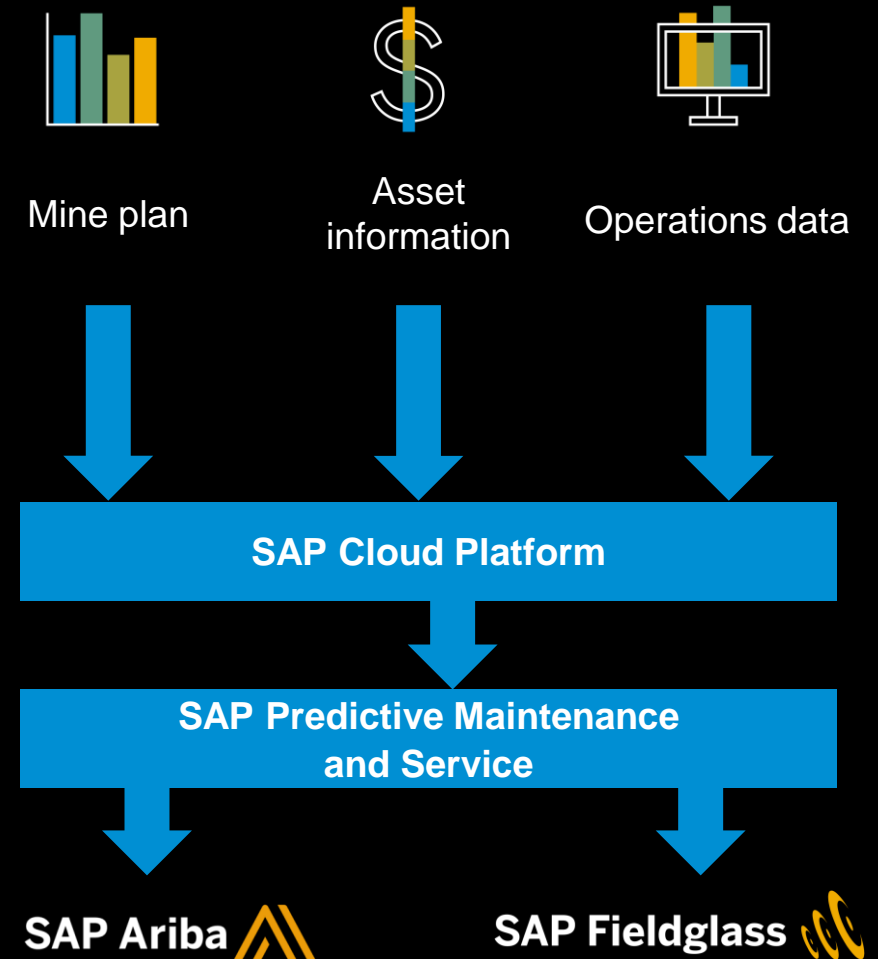
15%–20%

Expansion of the sales pipeline

Enabling higher productivity and increasing profits

SAP Cloud Platform allows mining companies to:

- Gain real-time operational insights
- Combine mine planning and financial data to enhance life-of-mine planning and simulation
- Reduce operating costs with improved connectivity and process automation
- Speed up maintenance and repair through integrated asset data, spare-parts procurement, and alignment of contingent workforce



Thank you

Stefan Weisenberger

stefan.weisenberger@sap.com

Frank Ruland

frank.ruland@sap.com