

Smart Storage Solutions

04.03.2025

Automatic Coil Storage and the Rise of Automated Logistics

IWCC Legal Disclaimer

The purpose of this presentation is to guide programs benefiting the copper industry and to provide attendees with information to make independent business decisions.

Smart Storage Solutions: Automatic Coil Storage and the Rise of Automated Logistics

Agenda

1

Automation

importance and trends



2

Project

automatic coil storage



3

Future vision

potential of automation



4

Planning team

overview of the company



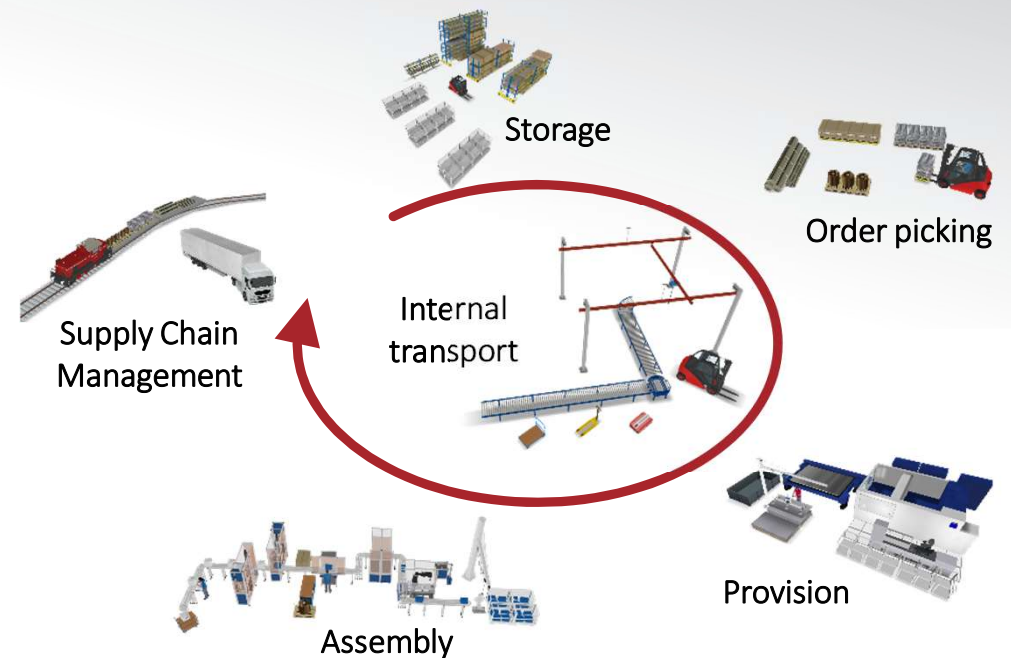
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Automation in internal logistics: importance and trends

1

Current trends in logistics automation

- Use of automated guided vehicles
- Artificial intelligence and machine learning
- IoT (Internet of Things)
- Robotics in warehousing
- Automated storage and retrieval systems
- Data-driven decision-making



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Automation in internal logistics: importance and trends

1

Importance of automation for modern businesses

- Competitive Advantage
- Scalability
- Sustainability
- Workforce Relief
- Environment / Boundary conditions
- Product dimensions / weights

Automation

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Automation in internal logistics: importance and trends

1

Importance of automation for modern businesses

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Benefits of Automation



Flexibility



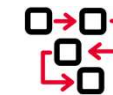
Faster



Cost Reduction



Human error Reduction



Improved Transparency



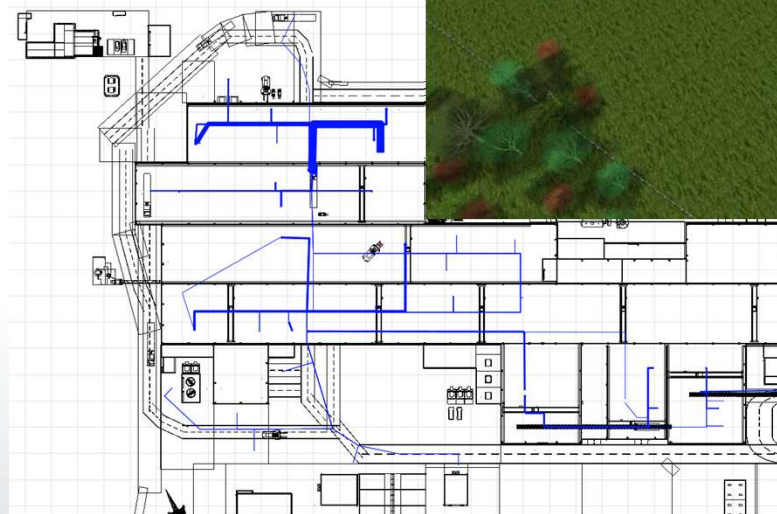
Enhanced Safety

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Project presentation "Automatic Coil storage" – Project goals

2

- Analysis of the material flow
- Warehouse optimisation and expansion
- Identification of optimisation potential for the plant
- Conceptualisation of an automated warehouse
- Project planning and realisation of construction projects, incl. peripherals (electricity, sprinklers, water, compressed air)



visTABLE model current situation

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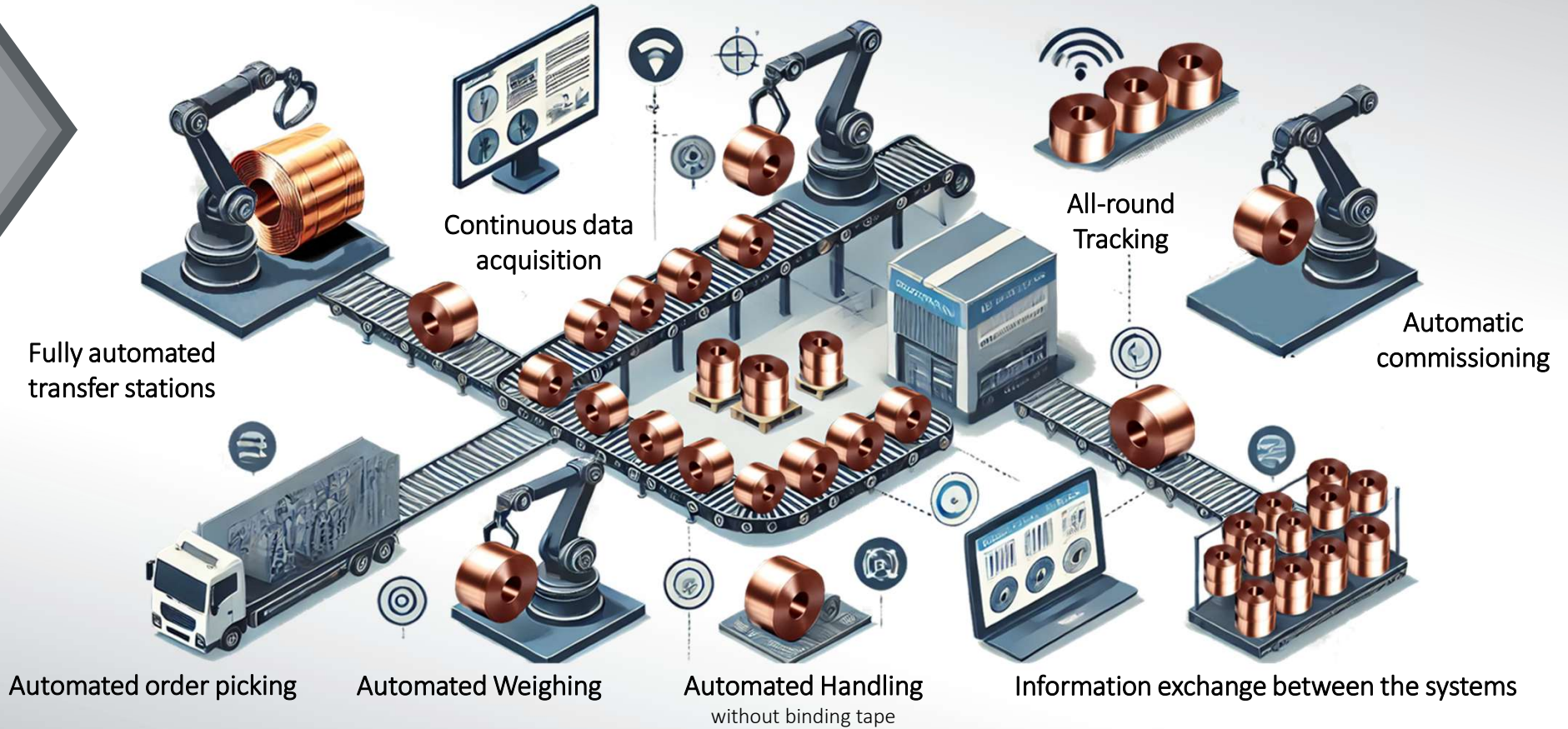


visTABLE model of future situation

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Project presentation "Automatic Coil storage" – Technical details:

2



Project

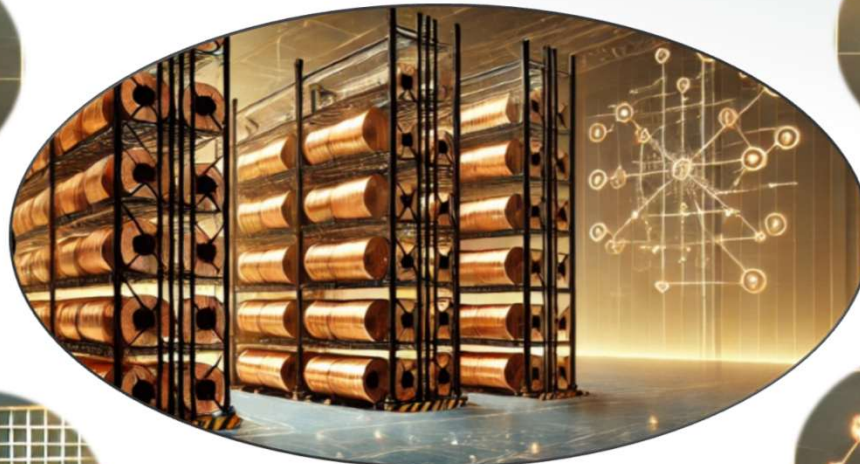
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Project presentation "Automatic Coil storage" – Challenges and requirements

2



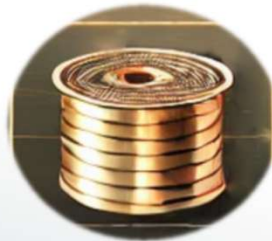
Product and environmental parameters



Interfaces to production systems



Space requirement



Coil handling



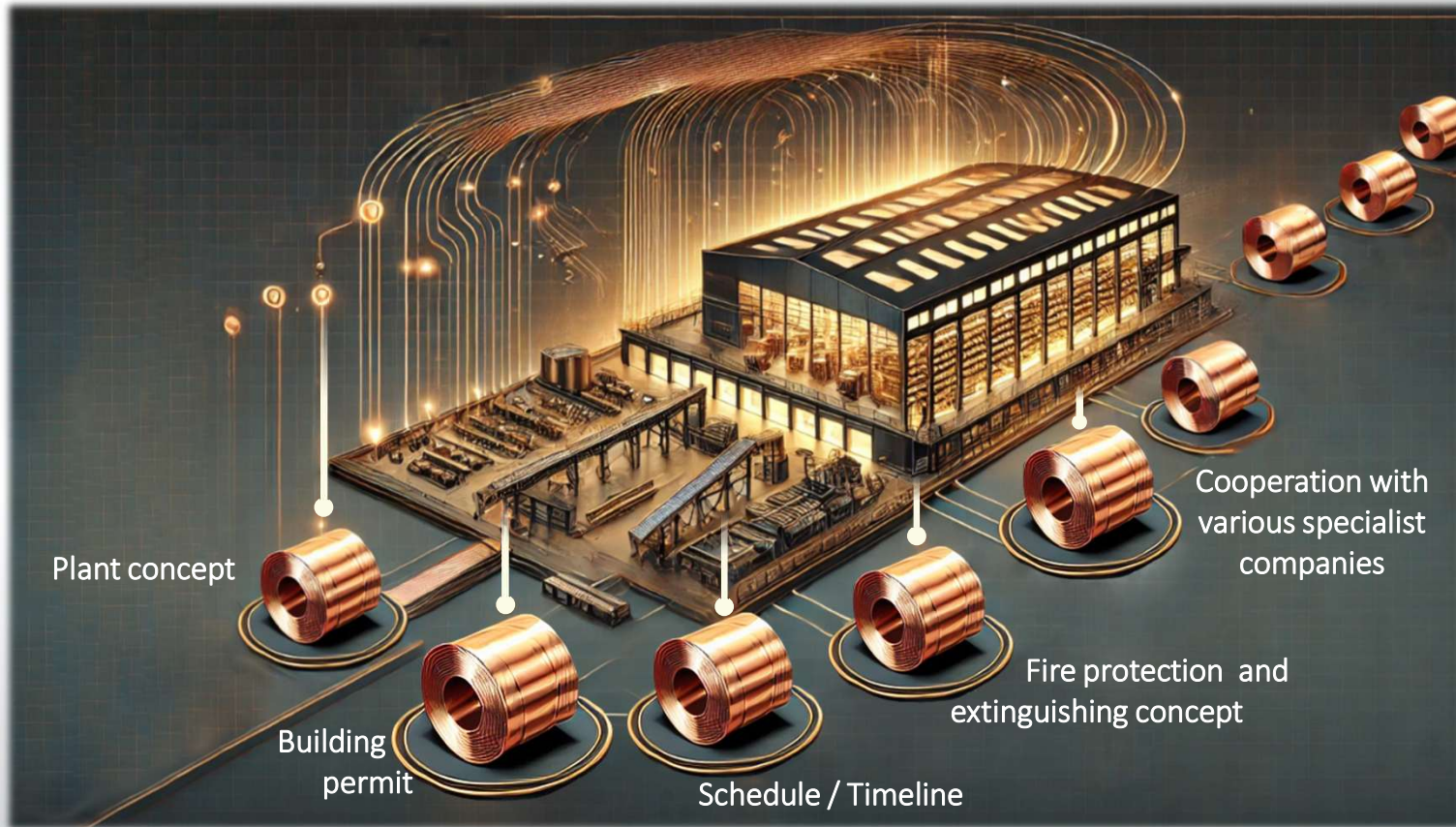
Transport control and warehouse management system

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Project presentation "Automatic Coil storage" – Project progress and successes

2

Project



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Illustration created by AI

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Project presentation "Automatic Coil storage" – current location

2

Project



Illustration of current location

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Project presentation "Automatic Coil storage" – future

2

Project



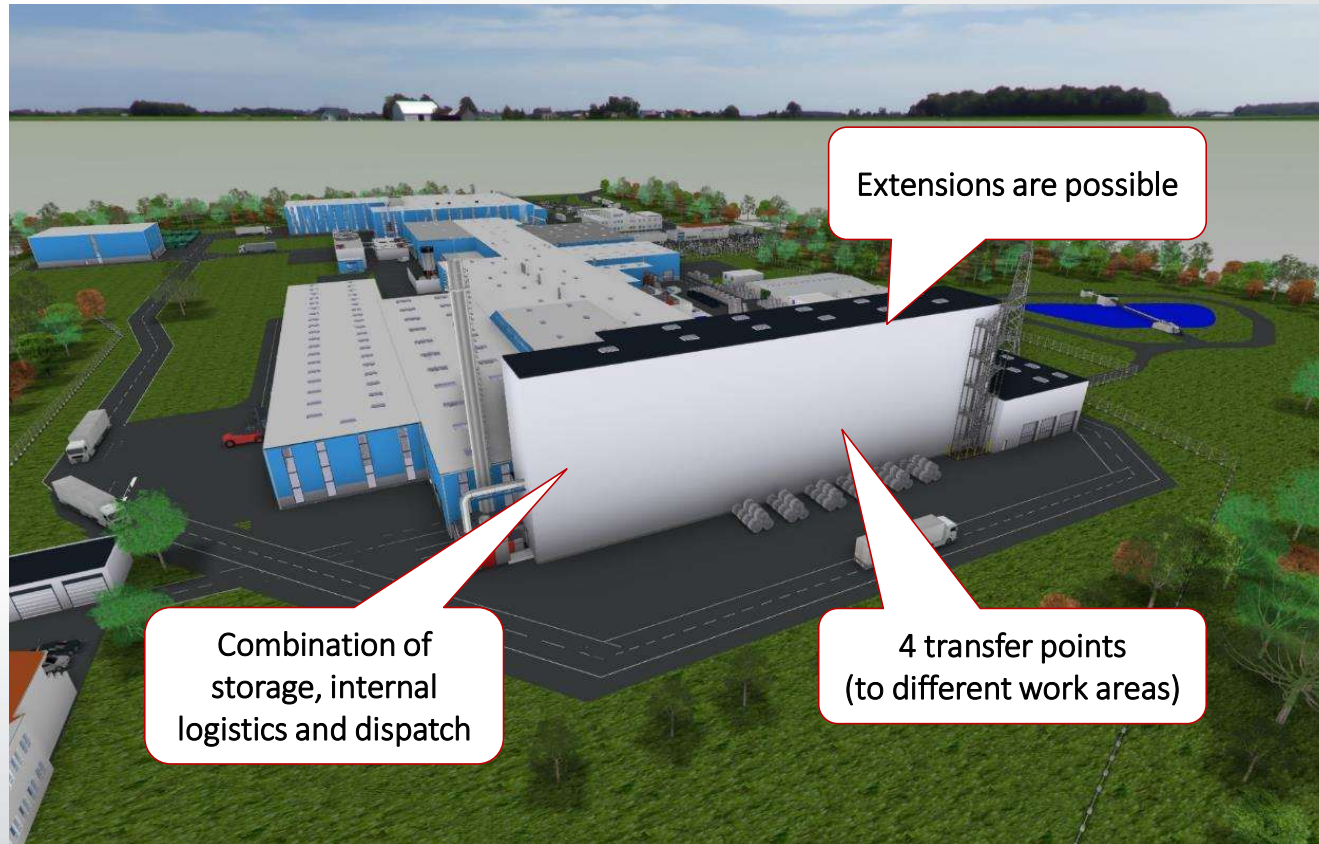
Illustration of future automated storage system

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Project presentation "Automatic Coil storage" – future

2

Project



Extensions are possible

Combination of storage, internal logistics and dispatch

4 transfer points (to different work areas)

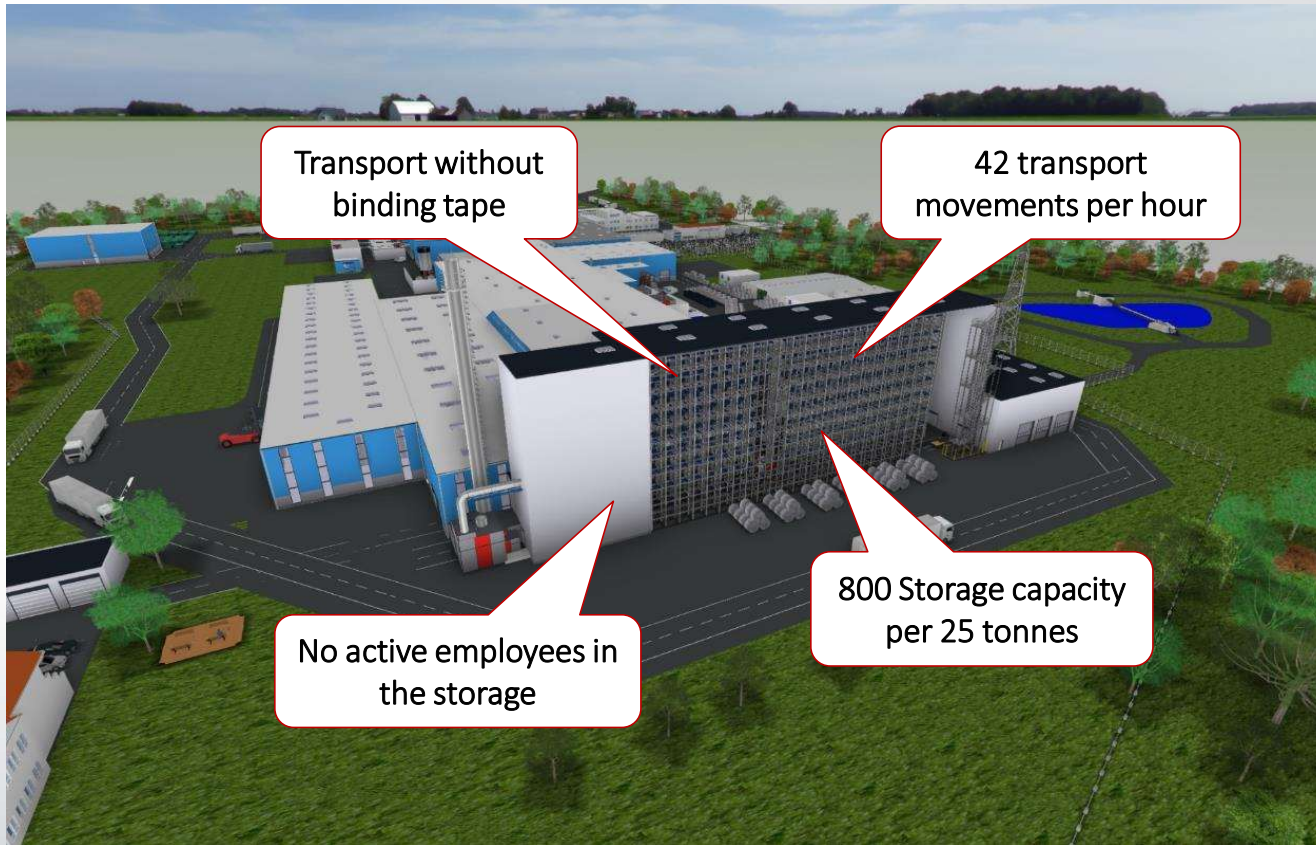
Illustration of future automated storage system

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Project presentation "Automatic Coil storage" – future

2

Project



Transport without binding tape

42 transport movements per hour

No active employees in the storage

800 Storage capacity per 25 tonnes

Illustration of future automated storage system

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Future vision and potential of automation

3

Benefits for the location

1. Storage and internal transport in one system
2. No manual work steps in future
3. Continuous and centralised connection between the production systems
4. More space in the production halls



Automatic Coil Storage

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Future vision and potential of automation

Future vision

3

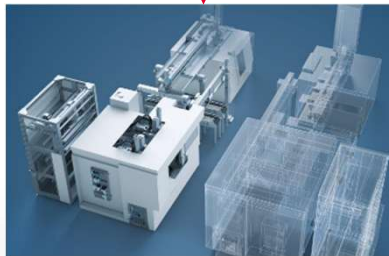
Further development options and scalability



Automatic Coil Storage



Upstream automated labelling and packaging



Technical system visualisation - 'digital twin' in the IT environment (fully automated production)



Use of Automated Guided Vehicle (AGVs)



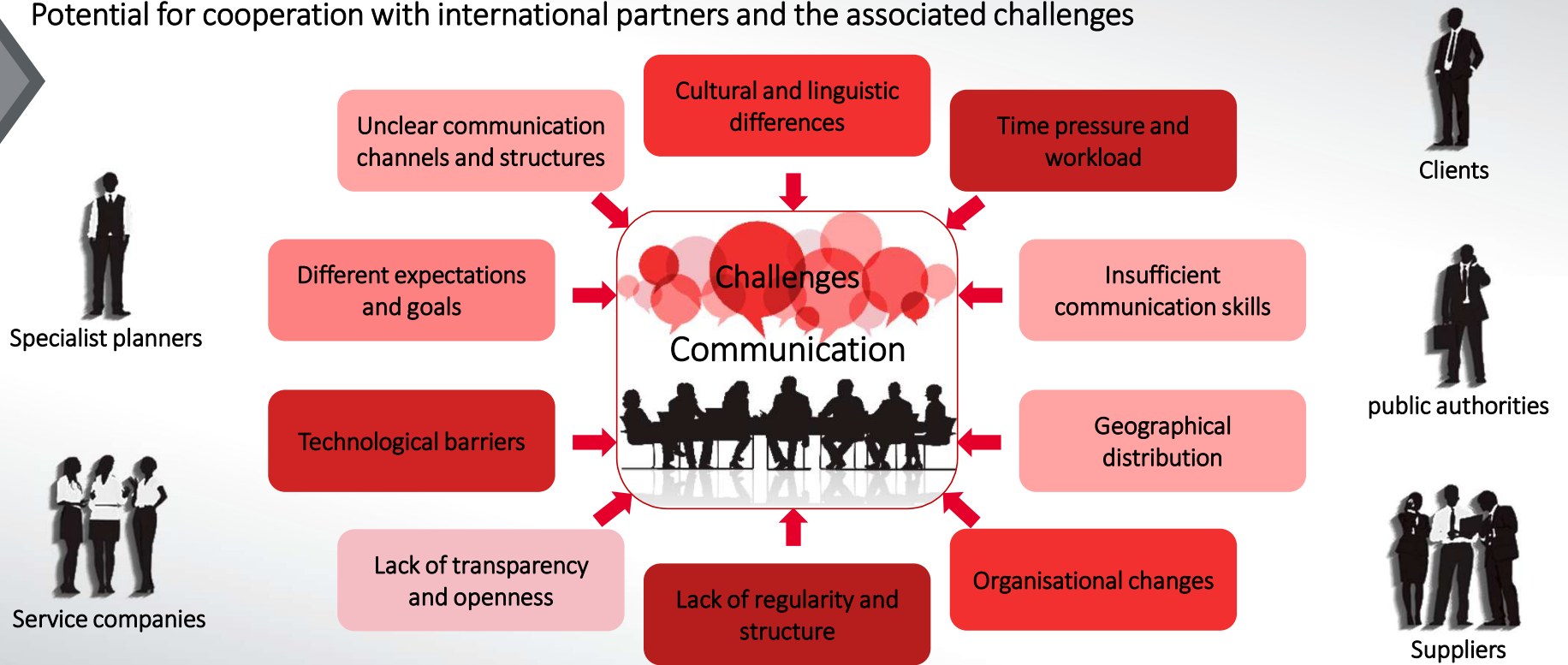
Downstream automated dispatch

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Future vision and potential of automation

3

Potential for cooperation with international partners and the associated challenges

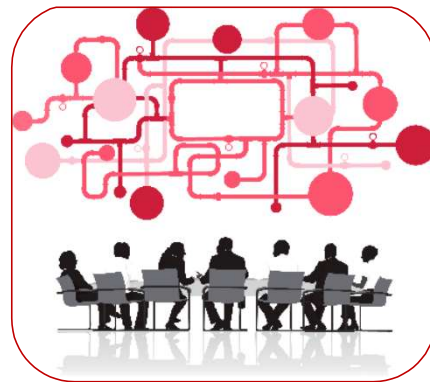


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Future vision and potential of automation

3

Potential for cooperation with international partners and the associated challenges



Solution approaches

- Regular meetings and updates
- Clear documentation and protocols
- Appointment of a communication coordinator

Challenges



Hierarchical relationship

Project progress

Future vision

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Future vision and potential of automation

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Potential for cooperation with international partners and the associated challenges

Challenges



Solution approaches



Teamwork

- Flexibility
- Trust
- Expertise in different specialist areas
- Project-orientated

Project progress

Cooperation and flexibility

Hierarchical relationship

Future vision

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Future vision and potential of automation

Potential for cooperation with international partners and the associated challenges

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Future vision

Challenges



Solution approaches



Teamwork



Project progress

Common goal pursuit

Cooperation and flexibility

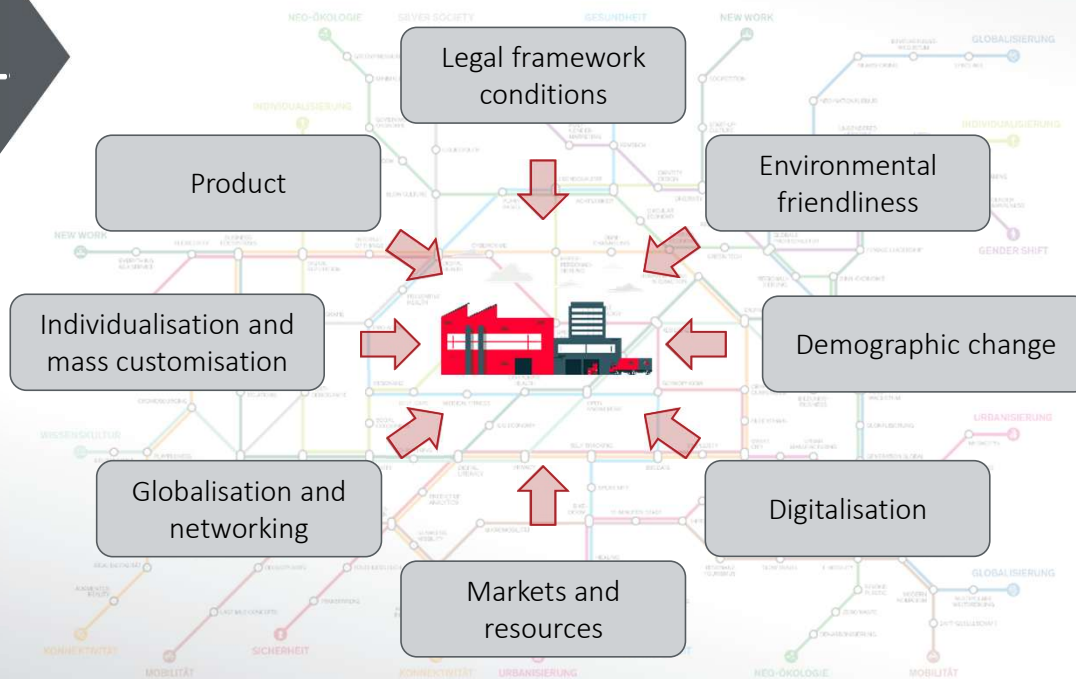
Hierarchical relationship

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Overview of the company and planning team

4

Planning team



A factory planner ...

- ◆ specialises in the planning of processes
- ◆ designs / optimises factories
- ◆ analyses, creates and develops
 - Material flows / flow of goods
 - Layouts and plans
 - ACTUAL and TARGET possibilities

Your benefits

- ◆ Expertise, experience and neutrality
- ◆ Increased efficiency
- ◆ Risk minimisation
- ◆ Optimum utilisation of resources
- ◆ Consideration of megatrends

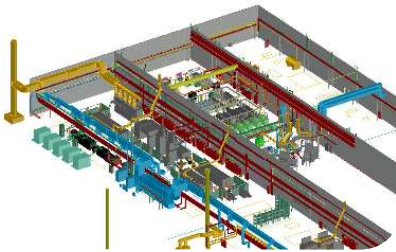
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Overview of the company and planning team

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Planning team

General planning

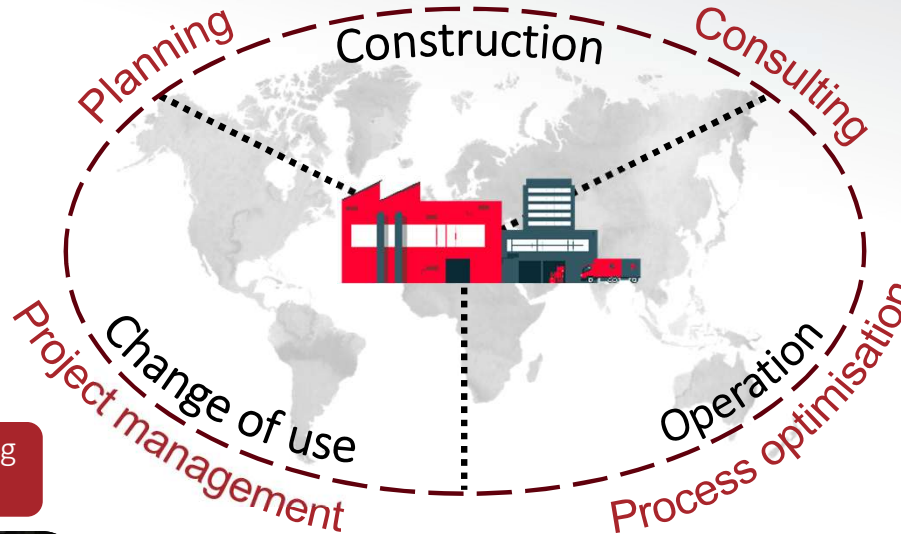


Primary and forming technology

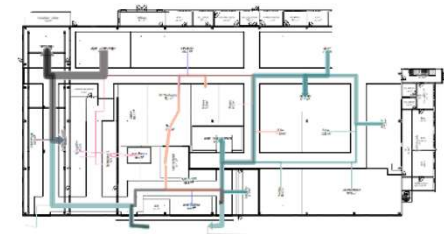


Construction

Relocation and realisation



Logistics and visualisation



Digitalisation



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Overview of the company and planning team

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Planning team

General planning

Planning from a single source

- ◆ Processes and systems
- ◆ Construction and TGA
- ◆ Process-related infrastructure
- ◆ Authorisation procedure
- ◆ 3D laser scanning, CAD, BIM

Primary and forming technology

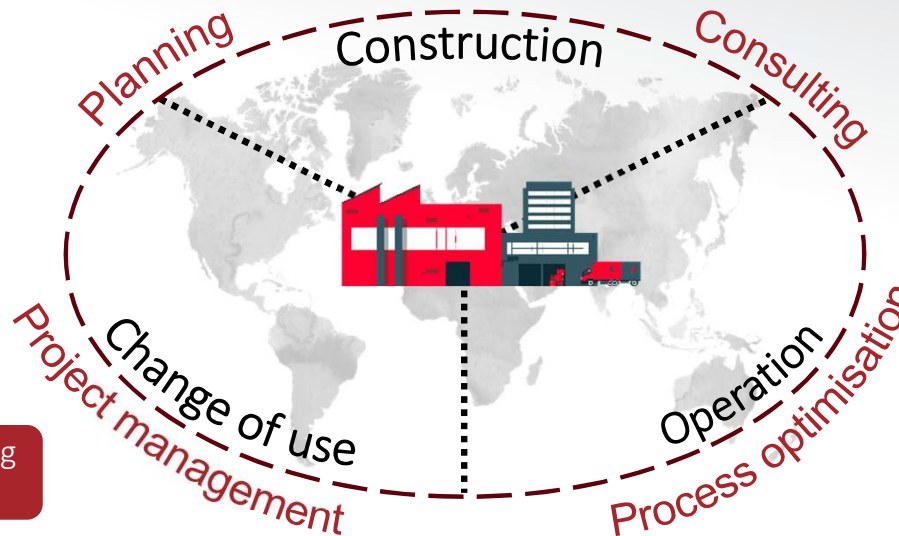
Merging core competences

- ◆ Foundry technology
- ◆ Forging technology
- ◆ Recycling technology

Digitalisation

Innovation and advanced technologies

- ◆ Digitalisation and automation
- ◆ Smart Factory
- ◆ Digital twin
- ◆ Virtual commissioning



Relocation and realisation

From the idea to realization

- ◆ Relocation planning
- ◆ Adaptation planning
- ◆ Construction management & supervision
- ◆ Change management
- ◆ Machine appraisal

Logistics and visualisation

Comprehensive logistics planning

- ◆ Material flow simulation
- ◆ Supply chain
- ◆ Warehouse and logistics planning
- ◆ 2D layout and 3D modelling
- ◆ Building Information Modelling (BIM)

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Conclusion and discussion

Automation in the copper industry:

- Automation is becoming increasingly important in all sectors, including the copper industry
- Global megatrends are driving the need for automation and influencing every market

Automated storage of copper coils:

- Automated storage system with 4 transfer points enables end-to-end material handling without a binding belt
- Seamlessly combines intralogistics and storage
- optimises processes and reduces manual intervention
- Storage capacity of up to 800 coils per 25 tonnes

Advancing automation in the copper industry is not only a sign of technological progress, but also a necessary development in order to meet the requirements of modern markets.



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Der Fabrikplaner.



„Our solutions of today shape
the production of tomorrow!“

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