



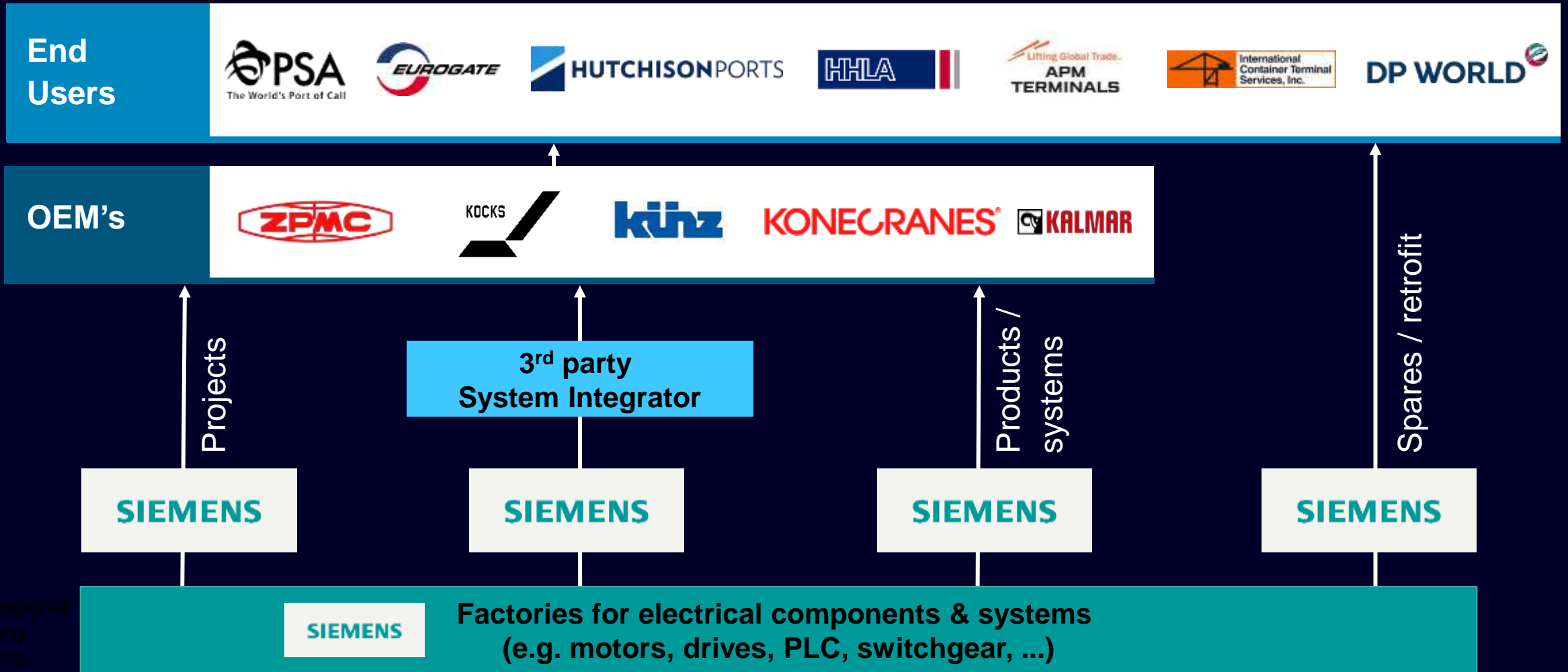
How crane automation improves port performance

Baltic Ports and Shipping, Lübeck | September 21, 2021 | Guus Janssen



“Bigger ships are upon us...”

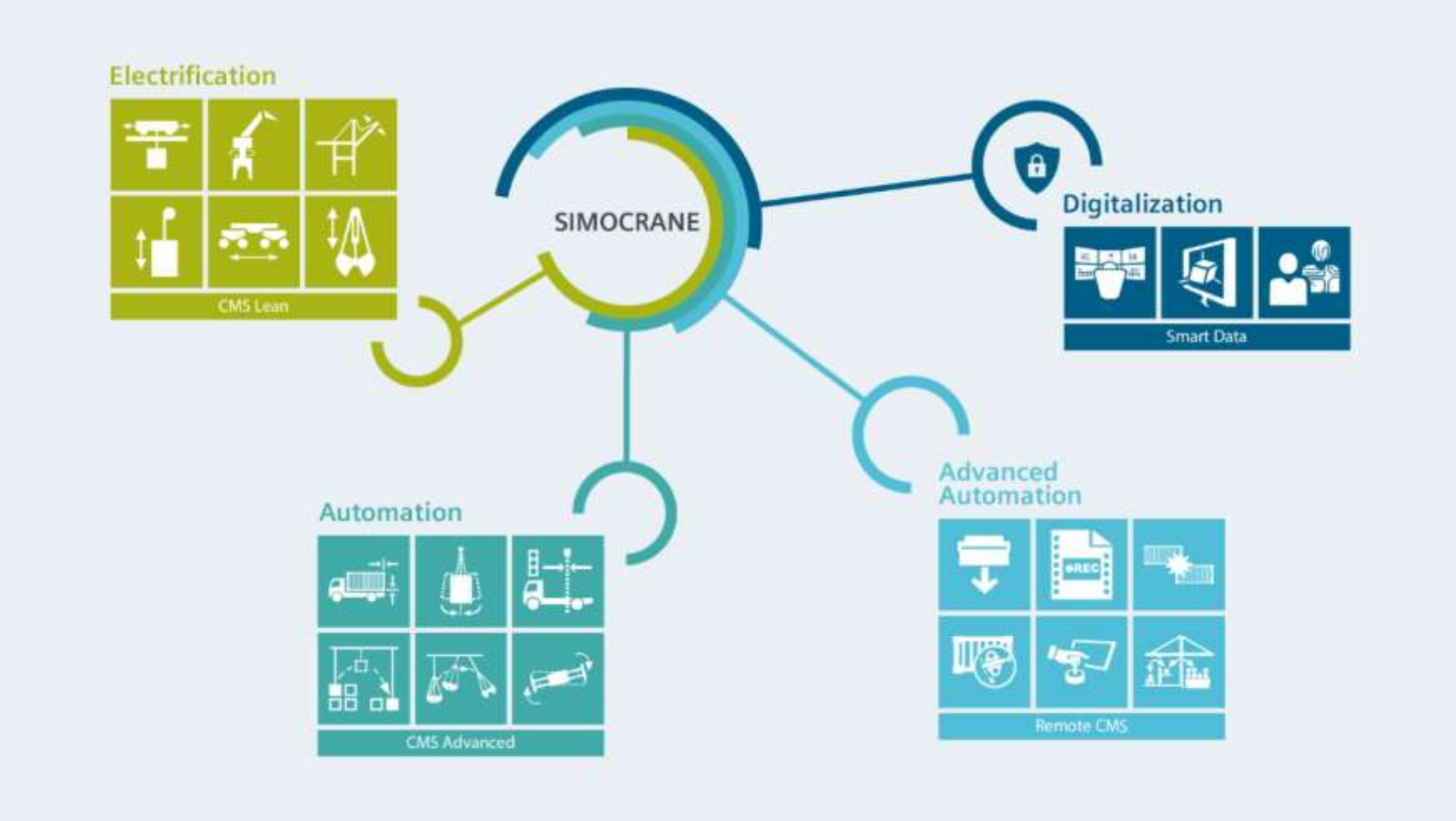
Our channels to the market



RC: Regional company Siemens

Simocrane automation modules

“Standardized, modular, open and scalable solutions”



Investment Risk Mitigation

Invest

Objectives

- Go-live time
- Productivity (MPH)
- OPEX
 - Land area concession
 - Maintenance cost (sensors, IT, ...)
 - Manual interventions
 - Overall Equipment Effectiveness**
- CAPEX
 - Civil Engineering
 - Equipment (cranes, ...)
 - Automation solutions

Technology

Existing

- Product platform
- Expertise
- Standardization
- Support
- Digital Twin
- Software solutions / algorithm

New

- Waterside automation
 - Tidal shift
- Automatic coning / de-coning
 - Vessel drift
- Equipment integration
 - Personnel on deck
- Safety certified sensors
 - Cell guides

Risks

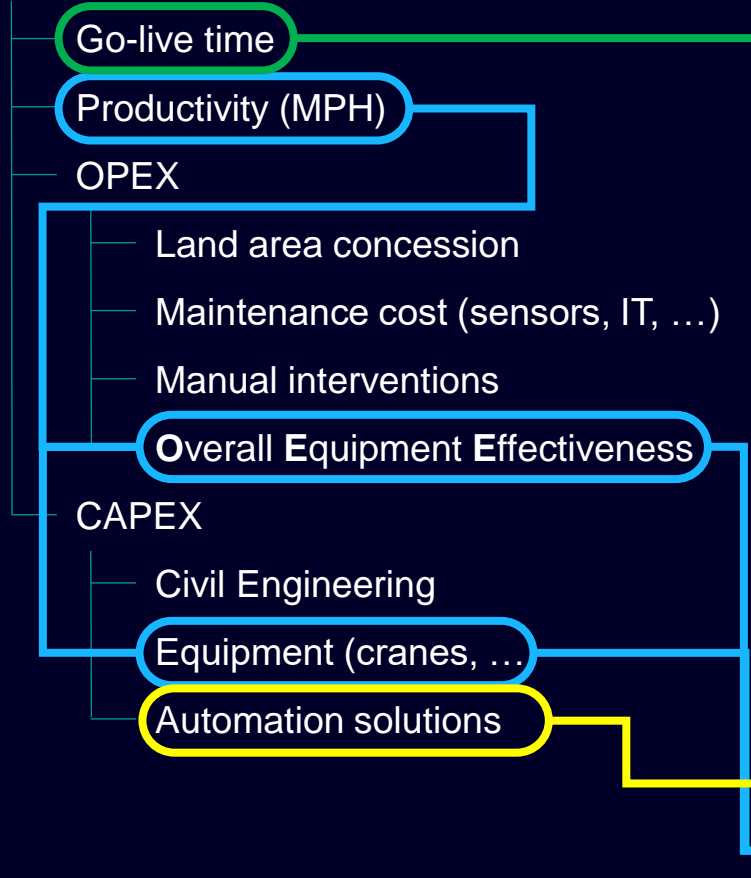
- Technical requirements
- References
- Interfaces
 - TOS
- Resources
 - ECS
- Go-live time
 - HT
- Cybersecurity
 - Gate
- Unplanned downtime

Investment Risk Mitigation

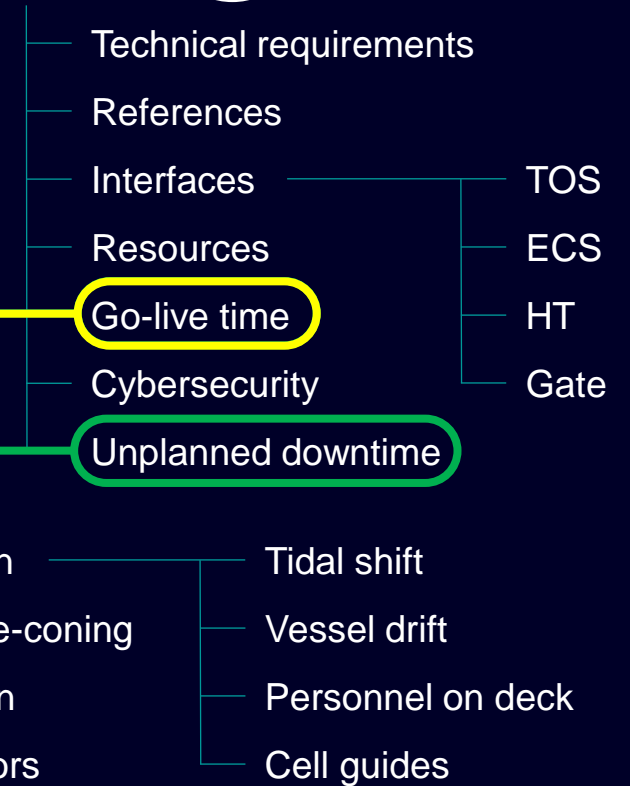
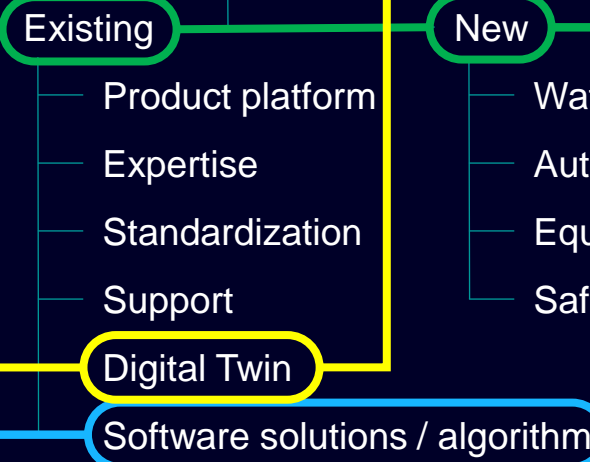
Invest

Risks

Objectives



Technology



Automation for different crane types



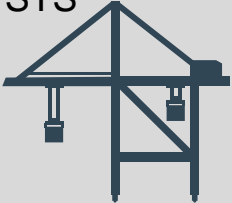









Semi-automated with limited driver assistance



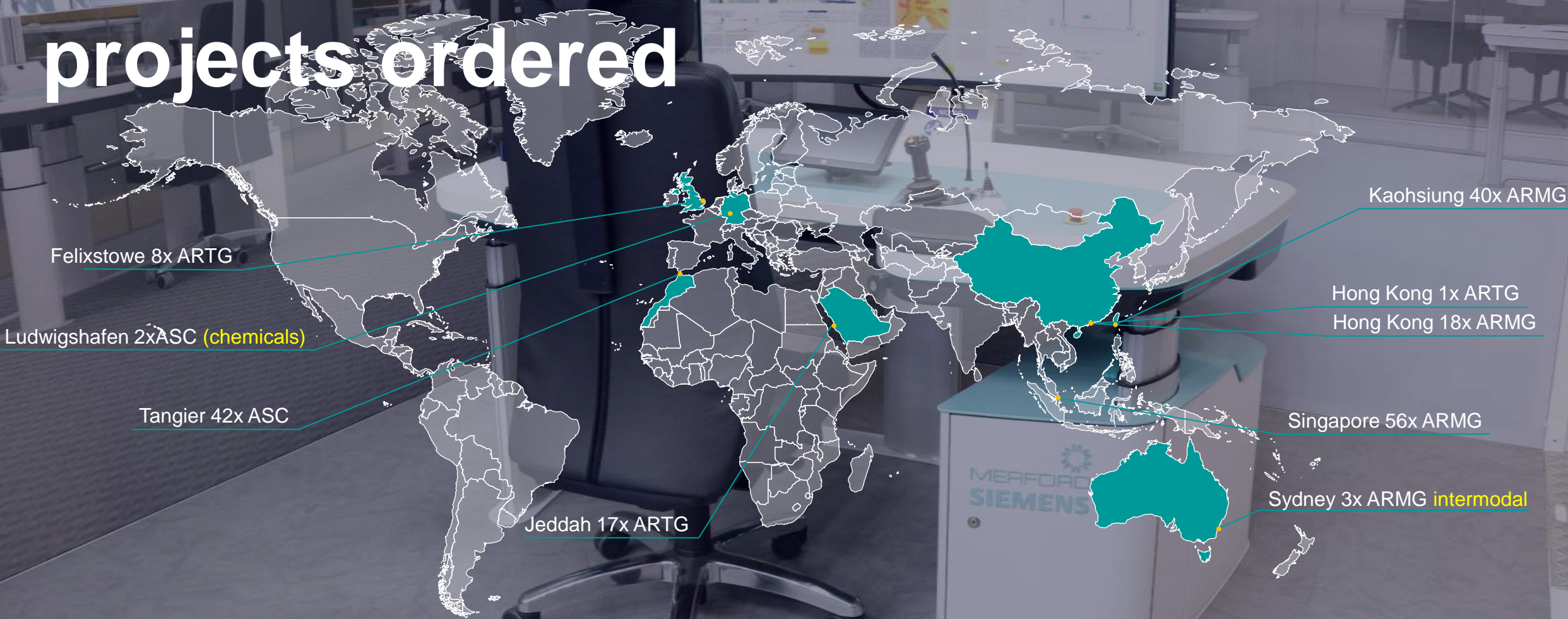
Semi-automated with extensive driver assistance



Fully automated with manual intervention

Crane type	Sub-type	Automation Degree	Status description
 STS	Single trolley		LS – Limited resolution of trolley-mounted sensor is critical WS - development
	Double trolley		LS – several units in commercial operation WS - development
 RMG	Portal (ASC)		Ca. 1000 units in commercial operation Majority as ASC with AGV, strad and truck interface
	Cantilever (ARMG)		ARMG with truck interface, critical aspect of driver present in cabin
 RTG	16-wheel		First units in commercial operation
	8-wheel		Critical aspect of handling of truck under RTG in truck lane Topic „personnel safety“ still a challenge
 Strad	Straddle carriers		First units in commercial operation

Latest automated cranes projects ordered



Your considerations towards automation – choose your partner wisely



Choose **standard, modular, open and scalable**, solutions



Use **digital twins** to minimize project risks



Get an **experienced** crane automation partner



“we continue to lead the way in digitalization, electrification and automation and redefine the ports’ standards for safety, throughput and sustainability”

| Contact

Guus Janssen

Siemens AG

Digital Industries

Mobile: +49 173 538 3409

<mailto:guus.janssen@siemens.com>

www.siemens.com/cranes

[#thinkingcranesfurther](https://twitter.com/thinkingcranesfurther)

