Industry Innovations with SAP Leonardo: Mill Products Industry

Stefan Soeller, Industry Business Unit Mill Products & Mining, SAP
Agenda

Digitalization in Mill Products

Mill Products Use Cases for SAP Leonardo

▪ Connected Manufacturing
▪ Connected Products
▪ Predictive Maintenance
▪ Predictive Quality
▪ Connected Fleet
▪ Precision Forestry
▪ Construction Site Logistics
What is mill products?

Forest products
- Solid wood
- Plywood
- Particle board

Mining, nonferrous metals
- Mining
- Copper
- Aluminum

Cement and concrete
- Cement
- Ready-mix concrete
- Concrete products
- Aggregates

Primary metals
- Flat steel
- Long steel
- Aluminum

Pulp and paper
- Brown paper
- Fine paper
- Hygiene

Packaging
- Paper packaging
- Plastic packaging
- Aluminum packaging
- Glass packaging

Fabricated metals, cable
- Metal service centers
- Cable
- And more

Building products
- Bathroom
- Windows
- Ceramics
- Glass
- Gypsum
- Flooring
- Roofing
- Furniture
- Insulation

Textiles
- Yarn and fibers
- Fabric
- Carpet and rugs
Digital trends transforming the mill products industry

New players enter and change business.

Need for innovation is not debatable.

Digitalization will impact all end-to-end processes.

68%
Of mill CEOs worry about new rivals from other industries disrupting their sectors.

65%
Of enterprises are already using the Internet of Things.

E-commerce = Growth
The first companies to use e-commerce to sell and distribute their mill goods have demonstrated the potential for revenue growth.

http://www.pwc.com/gx/en/ceo-agenda/ceo-survey/download.html
Technology trends enabling digital transformation

Artificial intelligence and machine learning
Helps to reduce need for human interaction / automates business processes

Cloud computing
Offers the quickest path to new business models and software upgrades

Internet of Things (IoT)
Helps create new value, such as improved customer service, product tracking, and manufacturing insights
To transform mill products companies, prioritize new business models and processes

1. Innovative products
Customers demand constant innovation, such as metals or paper made from recycling material, new products with specific characteristics such as strength, innovative coatings, and better processing capabilities.

2. Small lot sizes and individualization
Quick order completion and delivery of tailor-made solutions create additional value for customers.

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

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.

5. Disintermediation
Companies will increasingly look up, down, and across their value chains to expand into additional markets.
**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
- **<33%** Lead time for order fulfillment when supply plans align with demand
- **>11%** Overall equipment effectiveness on assets where equipment use is tracked in real time
- **>17%** Return on assets where asset management systems are fully integrated
- **>30%** Service level creating greater customer satisfaction and profitability
The bimodal architecture of the modern enterprise
A digital core and a digital innovation system

Mode 1: Digital core
- SAP S/4HANA
- SAP Hybris solutions
- SAP SuccessFactors solutions
- Concur solutions
- SAP Fieldglass solutions
- SAP Ariba solutions

Mode 2: Digital innovation
- SAP Leonardo
- IoT
- Machine learning
- Big Data
- Modern analytics
- Blockchain
- Data intelligence

Connect all parts of your business to run live with SAP S/4HANA

Tailor, integrate, and expand the core with SAP Cloud Platform

Business

Intelligence

SAP HANA

SAP Cloud Platform
Connected Manufacturing
Common system architecture in the mill product industry
Silos, delays, and complexity hinder business agility and innovation

Limited integration between levels …
- Different technologies
- Different organization and responsibilities
- Different skills and professional profiles
- Often, even different codes and standards

… results in
- Most decisions being made based on models built for approximated information and gut feeling
- A delay between the facts and their reflection in the information systems
- Detailed decisions on operations that are often only locally optimized – but not connected holistically
Industry 4.0-enabled architecture in the mill products industry

Connect manufacturing with core business processes to increase business agility

Benefits

- Reduce isolated applications
- Reduce media breaks
- Easily combine manufacturing, IoT, and core business data
- Take action in real time on data of any type and volume
- Deliver a single source of truth and real-time insight

Smart simplification from top floor to shop floor and customer to operations
Internet of Things and Industry 4.0
SAP Connected Manufacturing runs Industrial IoT with Industry 4.0 scenarios
Building products company

Connected manufacturing

Optimizing production, and reduce energy costs through real-time correlation of environmental, technical and production parameters.
Connected Products
Connected products

- Innovate through the interconnection of products and services
- Connect, monitor, and control products
- Track, trace, and respond to changing conditions

SAP Connected Goods – SAP Global Track and Trace
SAP Global Track and Trace vision:
Leverage IoT for real-time insights into your extended supply chain – multitier, end-to-end

**Connected IoT**

- Devices and automation
- Products and cargo
- Transportation resources
- Onboard units
- Services

**SAP Global Track and Trace**

- Events
- Status
- Location
- Condition

**Multitier logistics network visibility**

- Real-time inventory counting
- Food pedigree and safety
- Supply chain integrity
- Real-time planning
- Real-time maintenance and services

**Business partner onboarding**

**Visibility for customer and consumer**
Predictive maintenance

- Optimize the performance, availability, and quality of manufacturing
- Maximize equipment uptime through predictive maintenance
- Optimize manufacturing by adapting Industry 4.0 concepts

SAP Asset Intelligence Network – SAP Predictive Maintenance and Service
SAP Manufacturing Execution – SAP Manufacturing Integration and Intelligence
SAP Asset Intelligence Network – bridging operators and manufacturers

- Asset performance and strategy management
- Management of "equipment as a service"
- Commissioning and handover
- Business partner network services
- Equipment register
- Model database
- Private area
- Machine records
- Service bulletins, recalls, and warranty
- Quality, inspection, and calibration results sharing
- Specifications and visual work instructions
- Business context for predictive maintenance
- Performance improvement (product and process)
- Analysis of equipment performance
- Spare parts management
- Visual audit and name-plate recognition
Predictive Quality
Predictive quality

Analysis of 300 parameters per slab more accurately predicts defects and results in 75% reduction in quality checks needed
Paper manufacturer

Predictive quality

Real-time sensor data of several PLCs and camera-based defect data. Support for machine operator with preset production parameters, alerts indicating quality issues, and production data acquisition.
Connected Fleet
Connected fleet

- Collect, map, store, and analyze moving assets data in real time
- Optimize your supply chain and logistics processes
- Gain full visibility of products, spare parts, product stocks, and movements

SAP Vehicle Insights – SAP Networked Logistics Hub – SAP Global Track and Trace
Mining company

Connected fleet

Analyzes tire sensor data, truck load, environmental factors, and operator behavior. Delivers results that change operator training, speed guidelines, and road layouts, and increase tire life.
Precision Forestry
Collect field data with autonomous aerial vehicle

Fast data collection with an autonomous aerial vehicle to capture aerial images on forests or very small areas. Processing and analysis of data with the SAP HANA platform, which provides fast and precise information to optimize insight for the forester and to provide support.
Optimize production and increase yield

Obtain a detailed, geobased overview of blocks, activities, and yield maps. Plan and optimize block tasks based on sensor and weather data. Monitor equipment and field tasks (such as those conducted by contractors in real time).
Construction Site Logistics
Construction site logistics

Business needs

- **Timely deliveries** to construction sites, such as ready-mix concrete
- **Adaptability** for many last-minute changes
- **Accommodation of limited space** at the construction site and surrounding area
- **Collaborative scenarios** of construction companies, logistics providers, building materials suppliers, and equipment and machinery companies

Technology opportunity

- **Real-time data**, such as GPS, sensors, weather, and traffic
- **Real-time network** (SAP Cloud Platform) for any party involved plus easy onboarding
- **Real-time collaboration with mobile devices** and natural language processing

**Process innovation**

Optimize deliveries, trucks, pumps, and collaboration
Construction site logistics
Business logic and apps

Concrete batching plant (production plant)

Concrete dispatcher Jim

Production supervisor Bill

Driver app

Delivery app

Site manager app

Machinery provider app

Construction site – elementary school

Construction site cloud

Sensor drum

GPS signal truck

Geofence production plant

Geofence construction site

Truck driver Sam

© 2017 SAP Leonardo Live. All rights reserved. | PUBLIC
Next steps: conduct an “explore” workshop

How do we find the right innovation path?

What “use cases” have been prioritized, designed, implemented?

For each innovation use case:
- What is the game plan?
- What are the design challenges?
- Who are the stakeholders?

Outputs:
- Prioritized business scenarios and use cases
- Design challenges and game plan
- Stakeholder map

How do I see innovation in action?
Visit SAP Leonardo Centers in New York or Palo Alto, California
Thank you.

Contact information:

**Stefan Soeller**
Solution Manager
IBU Mill Products & Mining
stefan.soeller@sap.com