

MANUFACTURING EXECUTION SUITE 4.0

Predictive Production Planning

SMS  group



LEADING PARTNER IN THE WORLD OF METALS

SMS group is renowned worldwide for its future-oriented technologies and outstanding service for the metals industry. We combine 150 years of experience and digital know-how to provide the industry continuously with innovative products and processes. SMS group is the right partner for challenging projects and supports its customers throughout the lifecycle of their plants.

As the digital unit of SMS group, SMS digital develops innovative solutions in the field of digitalization. With our digital applications, we lift your plants and machines into the world of Industry 4.0. Our software solutions help you to meet the challenges of the industry, producing sustainably and efficiently while conserving resources at the same time.



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INCREASING PROFITABILITY

Utilize your resources efficiently

The dynamic changes in market demands, triggered by the Internet of Things, require considerably shorter modernization cycles as we head towards Industry 4.0. Increasing volumes of data and new means of exchanging information are resulting in closer collaboration between integrated plant and automation system suppliers and plant operators and end users.

In predictive production planning, digital solutions help to minimize production lead times and achieve a high rate of on-time delivery. Resources can be optimally utilized with reduced stock, and maximum yield can be attained to ensure profitability. This sophisticated interlinking of all processes using digital solutions results in an overall increase in profitability.

SMS digital offers a variety of software solutions that employ machine learning, artificial intelligence, and big data analysis methods to monitor all production steps along the entire process chain. This is how autonomous metal production can be achieved.

HOLISTIC PRODUCTION PLANNING

Manufacturing Execution Suite 4.0

Manufacturing Execution Suite 4.0 is our holistic, modular solution for planning and controlling the whole metallurgical process chain and all production facilities. From the customer's order to the finished product – the customized Manufacturing Execution Suite supports plant operators with flexible production planning, factory-wide, real-time material tracking, and continuous performance optimization. The entire process can be tracked – from receipt of customer order to product leaving the plant.

BUSINESS PLANNING



Demand Planner



Pre-Grouping

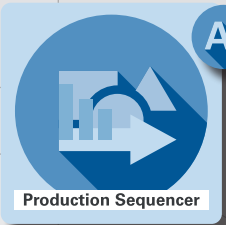
PRODUCTION PLANNING



Technical Order Generator



Capacity Planner



Production Sequencer



Short Rescheduler



Meltshop Pacer

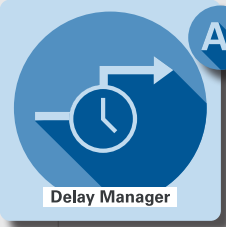
SUPERVISION



Master Data Manager



Quality Manager



Delay Manager



Energy Analyzer



Production Controller

LOGISTICS



Yard Manager



Equipment Manager



Consumables Manager



Customer Portal

BUSINESS INTELLIGENCE

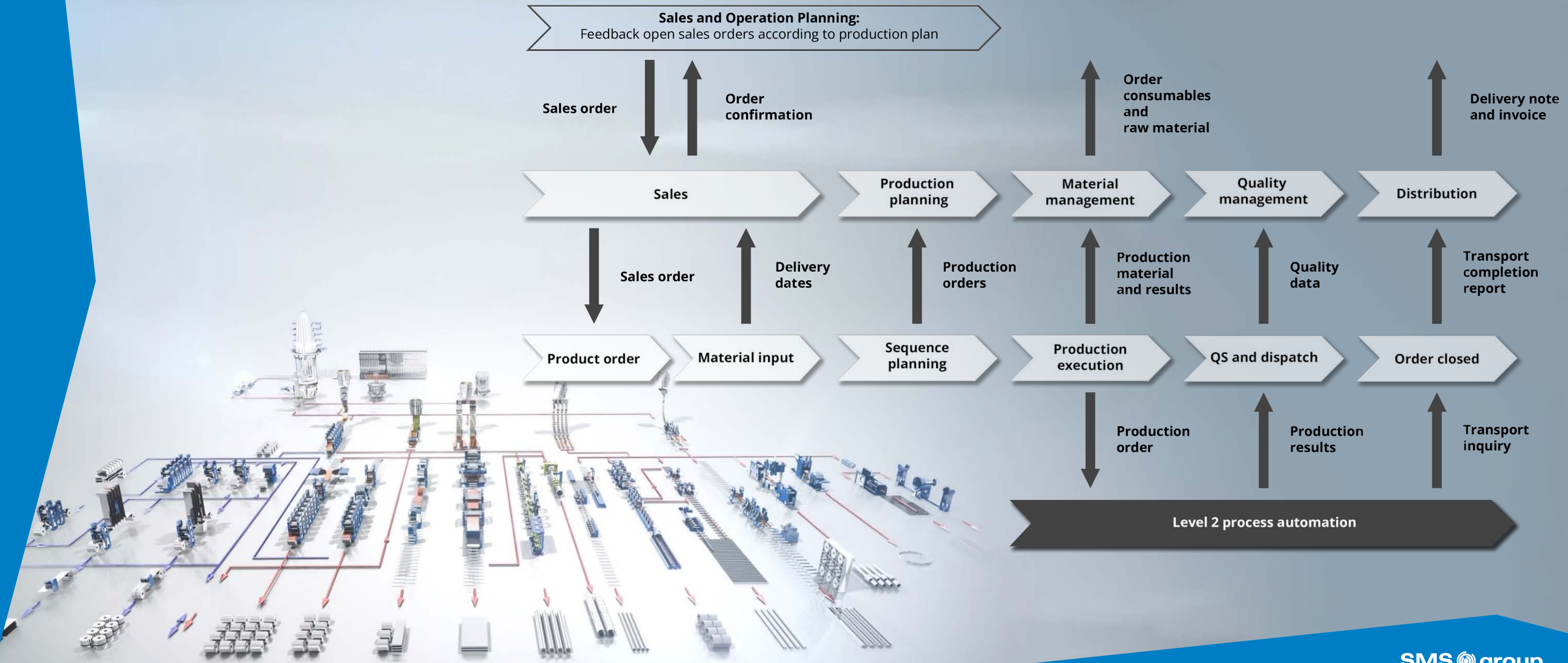


Business Intelligence Manager

DYNAMIC PRODUCTION

Flexible and seamless connectivity

Seamless vertical and horizontal connectivity, optimization algorithms, and data-controlled models improve the flexibility of production planning without impacting operational productivity or stability. With Manufacturing Execution Suite 4.0, you gain precise knowledge of how to make a final product with the desired properties, less material, and a greater level of reliability. Manufacturing Execution Suite 4.0 goes far beyond optimal production planning – it supports energy consumption efficiency while achieving maximum quality level. It specifically calculates the need for material and resources and can drive intelligent alternative measures at short notice in the event of malfunctions. Meaningful plant and machine analyses using advanced analytics and machine learning serve as a solid foundation for potential production improvements.



FIELDS OF APPLICATION

Adapted to your needs

Manufacturing Execution Suite 4.0 can be used in melt shops, casting plants, flat rolling mills, tube mills, strip processing lines, and many other types of equipment. Thanks to its modular structure, Manufacturing Execution Suite 4.0 can be supplemented with additional applications and easily integrated into existing IT landscapes – whether as part of modernizations, expansions, or complete, new installations. The special features of the various material types, from simple carbon steels to stainless steel and aluminum, are also considered.

**MANUFACTURING EXECUTION SUITE 4.0
BOOSTS PROFIT LEVELS CONSIDERABLY
BY ENSURING THAT RESOURCES ARE
OPTIMALLY UTILIZED. IT CHALLENGES
THE MAJOR ISSUES OF THE FUTURE AND
DRIVES US TOWARD GREEN STEEL
PRODUCTION**

BUSINESS PLANNING

The business planning modules enhance the demand planning and pre-grouping processes for your product orders. What's more, they proactively help to integrate production and sales activities based on current production plans. They support you in optimizing your productivity by precisely forecasting and planning future demand and customer orders.

This way, efficiency targets, transition and energy costs, inventories, and on-schedule delivery rates can be attained well in advance.

PRODUCTION PLANNING

Production planning modules are the centerpiece of Manufacturing Execution Suite 4.0. These modules generate production schedules based on the customers' orders and determine the optimum capacity, deadline, and sequence planning. One particular strength is the dynamic rescheduling feature that responds automatically to planning-related disruptions in the production process, considerably reducing the workload on control room personnel.

SUPERVISION

These modules consider the interaction between other planning-critical factors, such as plant condition, product quality, and energy consumption. The goal is optimal vertical networking of the production facilities and equipment units along the whole process chain. In addition, the module offers solutions for the central administration and maintenance of all master and production data.

LOGISTICS

These modules provide horizontal networking along the lines of Industry 4.0. They enable suppliers and customers to be integrated into the whole process chain. Customers obtain specific insights into the production progress of their orders. In this way, material deliveries, necessary process media, or the whole product shipment can be handled faster and, more importantly, more cost effectively. The Yard Manager monitors stocks along the whole production line and allows the product quality and stocks to be efficiently documented using the barcode scanning solutions on mobile devices.

BUSINESS INTELLIGENCE

The end of the chain is simultaneously the start of the chain. Reporting provides business intelligence modules – both web-based and using modern media. The spectrum ranges from classic reports through the display of relevant production indicators on smartphones up to interactive analyses of production data. Data are turned into valuable information that helps to make selective improvements to planning and production processes.

GOING BEYOND WITH ADVANCED SERVICES

Complex challenges require individual solutions. We combine our metallurgical know-how with our digital expertise to create software solutions that meet our customers' needs precisely. In addition, we deliver customized service packages that complement and extend the actual product.

Our range of advanced services helps you to understand the equipment and software in detail – for example, through operator training and 24/7 expert support. Flexible analytics give you deep insights into your production performance, allowing you to adjust your maintenance, quality, or energy management at any time. With our consulting approach, we support you in optimizing your entire process chain. We offer subscription models and performance-based contract models that suit you best.

SMS is a solutions provider that directly addresses and efficiently solves the specific challenges of its customers.

**BY BRINGING TOGETHER SMS
GROUP'S DOMAIN KNOW-HOW,
CUTTING-EDGE SOFTWARE
SOLUTIONS, AND CUSTOMIZED
SERVICE, OUR CUSTOMERS
GAIN MAXIMUM VALUE**

STEEL MILLS

BOF converter shop

- › SSAB Special Steel, Sweden
- › JSW, India
- › Visakhapatnam Steel, India
- › Kardemir - Karabuk Demir Celik San ve Tic AS, Turkey

Electric arc furnace

- › SSAB Special Steel, Sweden
- › North Star BlueScope, USA
- › Severstal Columbus, USA
- › Pervouralsky Novotrubny Works - OJSC, Russia
- › Siderúrgica National (SN), Venezuela
- › Saudi Iron & Steel Co (Hadeed), Saudi Arabia
- › Big River Steel, USA
- › Nucor Steel Gallatin, USA
- › Böhler Edelstahl, Austria

Ladle furnace

- › SSAB Special Steel, Sweden
- › North Star BlueScope, USA
- › Severstal Columbus, USA
- › Visakhapatnam Steel, India
- › Pervouralsky Novotrubny Works - OJSC, Russia
- › Siderúrgica National (SN), Venezuela
- › Saudi Iron & Steel Co (Hadeed), Saudi Arabia
- › Big River Steel, USA
- › Böhler Edelstahl, Austria

CASTING SYSTEMS

Continuous slab caster

- › SSAB Special Steel, Sweden
- › JSW, India
- › North Star BlueScope, USA
- › Siderúrgica National (SN), Venezuela
- › Nucor Steel Gallatin, USA

Ingot Casting Plant

- › Böhler Edelstahl, Austria

Continuous billet caster

- › Pervouralsky Novotrubny Works - OJSC, Russia
- › Visakhapatnam Steel, India
- › Saudi Iron & Steel Co (Hadeed), Saudi Arabia
- › Kardemir - Karabuk Demir Celik San ve Tic AS, Turkey

ROLLING MILLS

CSP® Plant / Thin Slab Casting & Rolling

- › ArcelorMittal, Sestao, Spanien
- › Severstal Columbus, USA
- › Big River Steel, USA
- › Nucor Steel Gallatin, USA

Hot Strip Mills

- › JSW, India
- › North Star BlueScope, USA
- › Habas Sinao Ve Tibbi Gazlar Istihsal Endüstrisi AS, Turkey
- › Nucor Steel Gallatin, USA

Heavy plate mill, Steckel plate

- › Vyksa Steel Works, Russia
- › Siderúrgica National (SN), Venezuela

Shearing line (heavy plate mill)

- › Vyksa Steel Works, Russia
- › Siderúrgica National (SN), Venezuela

PROCESSING LINES

Compact Cold Mill

- › Jinan Iron ans Steel Group Corp, China

Pickling line

- › Arcelor Mittal Sestao, Spain
- › Jinan Iron and Steel Group Corp, China

Tandem mill couples with pickling line

- › Severstal Columbus, USA
- › Big River Steel, USA

Anealing and coating Line

- › China Steel Corporation, Taiwan
- ›

Hot-dip galvanizing

- › Severstal Columbus, USA
- › Big River Steel, USA
- › MMPZ-group, Belarus
- › Nucor Steel Gallatin, USA

TUBE AND PIPE MAKING

Tube Finishing Lines

- › Pervouralsky Novotrubny Works - OJSC, Russia

Large Diameter Pipe Plant

- › Pipe Mill Tscheljabinsk CHTPZ Group Russia
- › Al Gharbia Pipe Company LLC, United Arab Emitrates

STORAGES AND YARDS

Coil yard

- › Jinan Iron ans Steel Group Corp, China
- › China Steel Corporation, Taiwan
- › Siderúrgica National (SN), Venezuela
- › Big River Steel, USA
- › MMPZ-group, Belarus

Slab yard

- › JSW, India
- › Armurmetal, Russia
- › ArcelorMittal Poland S.A., Poland
- › Siderúrgica National (SN), Venezuela

Plate store

- › Siderúrgica National (SN), Venezuela
- › MMPZ-group, Belarus

Billet yard, bloom yard

- › Pervouralsky Novotrubny Works - OJSC, Russia

Scrap Yard

- › SSAB Special Steel, Sweden

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