



Assessment & Consulting

October 29th , 2023

SMS  **group**

Agenda

- 1 Advanced Integrated Solutions
- 2 Assessment & Consulting
- 3 UseCases

Agenda

1 Advanced Integrated Solutions

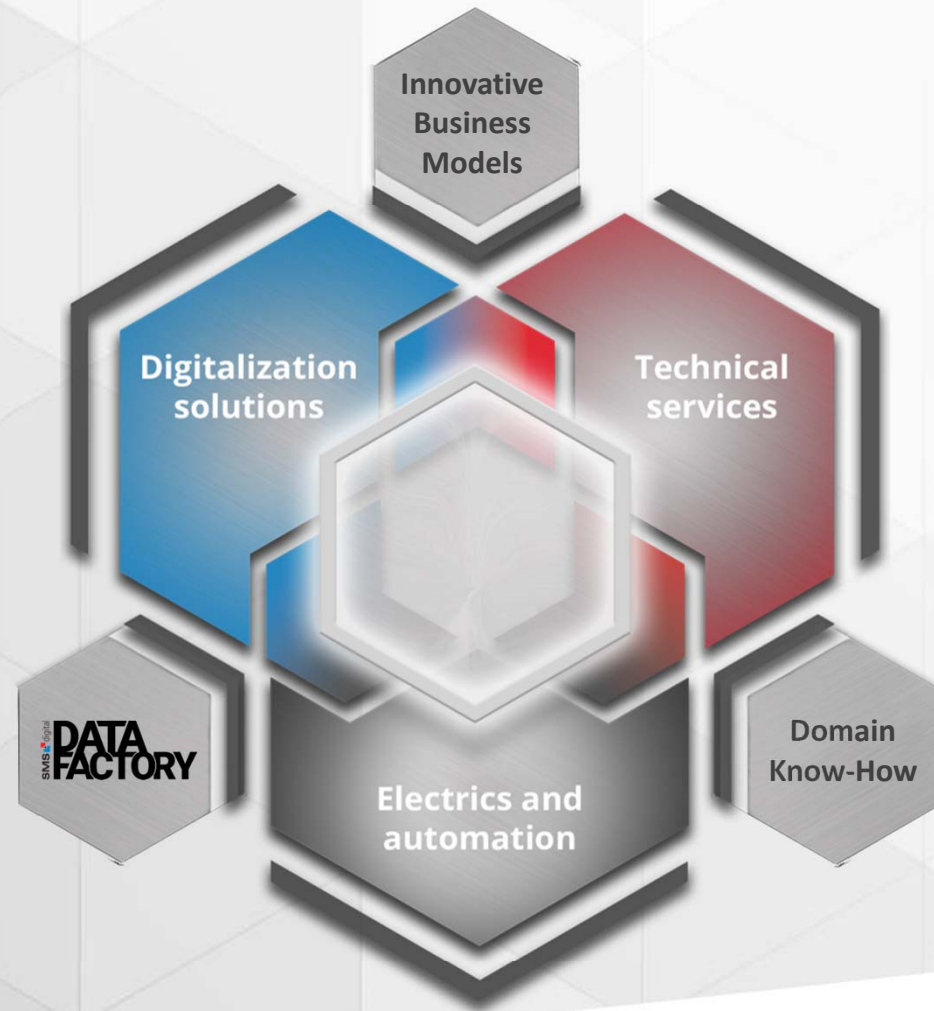
2 Assessment & Consulting

3 UseCases

Advanced Integrated Solutions For a Lifecycle Partnership

Integrated solutions boosting performance

- › Harmonization of automation, digitalization, service and operation
- › Data-driven decision support in real-time - Your staff is provided with the right information and supported in decision making
- › Service concepts for operations, maintenance, and outsourcing across the entire lifecycle
- › Potential innovative business models enable a long-term partnership with the possibility to share risks



Integrated solutions for SMS group Product Portfolio



SERVICE & MAINTENANCE EXPERTISE

Maintaining client assets covering 113mt liquid crude steel



PROCESS AND AUTOMATION KNOW-HOW

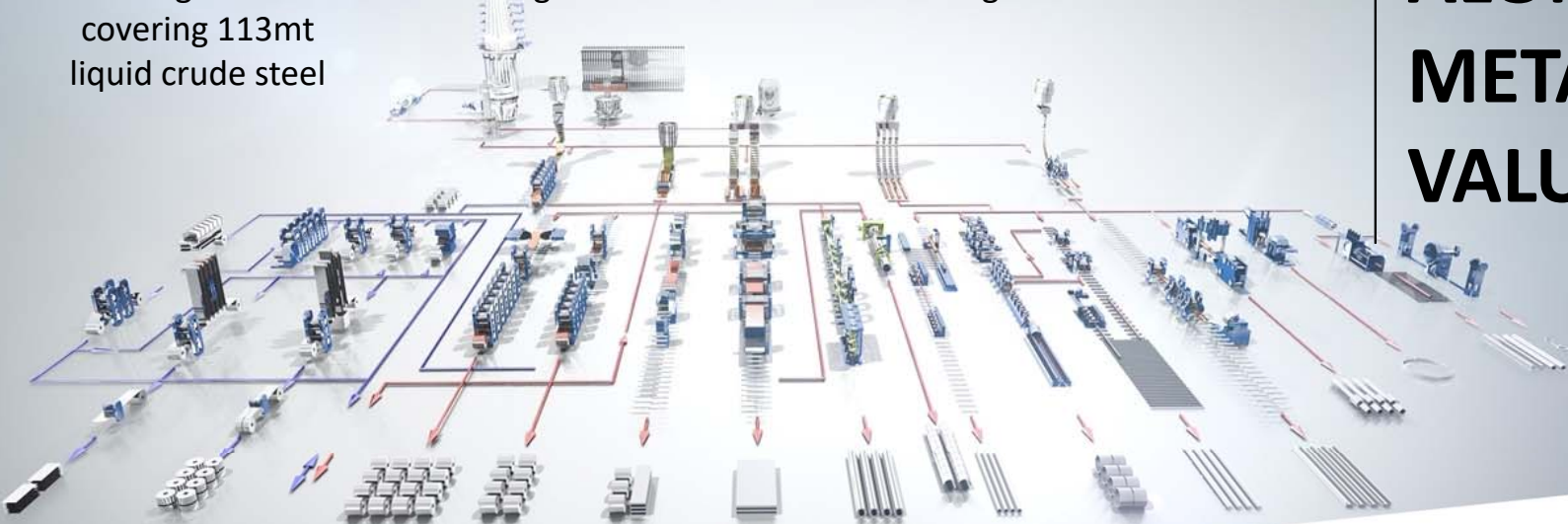
800+ global references



DIGITAL SOLUTIONS

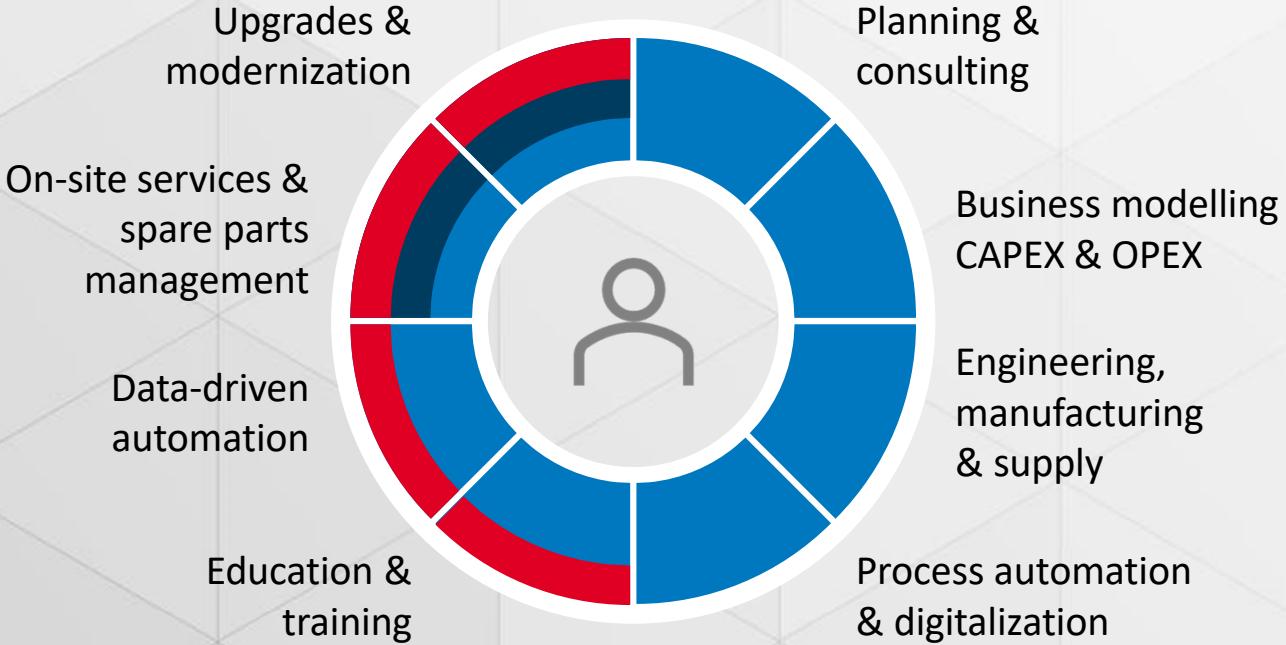
200+ global references

INTEGRATION OF UNIQUE CAPABILITIES ALONG COMPLETE METALLURGICAL VALUE CHAIN



Building tailor-made solutions for any use

Advanced Integrated solutions for the entire Lifecycle



We **create**
your asset



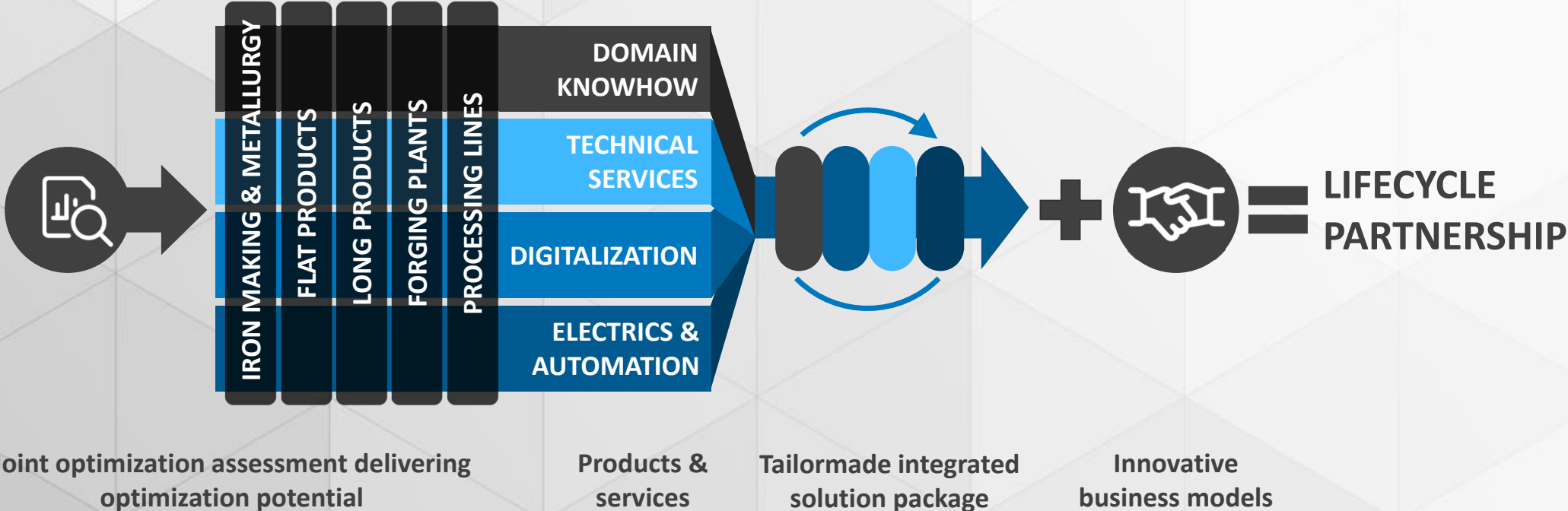
We **increase**
your performance



We **manage**
your lifecycle

Our way towards a lifecycle partnership

Competences and processes



Joint optimization assessment delivering optimization potential

Products & services

Tailormade integrated solution package

Innovative business models

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How to start the journey to increase your performance



SMS GROUP ASSESSMENT & CONSULTING CONCEPT

- › Joint assessments and data analysis to identify / quantify performance and cost saving potentials



PROCEDURE

- › Evaluate the agreed project scope
- › Identify as-is state of equipment and performance characteristics, failure modes, costs and improvement potentials
- › Estimation of improvement potentials for KPI's positively effecting OPEX



OUTCOME

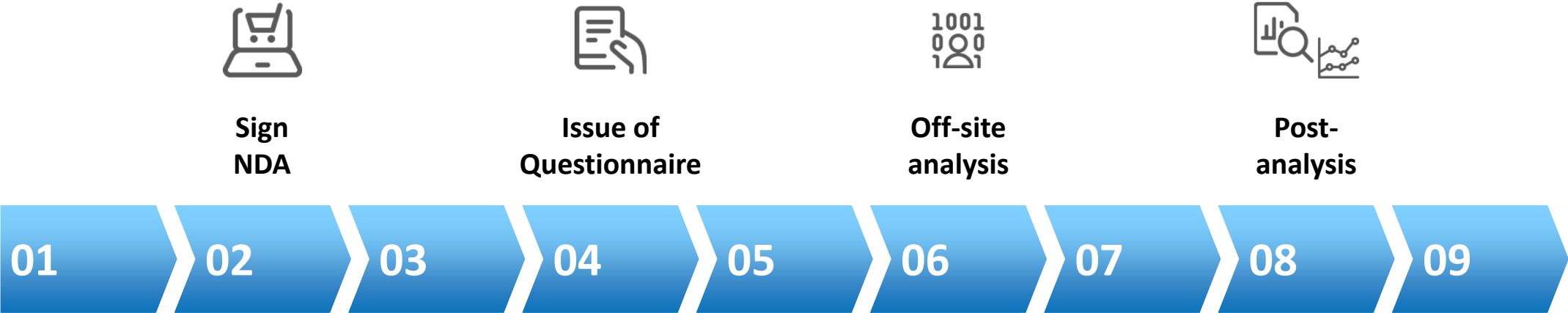
- › Current as-is Status
- › Cost Savings potentials
- › Target Areas for Performance Improvement
- › Customized Solution offerings

JOINT ASSESSMENT TO IDENTIFY POTENTIALS AND RECOMMEND BEST PRACTICE SOLUTIONS

SMS group Experts identify your performance increase potentials by standardized procedures and best practice benchmarks

Exemplary timeline of assessment and consulting project

How is it done?



Sign NDA

Issue of Questionnaire

Off-site analysis

Post-analysis

01

02

03

04

05

06

07

08

09

Alignment previous / ongoing activities

Assessment proposal /price offer

Completion of questionnaire

On-site assessment & verification

Assessment report & potentials



Why is the assessment the right approach?

Race car



Challenge

- Decrease laptime

Obvious Solution

- Increase engine power



Benefit of the Assessment

- Evaluate obvious solution
- Identify further potentials, e.g.
 - Lighter car body
 - Improved brakes
 - Suspension adjustment
 - ...

Steel plant



Challenge

- Increase production

Obvious Solution

- New plants
- New machines



Benefit of the Assessment

- Evaluate obvious solution
- Identify further potentials, e.g.
 - Improve plant OEE
 - Optimize product mix/ production planning
 - Optimize inhouse logistics
 - ...

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1 Advanced Integrated Solutions

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Leading American Steel Producer Increase EAF availability

Challenge

- › Customer is facing **unplanned downtimes** caused by, e.g.
 - › RDT trips, panel failure, water leaks

Solution

- › **SMS DataFactory**: Gathers and enriches all data for further applications
- › **Smart Alarm**: Increases plant availability, optimizes maintenance and distributes knowhow
- › **Asset Health AI**: Leverages advanced AI to predict failures

Benefit

- › Up to **50% reduction** of unplanned downtimes (RDT trips, panel failure, water leaks)
- › Up to **20% reduction** of unplanned downtimes (other reasons)
- › 5-year contract



Leading Asian Steel Producer

Increase EAF availability

Challenge

- › Not reaching to design capacity.
- › Therefore target is to **increase production** to 500,000 TPA with **process improvement** and **higher availability**.

Solutions

- › **SMS DataFactory Suite**: Gathers and enriches data.
- › **EAFXpert** : Platform for developing and managing condition monitoring and expert systems delivers real-time recommendations and notifications.
- › **Smart Alarm**: Increase plant availability, optimize maintenance and distribute expert knowhow
- › **Data driven Prediction models**: Machine learning models to provide real-time insights into the plant's condition and process deficiencies, and by predicting machine failures, maintenance measures can be taken proactively.
- › **NEW Injectors** : Latest combustion technology to increase plant output



Leading American Steel Producer (Caster to DC)

Optimization of Prime Quality

Challenge

- › Minimizing quality defects that lead to downgrading

Solution

- › On Premise **Data Factory** for timeseries (with Genealogy)
 - › Iba historical data & Live data acquisition
 - › 3-6 Use cases deployed after 12 months
- › **QES** Evaluating Coil Defects based on product requirements
- › **Process analysis** and **modeling**
- › **CRACKS** identifying and providing Actionable avoidance on Quality Defects

Benefit

- › Improvement of Prime Quality material
- › 4- years Performance based contract

Major Quality use cases to tackle:

1. Slivers
2. Laminations
3. Cracked Edge Slabs
4. Caster Surface Cracks e.g. LFC's
5. Holes

Leading American Steel Producer

KPI Quality Optimization

Challenge

- › Downgrading of slabs and Hot Rolled Coils

Solution

- › Process analysis and modeling
- › On Premise **SMS Data Factory** for timeseries (with Geneology)
 - › Iba historical data & live data acquisition
 - › 5 use cases deployed after 12 months
- › **QES** evaluating coil defects based on product requirements
- › **CRACKS** identifying and providing actionable avoidance on quality defects
- › **Predictive Quality AI** prediction app for root cause identification

Benefit

- › Reduction of defects from baseline measurements
- › 4 years Performance based contract

Major failure mechanisms to optimize

- › Slivers
- › Laminations
- › Cracked Edge Slabs
- › Caster Surface Cracks
- › Holes

Leading American Aluminium Producer

KPI Asset Optimization: Aluminium HSM

Challenge

- › Reduce customers **unscheduled downtimes**
- › Increase **Business Intelligence** through actionable data
- › **Reduce costs** via more efficient maintenance planning

Solution

- › **SMS DataFactory**
 - › Unified data source for all digital products, & Business Intelligence
 - › Direct access to performance KPIs & Business Intelligence parameters
- › **Smart Alarm, Xpert (HSM) System Rules, BI, Correlations**
 - › Asset decision support based on process rules and analysis
 - › Business Intelligence for correlation of asset degradation

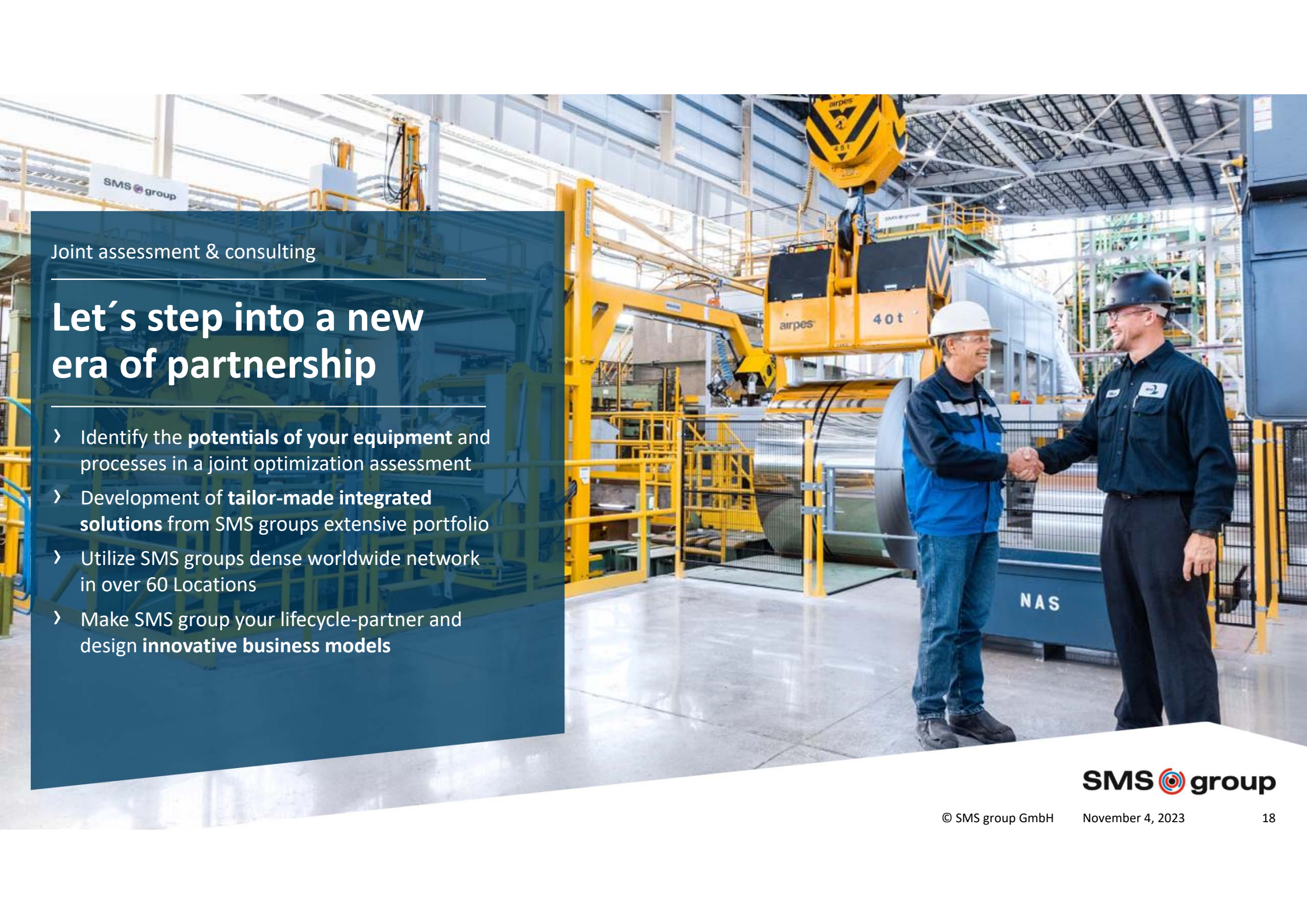
Benefit

- › Up to **150 hours of reduced downtime after 24 month**; up to 50 h after 12 month
- › Mixed Business Model with Risk Mitigation (max. 6.35 M / 5 years)

Identified Use Cases during onsite audit:

1. High and Low Pressure Hydraulic performance and maintenance status
2. Load Cell
3. Scratch brushes
4. Pass Line and Deflector rolls.



A photograph of two men in industrial attire shaking hands in a large factory. The man on the left wears a blue jacket and a white hard hat. The man on the right wears a dark blue shirt and a dark hard hat. In the background, there is a large yellow crane with 'airpes' and '40t' written on it, and a blue machine with 'NAS' written on it. The 'SMS group' logo is visible on a sign in the upper left background.

Joint assessment & consulting

Let's step into a new era of partnership

- › Identify the **potentials of your equipment** and processes in a joint optimization assessment
- › Development of **tailor-made integrated solutions** from SMS groups extensive portfolio
- › Utilize SMS groups dense worldwide network in over 60 Locations
- › Make SMS group your lifecycle-partner and design **innovative business models**



Bringing partnership to a new level

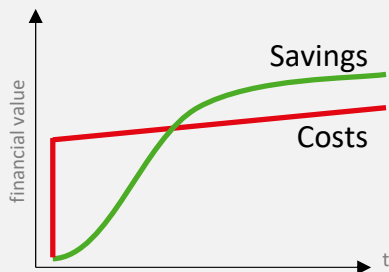
Standard and innovative business models

TRANSACTIONAL BUSINESS

e.g. equipment sales, licenses sales

- › Configuration of product suites according to customer needs
- › Commissioning of product suites
- › Extension / adaptation of products with advanced service packages

one time CAPEX investment

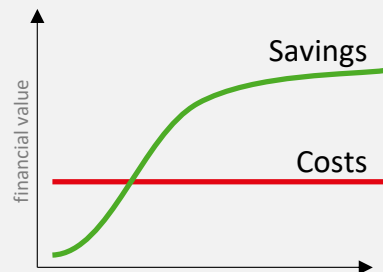


SUBSCRIPTION BUSINESS

e.g. SaaS, EaaS, Service Contracts

- › Configuration of product suites according to customer needs
- › Customer access to selected products
- › Regular provision of service and maintenance
- › risk sharing for financing and quality of contractual agreed supplies

Fixed periodical fees

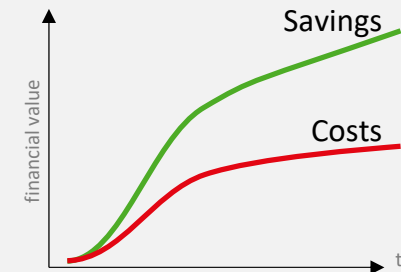


PERFORMANCE BASED (SUBSCRIPTION) BUSINESS

e.g. pay per yield, pay per hour

- › lifecycle partnership
- › lifetime performance increase
- › tailor-made solutions
- › risk sharing e.g. for outcome and availability in addition to subscription business

Performance-based payments



Backup: New Agenda