



Greenification of yard equipment

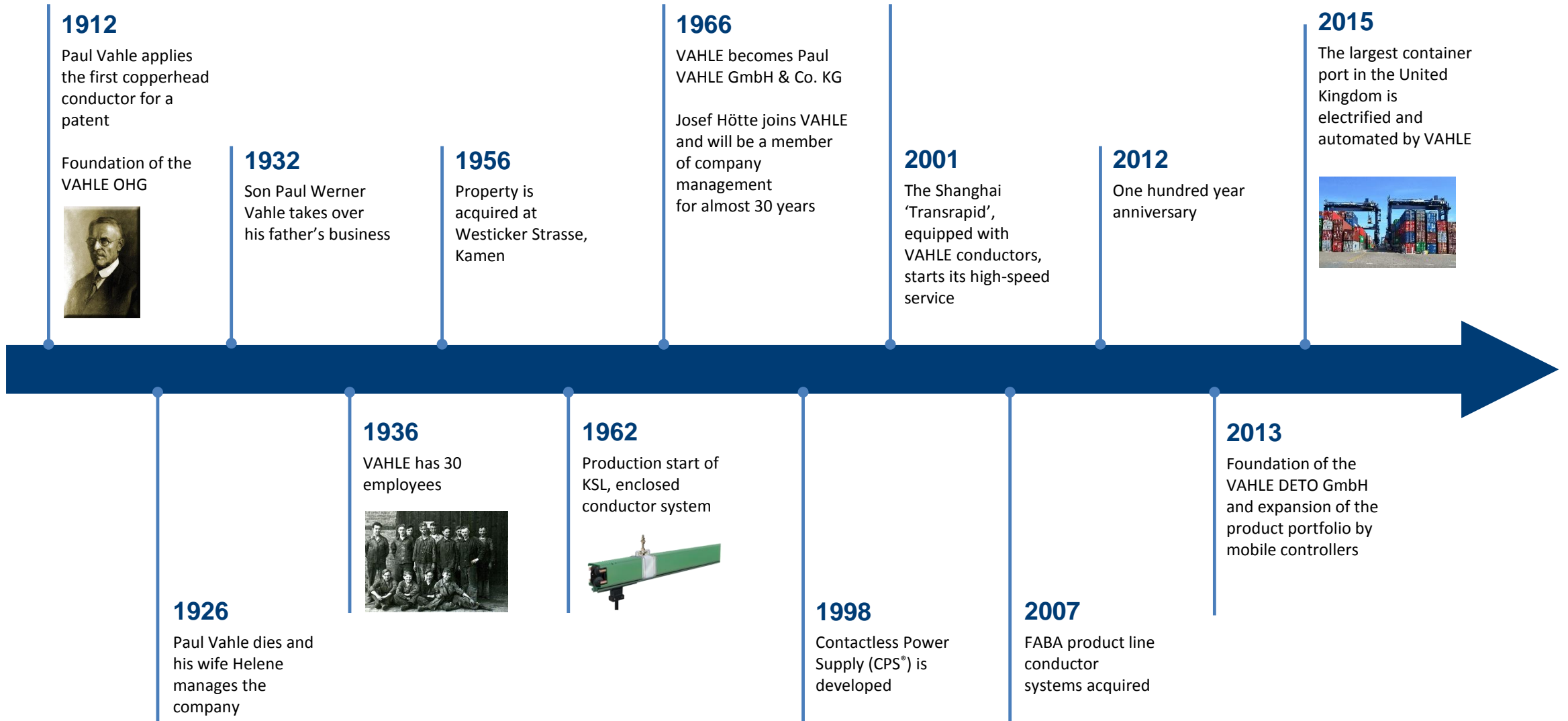
Optimisation of processes
by smart assistance systems

Organised by



Hosted by

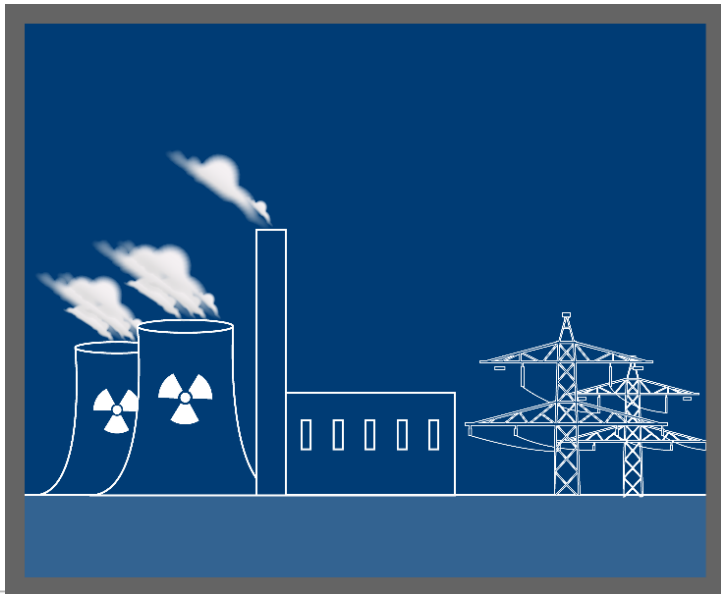
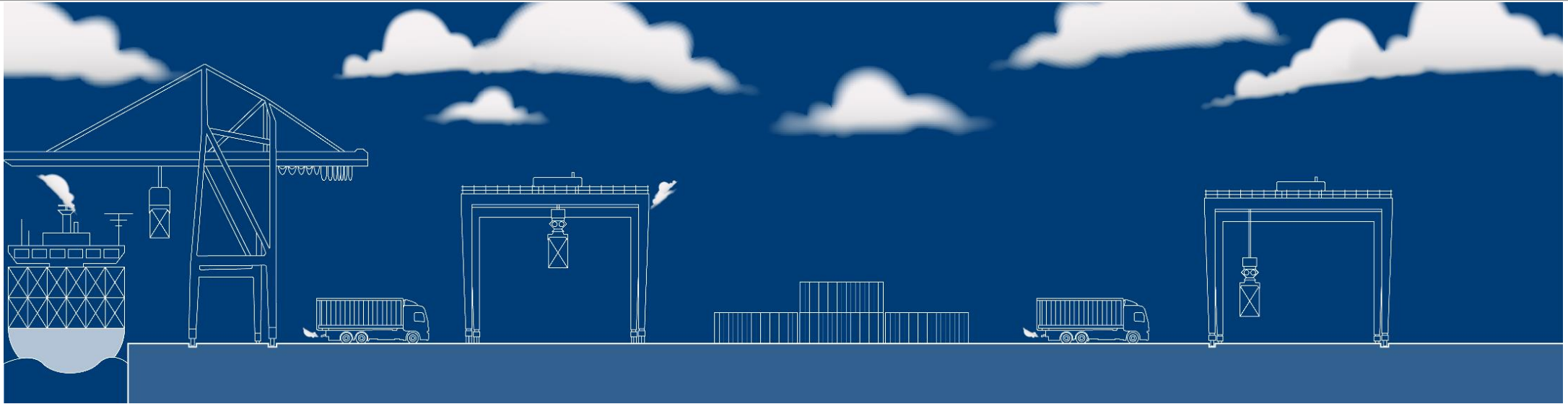


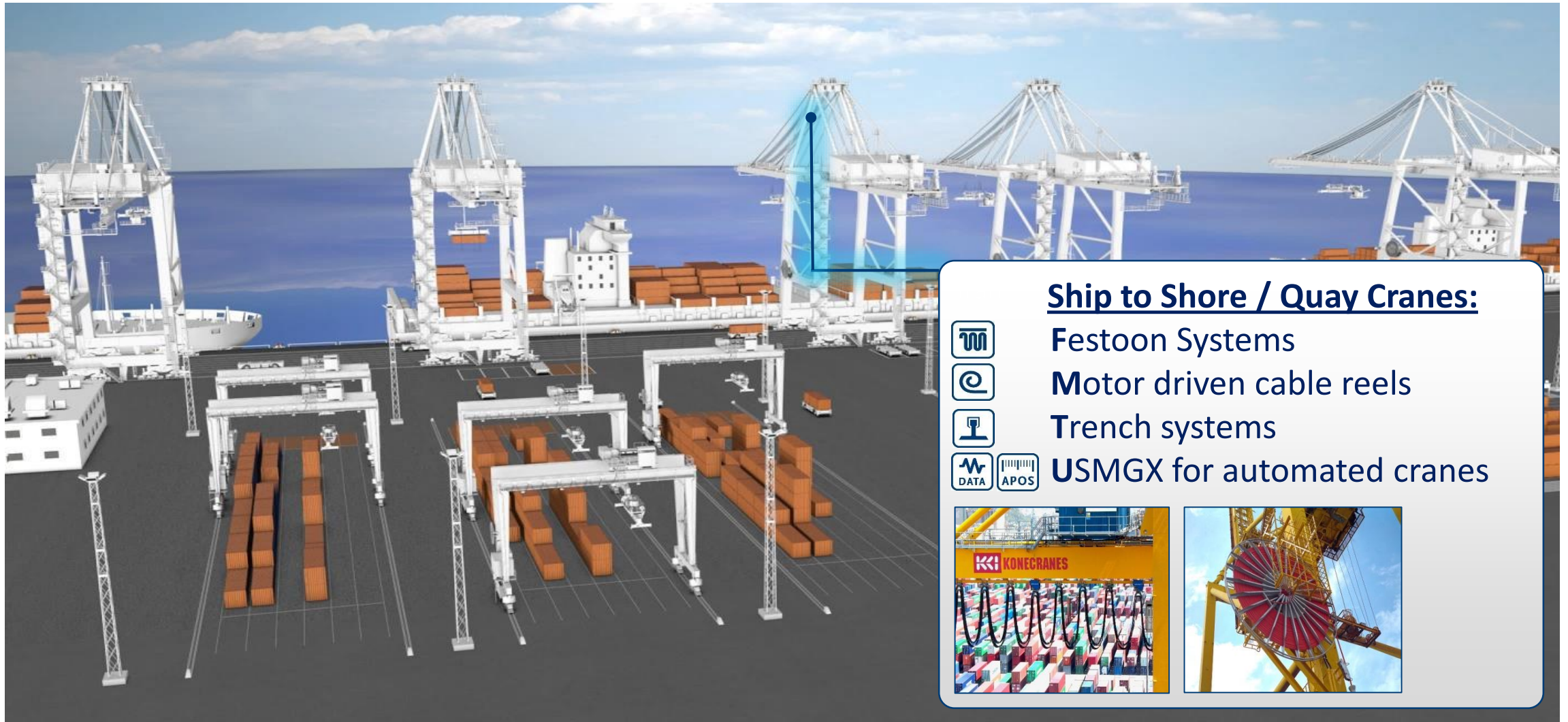


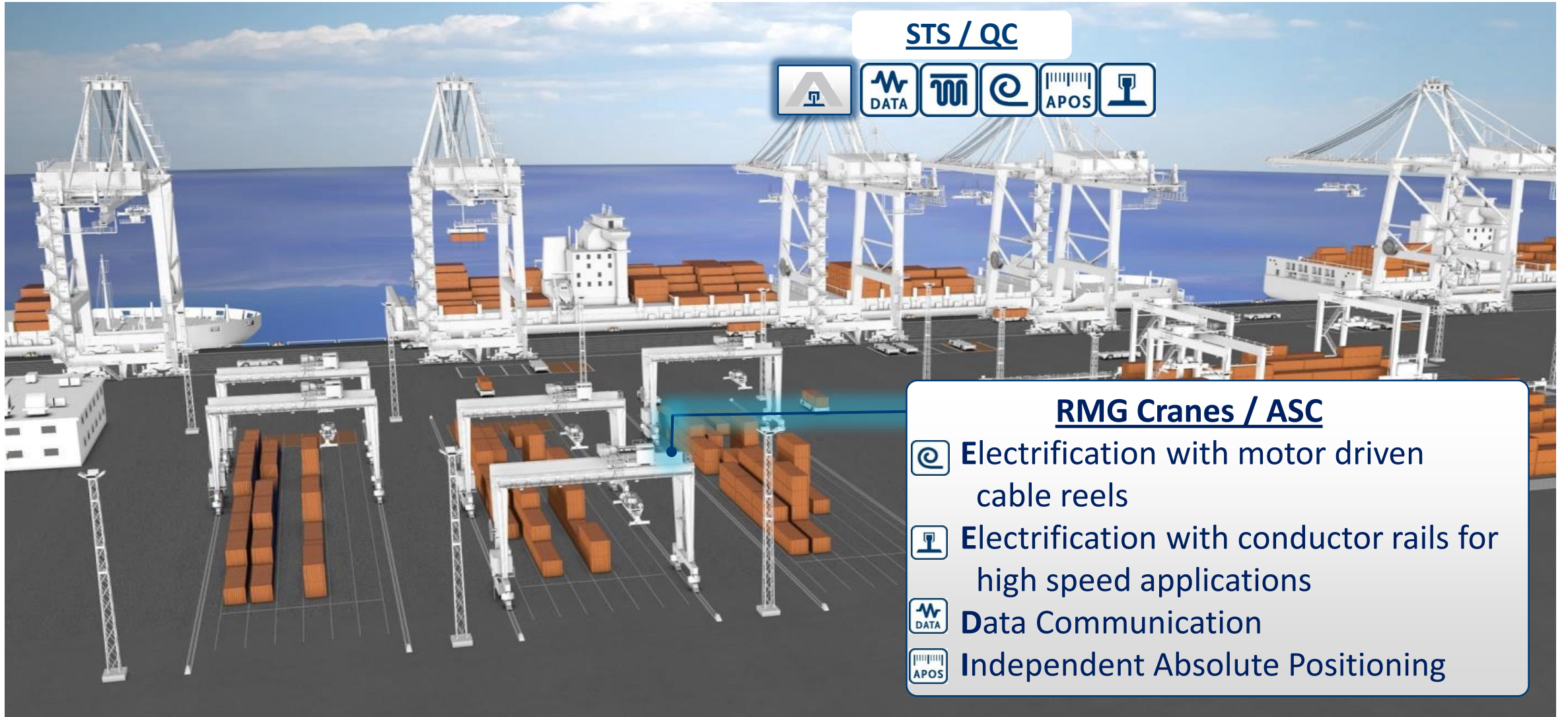


- ▲ Founded 1912
- ▲ > € 115 mil. In sales
- ▲ > 750 employees worldwide (01.01.2017)
- ▲ 12 VAHLE subsidiaries worldwide (VAHLE South East Asia founded in 2016)
- ▲ Representations in 52 countries
- ▲ 100 % family owned
- ▲ Production based in Germany











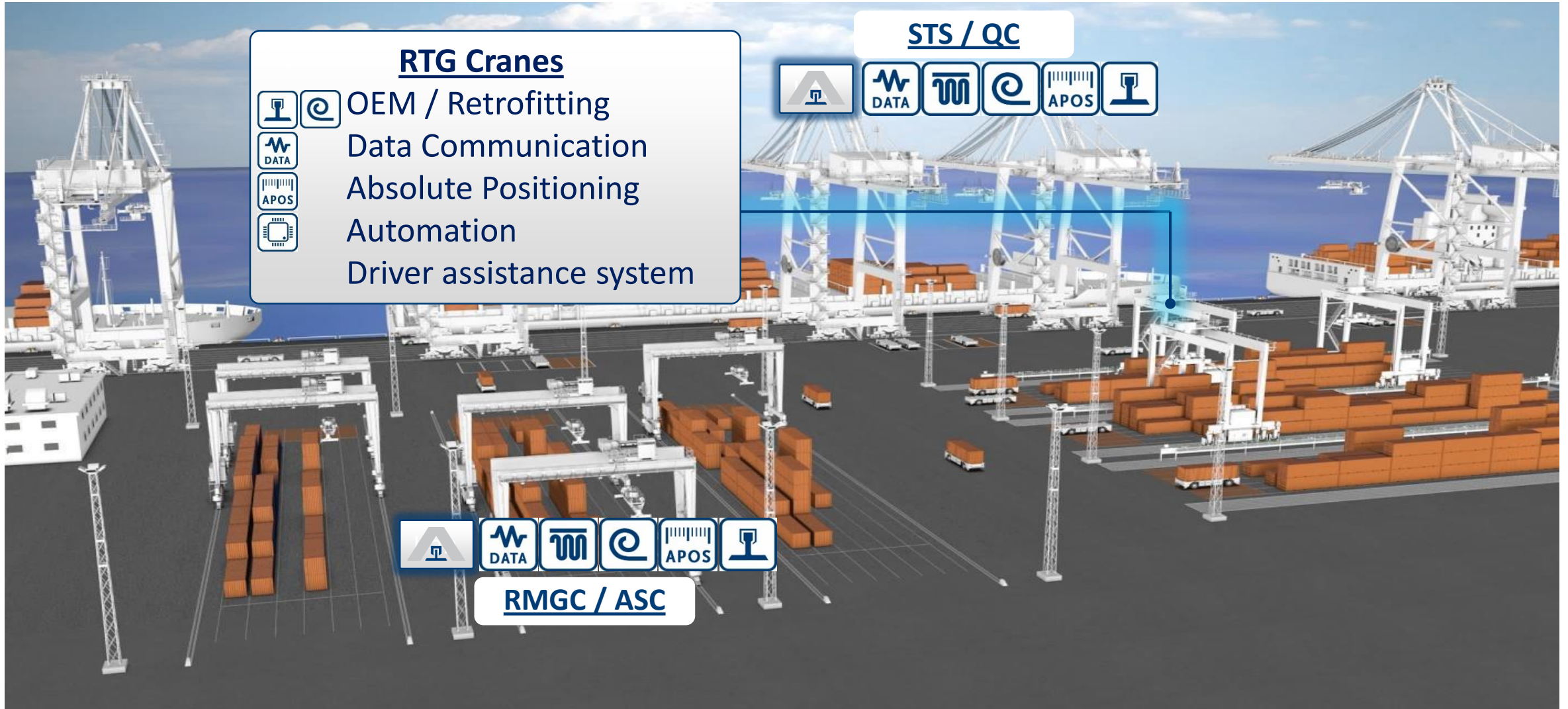


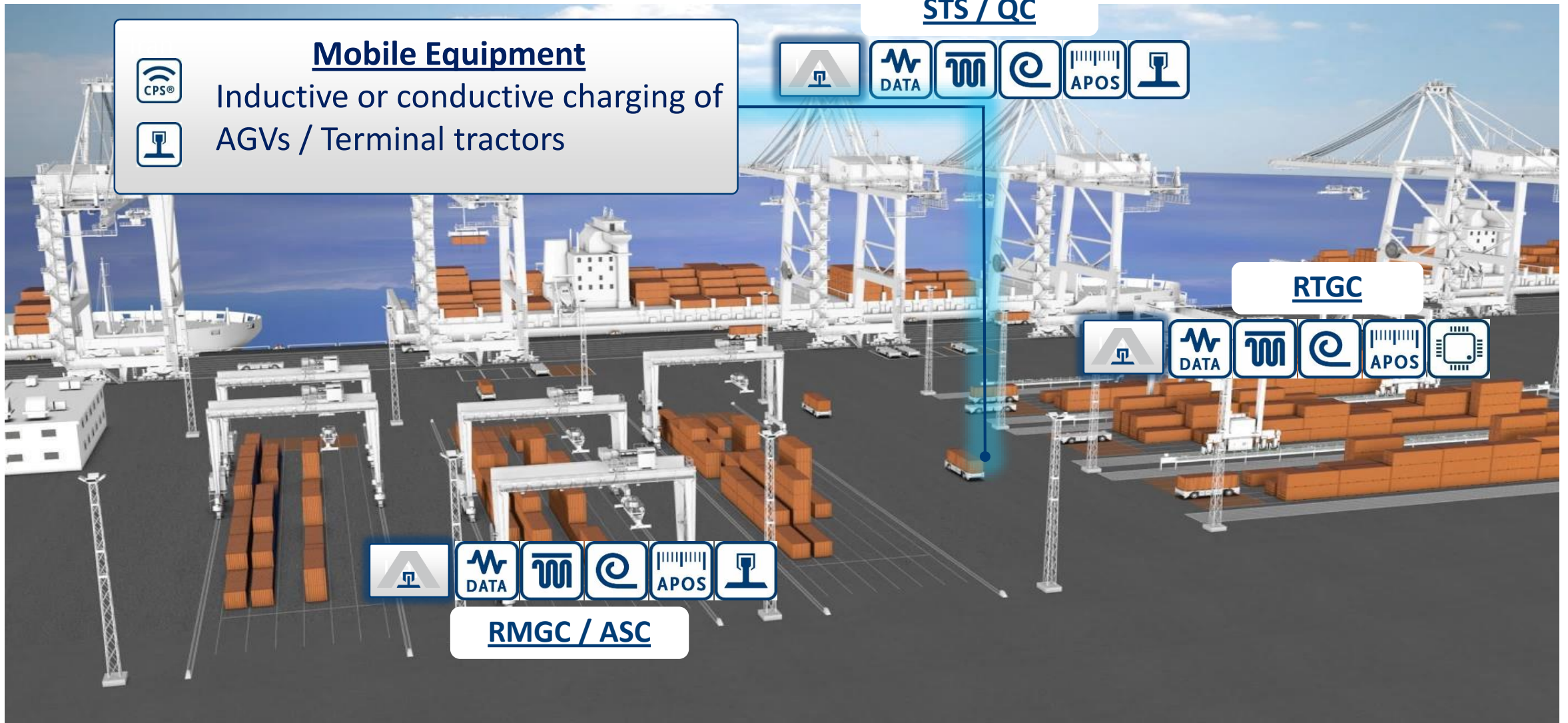
STS / QC

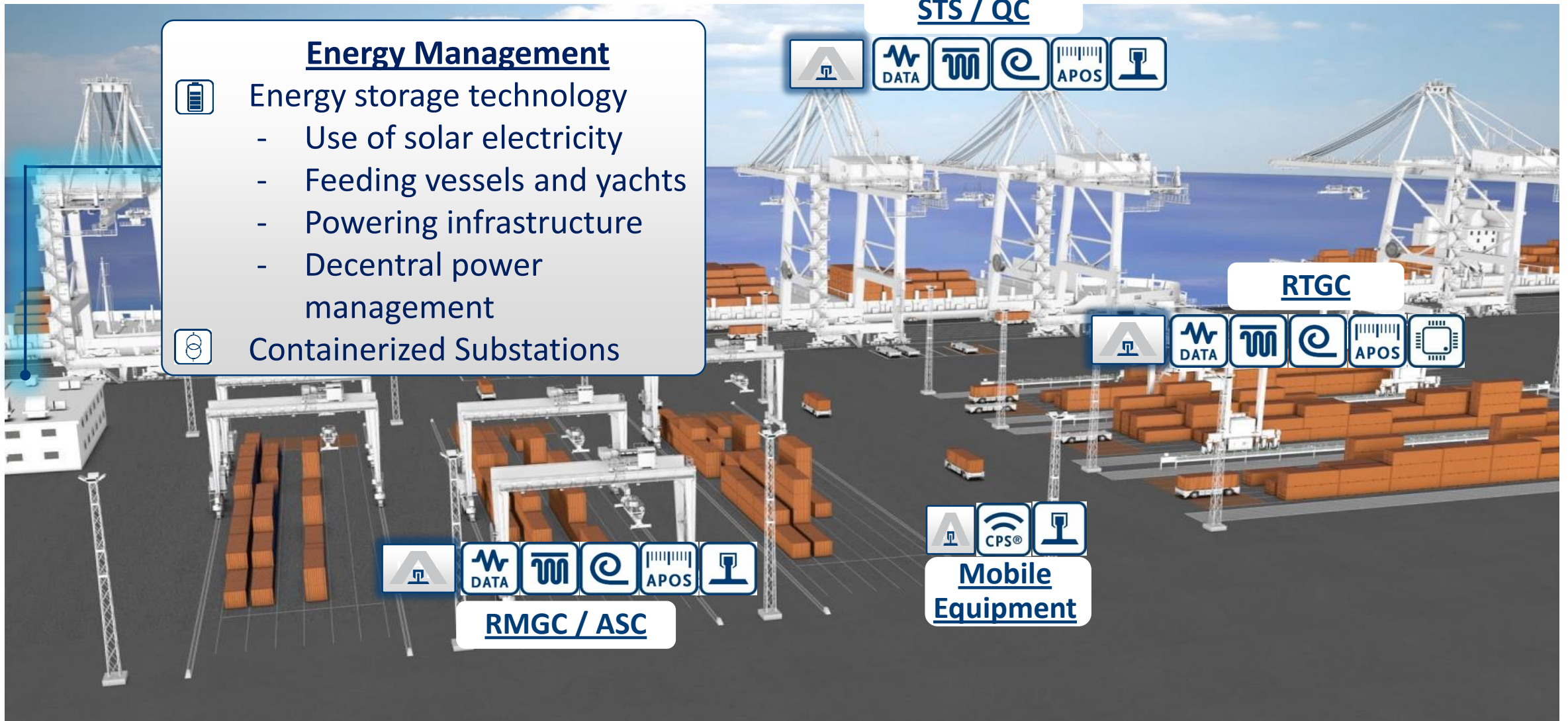


RMG Cranes / ASC

-  Electrification with motor driven cable reels
-  Electrification with conductor rails for high speed applications
-  Data Communication
-  Independent Absolute Positioning







Energy Management



Energy storage technology

- Use of solar electricity
- Feeding vessels and yachts
- Powering infrastructure
- Decentral power management



Containerized Substations

STS / QC



RTGC

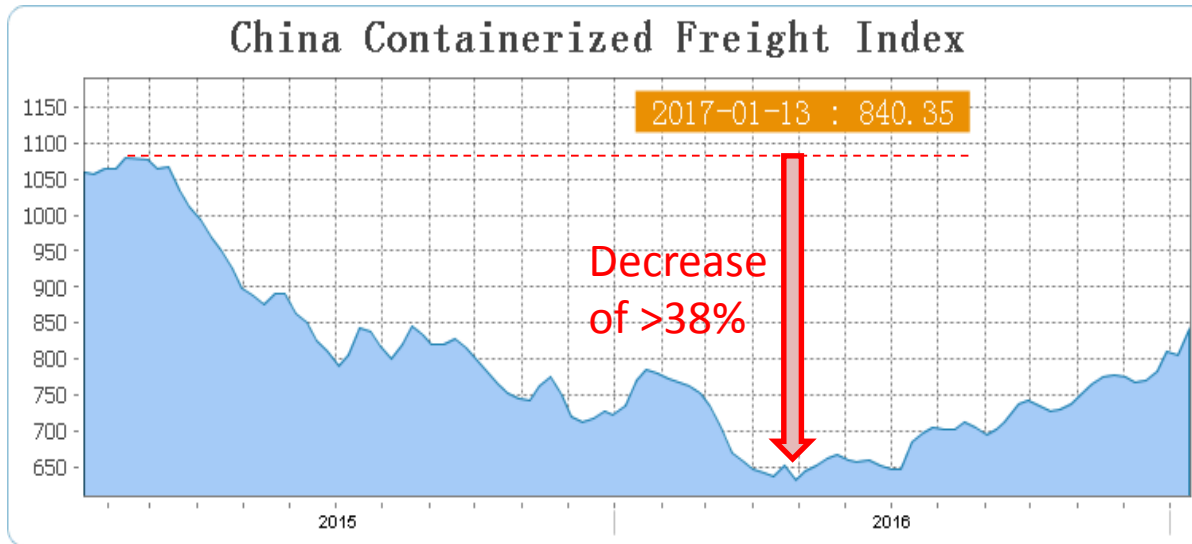


RMGC / ASC



Mobile Equipment

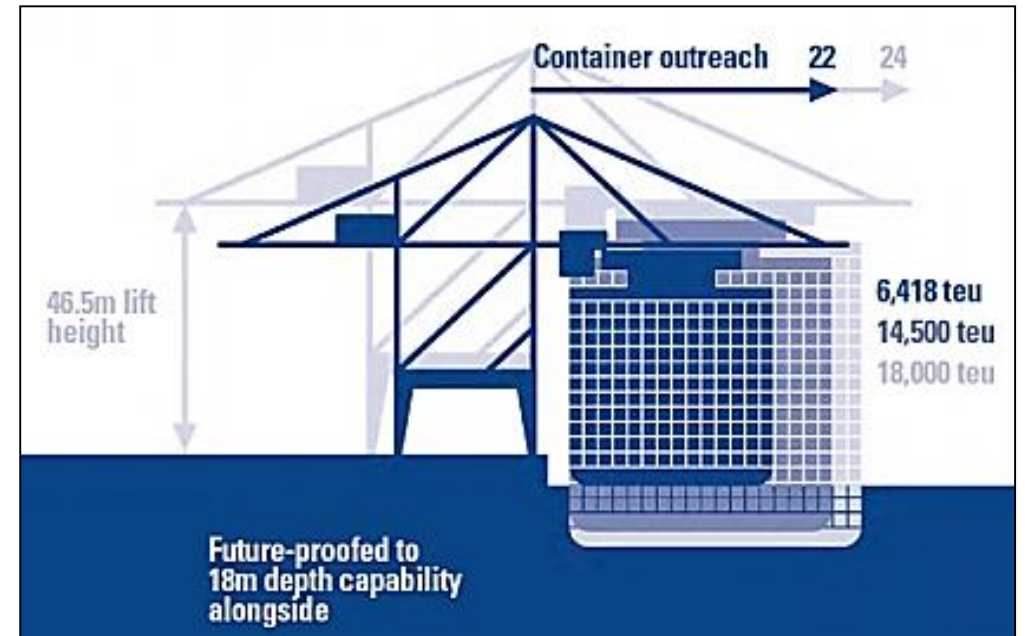
▪ **Massive Supply-Demand imbalance**



- **Capacity is already high - Supply growth outpaced demand growth by more than 2% in 2016**



▪ **Investment for Terminal Operators to serve the bigger sized Container Vessels**



- **Maintain the handling charges by reducing the operational expenses**
 - Fuel, maintenance, etc.
 - Idle time





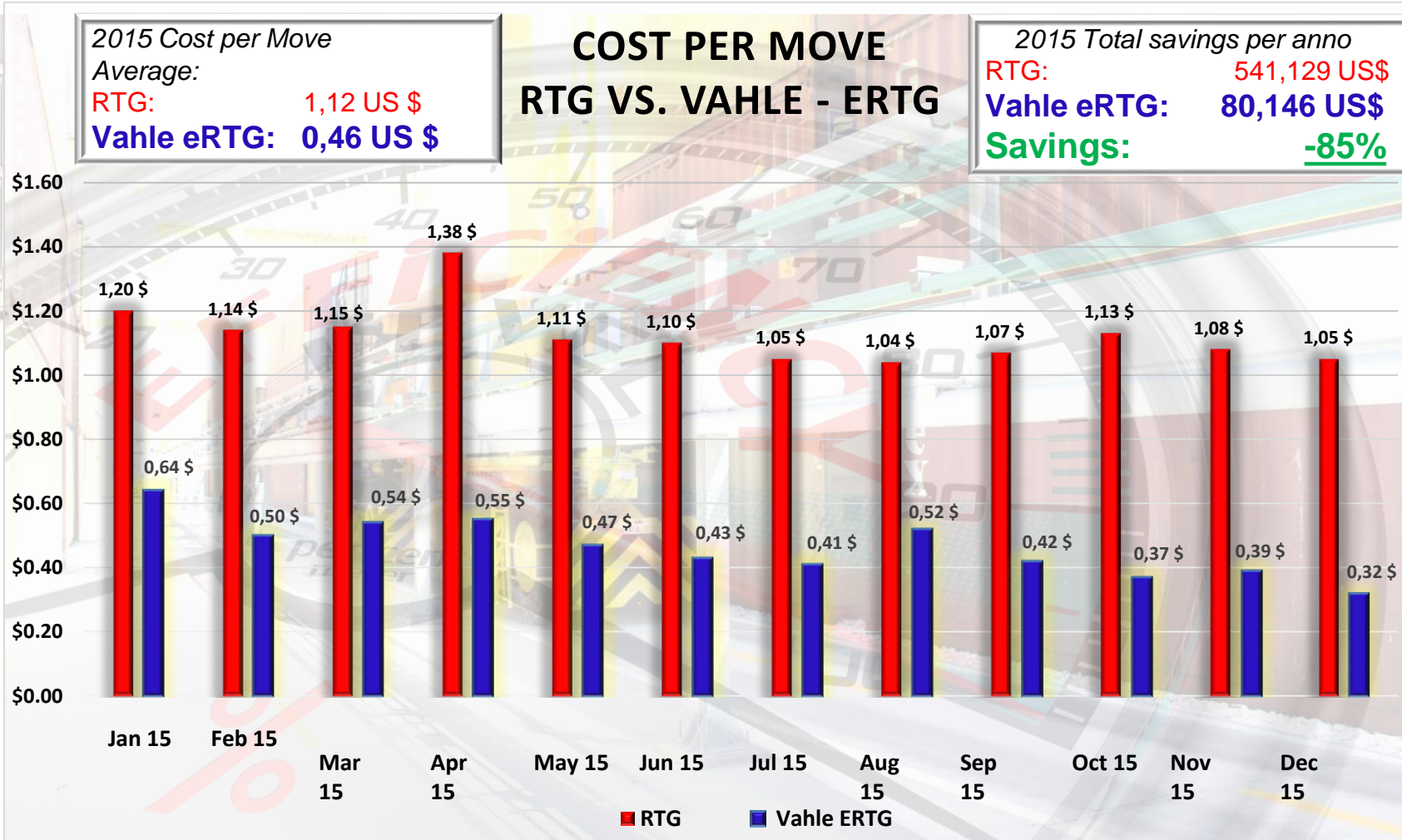
Electrification of RTG Cranes

Reduction of operational costs
Keeping the operational flexibility

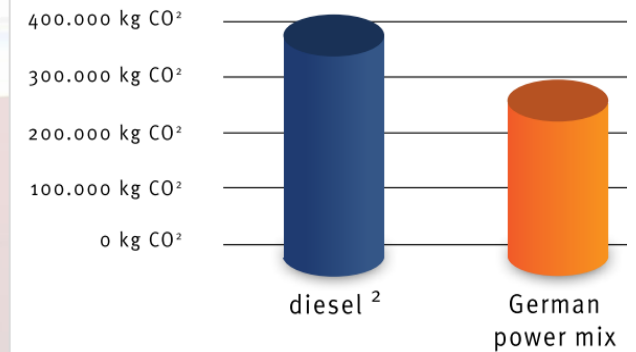
References in eRTG conversion

<u>Retrofitted RTGs:</u>	247
<u>New RTGs (OEM):</u>	108
<u>eRTGs in total:</u>	355

Supply of turnkey solutions



Reduction of carbon footprint



Source: 1 of World's Top 3 Terminal Operator

²: based on 13L Diesel engine; 12h/d operations



Data communication SMGX

Shielded communication
(slotted waveguides)

Data communication

Different technologies available
- Radio frequency, Cable, Waveguide

Positioning Systems

Different technologies available
- GPS, D-GPS, Position Beacons,
Optical Systems, RFID

IMPORTANT ASPECTS


- ✓ Reliability of safe data communication
- ✓ Average availability of data
- ✓ Protection against external influences

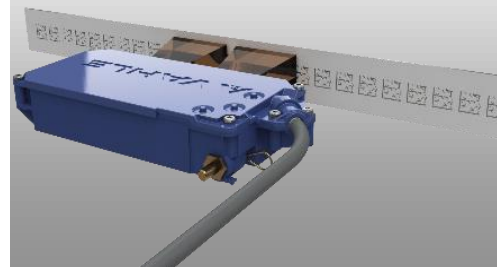
Electrification:
flexible

- Electrification by **Conductor Rails**
- **Automated Power Connection** for block changes
- Automated **seamless switching**



Positioning:
accurate

- **Absolute Positioning System** independent from external influences
- Position **accuracy** up to ± 1 mm
- **PN / PB / Ethernet** Interfaces for P Play Integrator 



Data Communication:
safe

- **Highly shielded** data communication
- Up to **100Mbit/s** gross rate
- **Low latency** times
- Interfaces **Ready for Automation** - Ethernet, Profinet & Profinet Safe

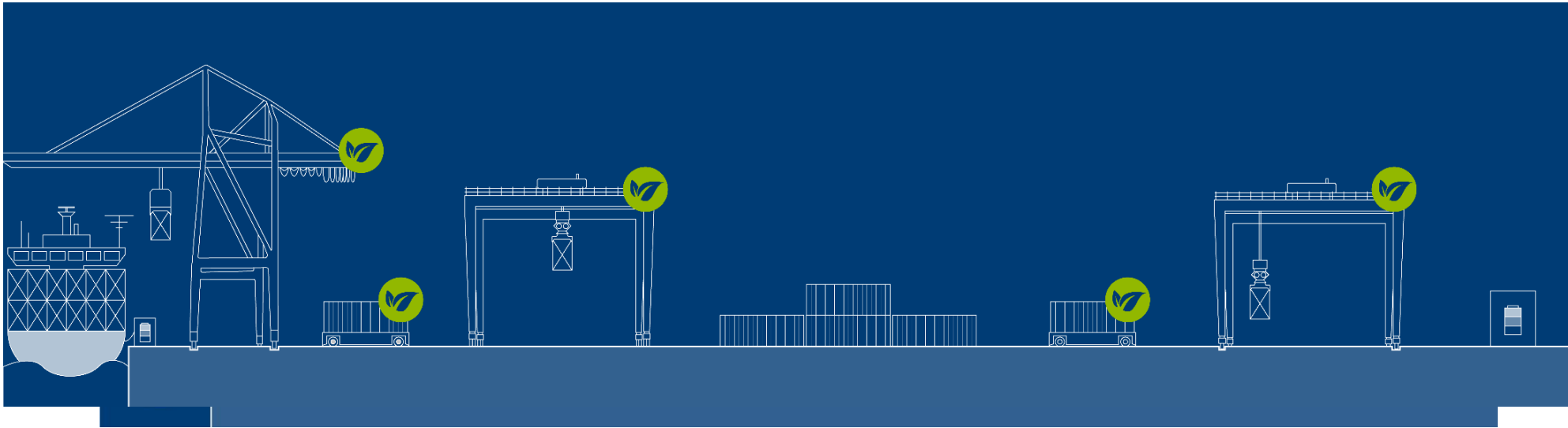


Control systems:
modular

- **Autosteering**
- **Power measurement**
- **Remote Maintenance**
- **Operating data acquisition**







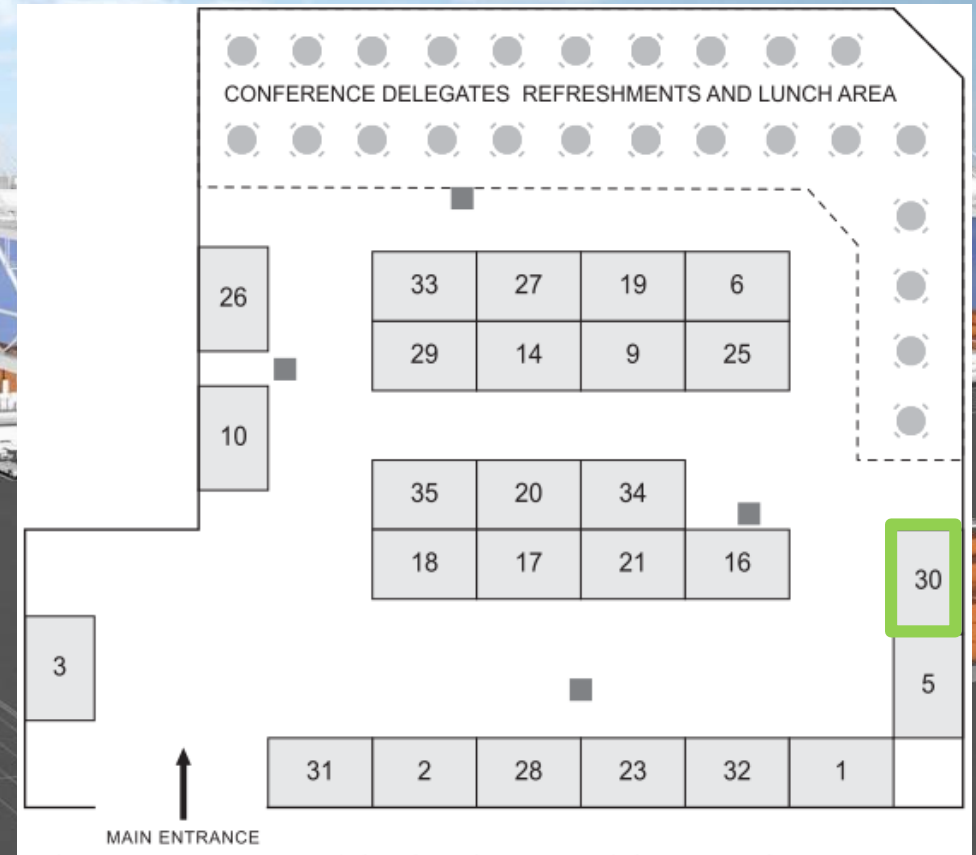
Contact details:

VAHLE System & Project Business
port-technology@vahle.de

www.vahle.com

VAHLE España S.A.U.

España
Ronda de la Industria, 18
08210 Barberá del Vallés
(Barcelona)
T: +34 93 7184773
F: +34 93 7185216
M: vahle@vahle.es



For more detailed information,
please visit us at **booth 30**.