



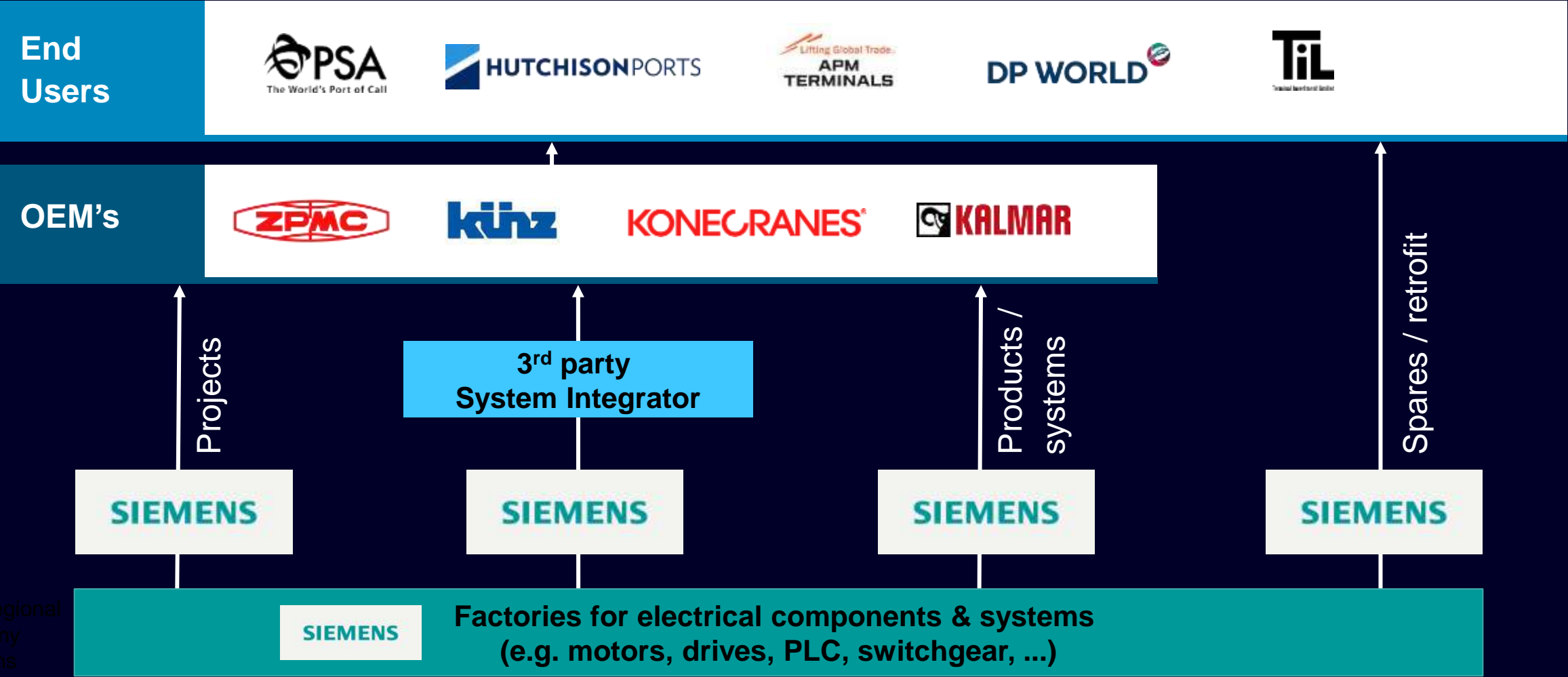
How crane automation improves port performance

Mediterranean Ports and Shipping, Valencia | 06.10.2021 | Gerhard Fischer



“Bigger ships are upon us...”

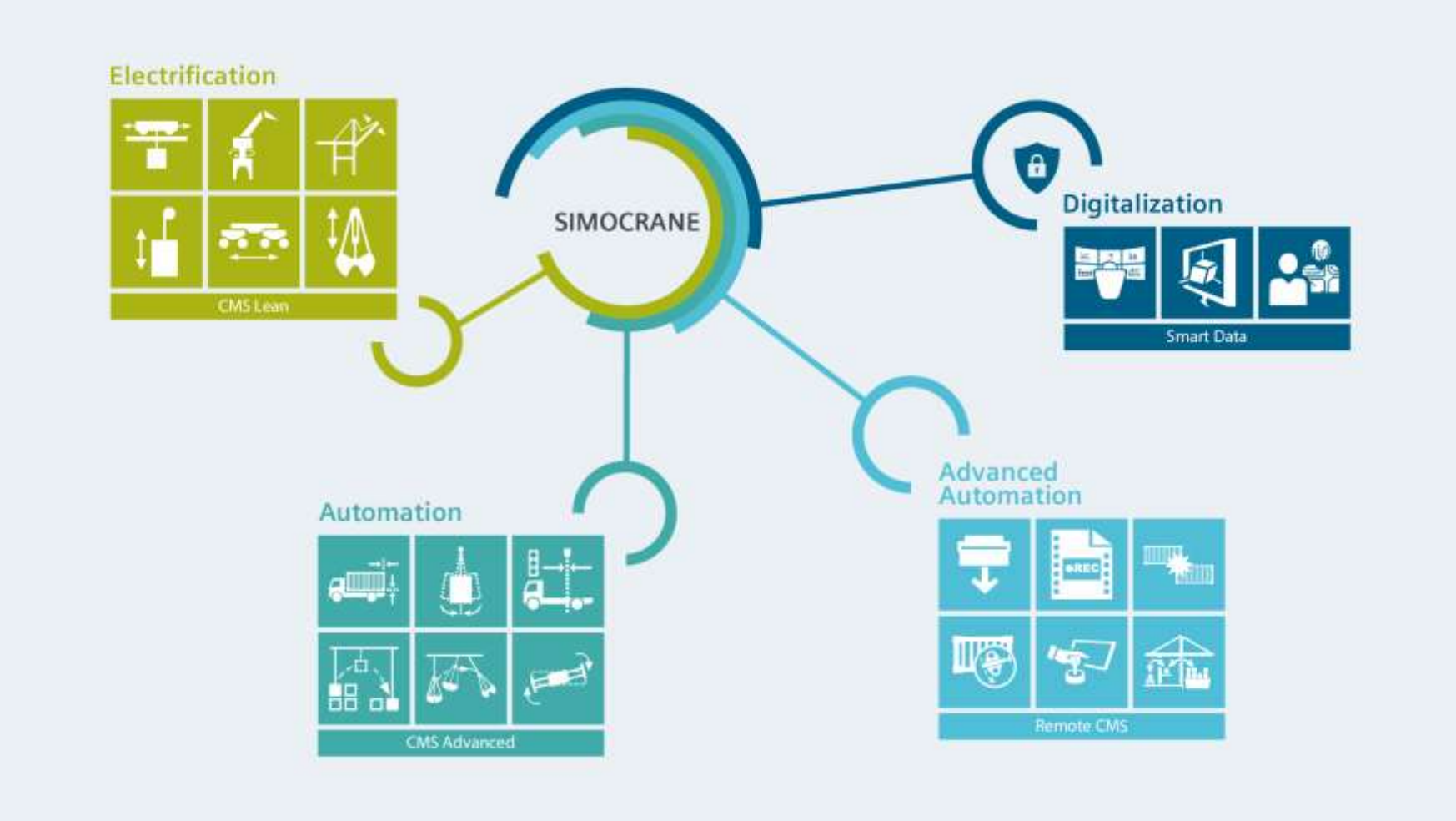
Our channels to the market



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

Energy, fuel

CAPEX

Civil Engineering

Equipment (cranes, ...)

Automation solutions

Technology

Existing

Product platform

Expertise

Standardization

Support

Digital Twin

Software solutions / algorithm

New

Waterside automation

Automatic coning / de-coning

Equipment integration

Safety certified sensors

Risks

Technical functionality

References

Interfaces

Resources

Go-live time

Cybersecurity

Unplanned downtime

TOS

ECS

HT

Gate

Tidal shift

Vessel drift

Personnel on deck

Cell guides

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- Go-live time
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- OPEX
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 - Maintenance cost (sensors, IT, ...)
 - Manual interventions
 - Energy, fuel
- CAPEX
 - Civil Engineering
 - Equipment (cranes, ...)**
 - Automation solutions**

Technology

Existing ————— New

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> Product platform Expertise Standardization Support Digital Twin Software solutions / algorithm | <ul style="list-style-type: none"> Waterside automation Automatic coning / de-coning Equipment integration Safety certified sensors | <ul style="list-style-type: none"> Tidal shift Vessel drift Personnel on deck Cell guides |
|--|---|---|

Risks

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

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Automation for different crane types



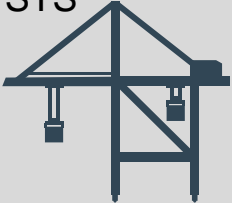



Semi-automated with limited driver assistance



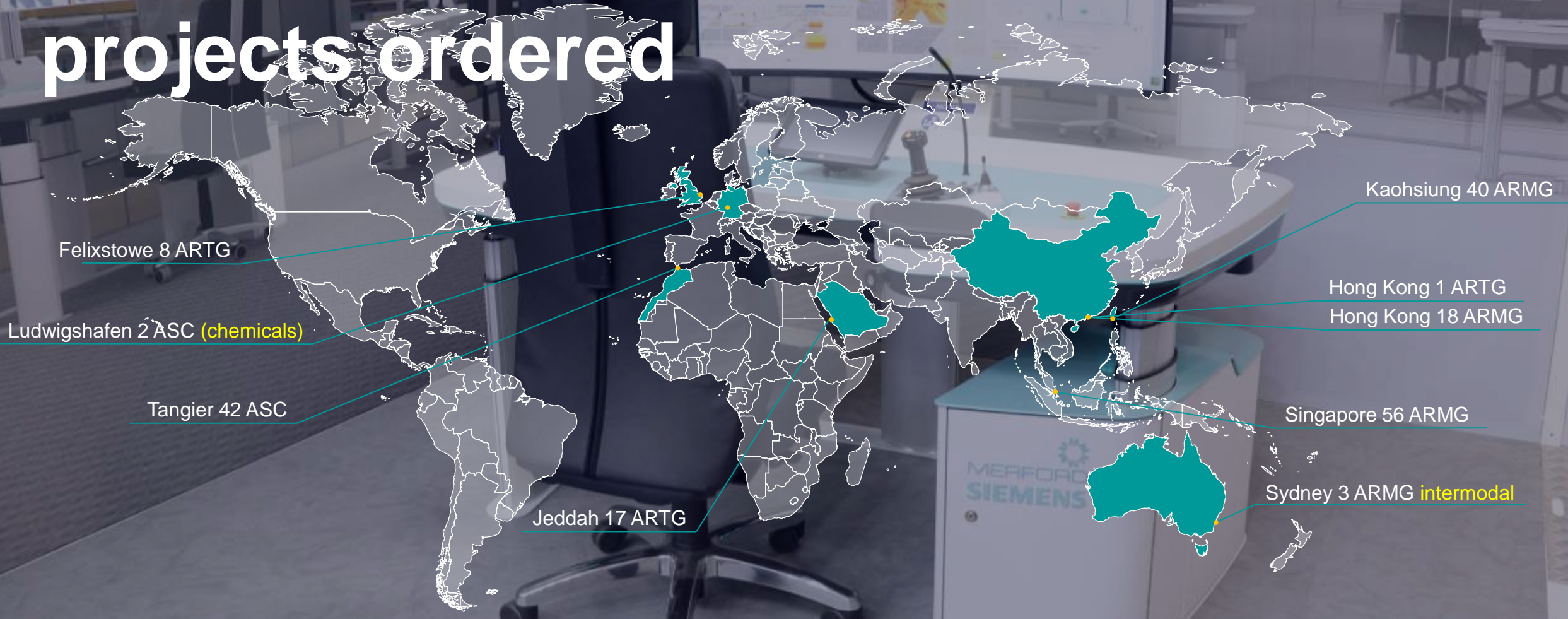
Semi-automated with extensive driver assistance



Fully automated with manual intervention

Crane type	Sub-type	Automation Degree	Status description
 <p>STS</p>	Single trolley		LS – Limited resolution of trolley-mounted sensor is critical WS - development
	Double trolley		LS – several units in commercial operation WS - development
 <p>RMG</p>	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
 <p>RTG</p>	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
 <p>Strad</p>	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



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

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