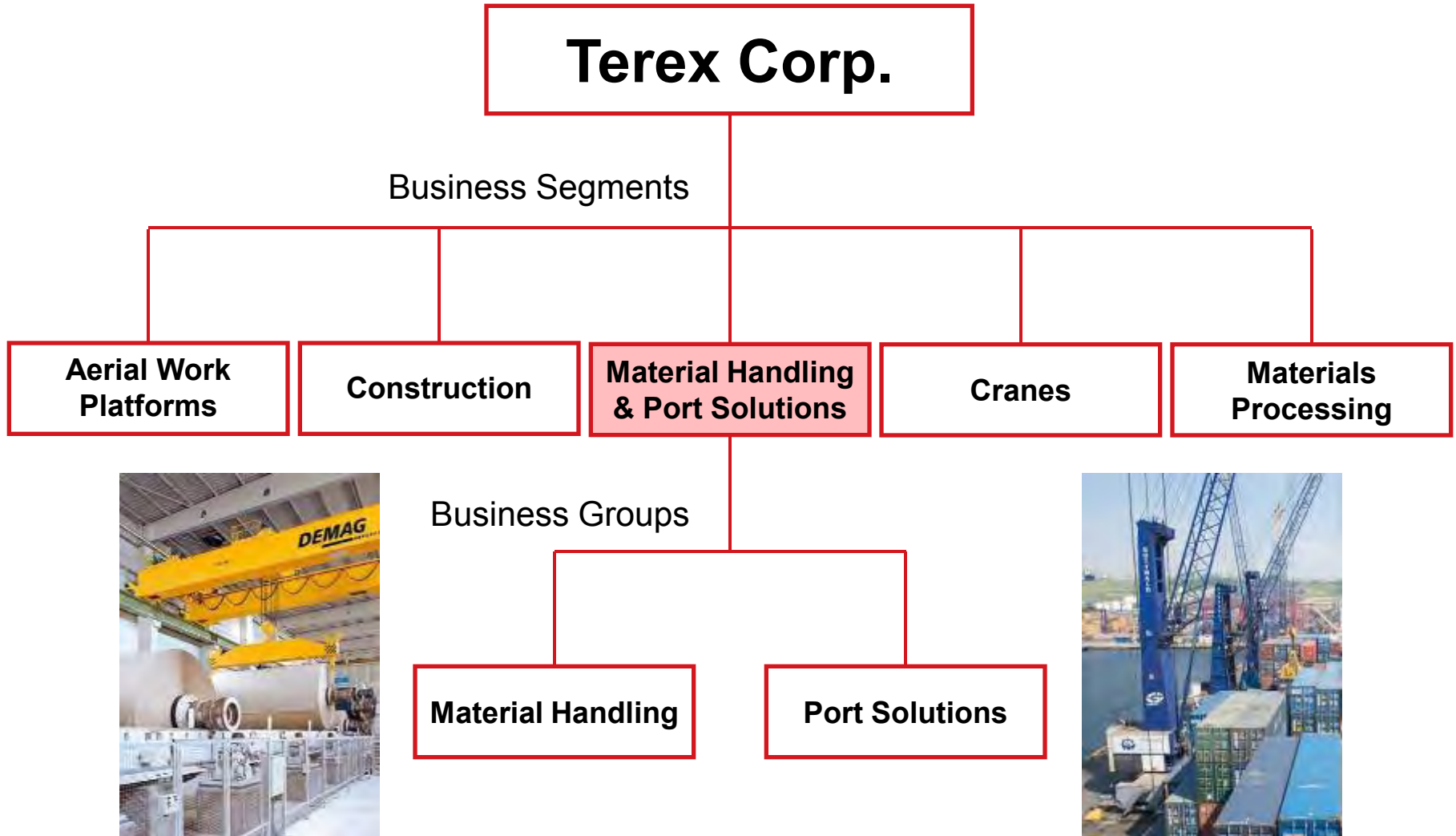
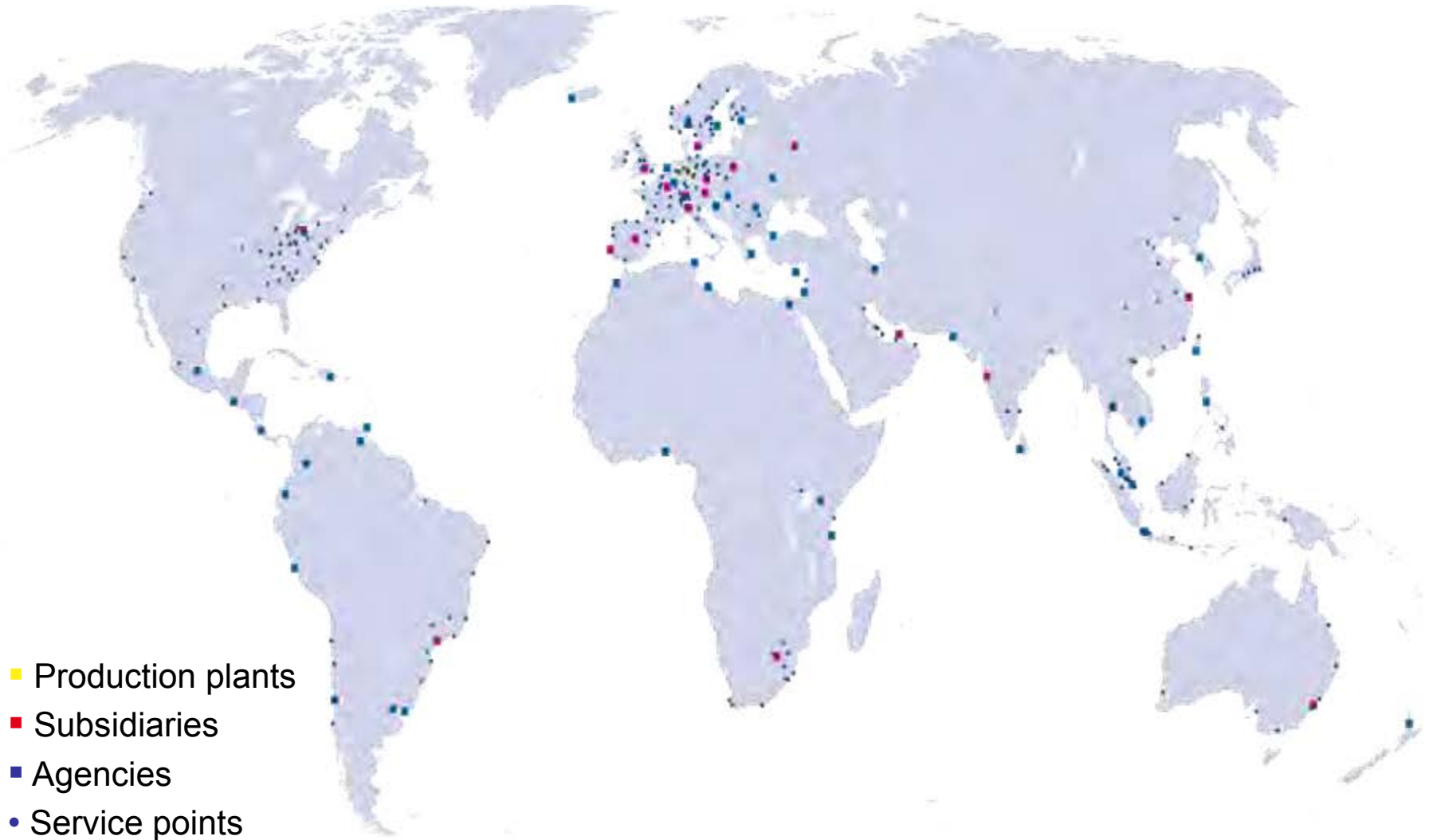




Introducing Terex Material Handling & Port Solutions



Terex MHPS Worldwide



- Production plants
- Subsidiaries
- Agencies
- Service points

Terex Milestones in Port Business



1824

1968 Launch of straddle carrier

2000



1993 1995



China

2009

1960

1966

1986



Launch of lift trucks

Launch of reach stackers & empty container handlers

2012



1933

1995



1906

1956

Invention of mobile harbour cranes

1980s

Invention of automated guided vehicles

2006

2011



Road map to the combined port solutions of Terex and Gottwald

Two global leaders in the port equipment industry...



... have built a new joint Business Group ...



... which owns two product brands that form the broadest product range in the business.

Manufacturing locations

Business group

Terex Port Solutions

Legal entities & product ranges



- ▶ Harbour Cranes
- ▶ Automated Stacking Cranes
- ▶ Automated Guided Vehicles
- ▶ Hoppers
- ▶ Software

- ▶ Full Container Handlers
- ▶ Empty Container Handlers
- ▶ Fork Lifts

- ▶ Straddle Carriers
- ▶ Sprinter Carriers

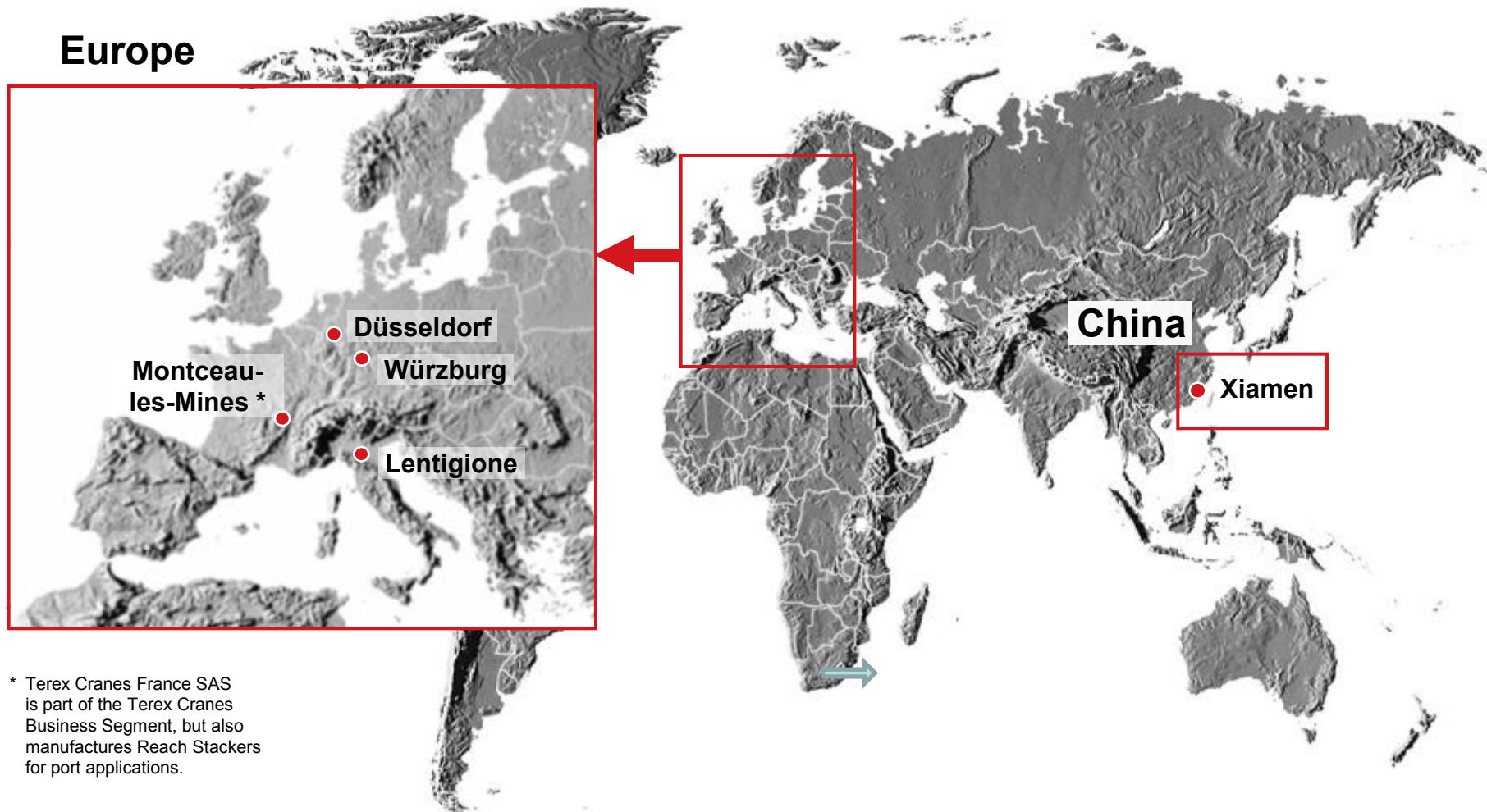
- ▶ Ship-to-Shore Cranes
- ▶ Rubber-Tired Gantry Cranes
- ▶ Rail-Mounted Gantry Cranes
- ▶ Reach Stackers
- ▶ Empty Container Handlers
- ▶ Fork Lifts

- ▶ Reach Stackers

* Terex Cranes France SAS is part of the Terex Cranes Business Segment, but also manufactures Reach Stackers for port applications.

Manufacturing locations

Europe



* Terex Cranes France SAS is part of the Terex Cranes Business Segment, but also manufactures Reach Stackers for port applications.

Loading & Unloading

- ▶ **Ship-to-Shore Cranes (STS)**
- ▶ **Harbour Cranes**
 - Mobile Harbor Cranes (G HMK)
 - Portal Harbor Cranes (G HSK)
 - Floating Cranes (G HPK)
 - Pedestal-Mounted Harbor Cranes (G HPK)
 - Rubber-Tired Portal Harbor Cranes (G HRK)

Transport

- ▶ **Straddle Carriers (SC)**
- ▶ **Sprinter Carrier s**
- ▶ **Automated Guided Vehicles (AGV)**

System Capabilities

- ▶ **Planning & Consulting**
- ▶ **Software**
- ▶ **Service**

Storage

- ▶ **Automated Stacking Cranes (ASC)**
- ▶ **Rubber-Tired Gantry Cranes (RTG)**
- ▶ **Rail-Mounted Gantry Cranes (RMG)**

Handling

- ▶ **Reach Stacker s(RS)**
- ▶ **Empty Container Handlers (ECH)**
- ▶ **Full Container Handlers (FCH)**
- ▶ **Fork Lifts**
- ▶ **Hoppers**

Loading & unloading: Ship-to-Shore Cranes (STS)



- ▶ High capacity container handling
- ▶ Operation on various vessel sizes up to Super Post-Panamax
- ▶ Manufacturing location - Xiamen, China

Loading & unloading: Harbor Cranes



- ▶ Loading & unloading of containers, general, bulk and project cargo
- ▶ Broad range of crane sizes, types and variants
- ▶ All crane types based on proven Mobile Harbour Crane technology
- ▶ Mobile throughout a port – changeable place of operation
- ▶ Low specific invest in equipment and infrastructure
- ▶ Manufacturing Location:
- Düsseldorf, Germany

Transport: Straddle Carriers (SC)



- ▶ Picking, carrying and stacking containers
- ▶ Ability to both transfer and lift/stack
- ▶ Hydrostatic or diesel-electric drive
- ▶ Optional EcoCap energy saving system
- ▶ Manufacturing location
- Würzburg, Germany



Transport: Sprinter Carriers



- ▶ Picking and carrying containers
- ▶ Ability to both transfer and lift
- ▶ Hydrostatic or diesel-electric drive
- ▶ Manufacturing location
- Würzburg, Germany



Transport: AGV Automated Guided Vehicles



- ▶ Horizontal container transport
- ▶ Fully automated; fleet management and navigation software
- ▶ Lift AGV version; decouples transport from storage to fleet size
- ▶ Manufacturing location:
 - Düsseldorf, Germany



Storage: ASC Automated Stacking Cranes



- ▶ Precision container stacking with very high storage density
- ▶ High-rigidity construction
- ▶ Fully automated; crane and stack management software
- ▶ Manufacturing location:
 - Düsseldorf, Germany



Storage: Rubber-Tired Gantry Cranes (RTG)



- ▶ Space-saving container stacking
- ▶ Mobile for flexible use
- ▶ Manufacturing location
- Xiamen, China

Storage: Rail-Mounted Gantry Cranes (RMG)



- ▶ Space-saving container stacking
- ▶ High performance, high span
- ▶ Manufacturing location:
 - Xiamen, China

Handling: Reach Stackers (RS)

- ▶ Handling and stacking of containers
- ▶ Dedicated multi-attachment versions for other cargo also available
- ▶ Manufacturing locations:
 - Xiamen, China
 - Montceau-les-Mines, France



Handling: Empty Container Handlers (ECH)



- ▶ Handling and stacking of empty containers
- ▶ Handling 20' to 45' containers
- ▶ Stacking height up to 7+1
- ▶ Single or double container handling mode
- ▶ Capacity under spreader up to 10 t
- ▶ Available with spreaders or forks
- ▶ Manufacturing location:
 - Lentigione, Italy
 - Xiamen, China

Handling: Full Container Handlers (FCH)



- ▶ Handling and stacking of full containers
- ▶ Handling 20' to 45' containers
- ▶ Heavy-duty, extreme stacking operations
- ▶ Stacking height up to 5+1
- ▶ Capacity under spreader up to 45 t
- ▶ Available with spreaders or forks
- ▶ Manufacturing location:
- Lentigione, Italy

Handling: Fork Lifts



- ▶ Container or other heavy load handling (e.g. steel bars, coils, prefabricated concrete)
- ▶ Capacity up to 52 t
- ▶ Standard lifting height up to 5,1 m
- ▶ Other attachments available to handle a variety of cargo (ram, clamps, magnets)
- ▶ Manufacturing location:
 - Lentigione, Italy
 - Xiamen, China

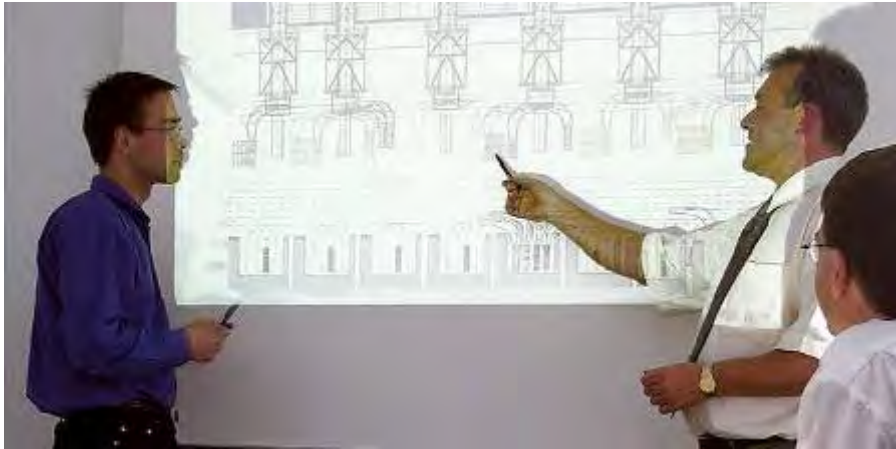
Handling: Hoppers



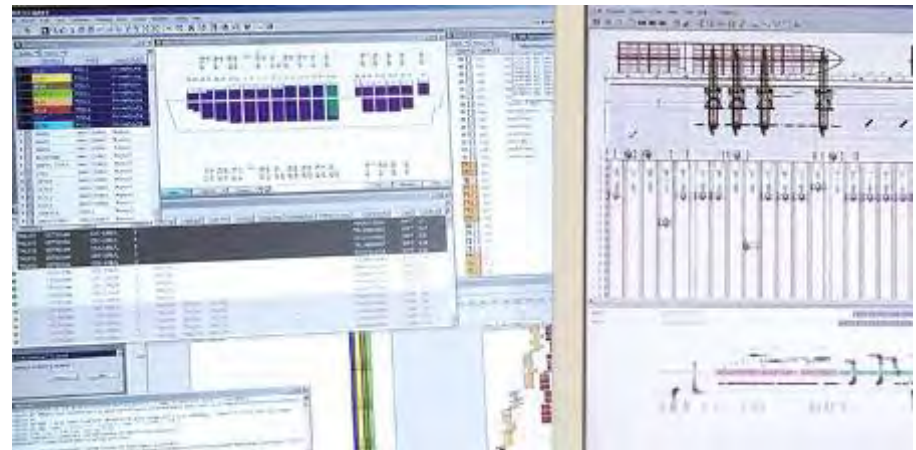
- ▶ Handling of various dry bulk goods
- ▶ Flexible unloading concepts upon
 - Trucks
 - Trains
 - Conveyors
- ▶ Different designs
 - Mobile on wheels
 - On rails
 - Permanently installed



Port and terminal planning: Consulting & planning



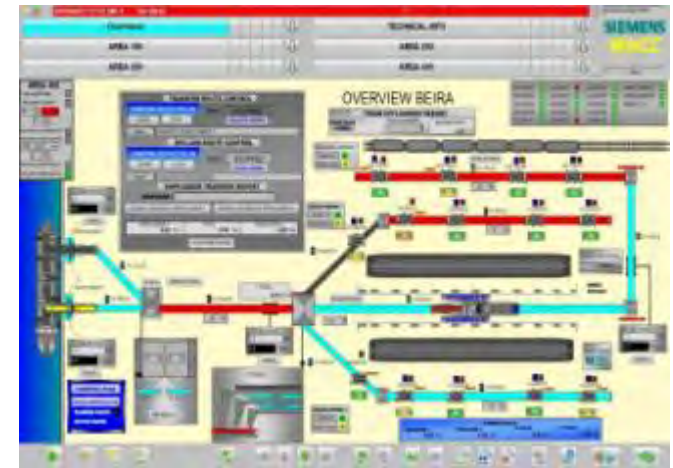
- ▶ Project management from concept to startup
- ▶ Simulation and emulation of terminals



Port and terminal planning: Software & simulation



- ▶ Management and navigation software
- ▶ Bulk specific IT solutions
 - CommTrac terminal management system
 - Conveyor management software
- ▶ Further software packages for container and bulk terminals
- ▶ Software brands: TBA, DBIS





Do you have any questions?
Feel free to ask

