

14th TRANS Middle East
TEHRAN 2017



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14th Trans Middle East

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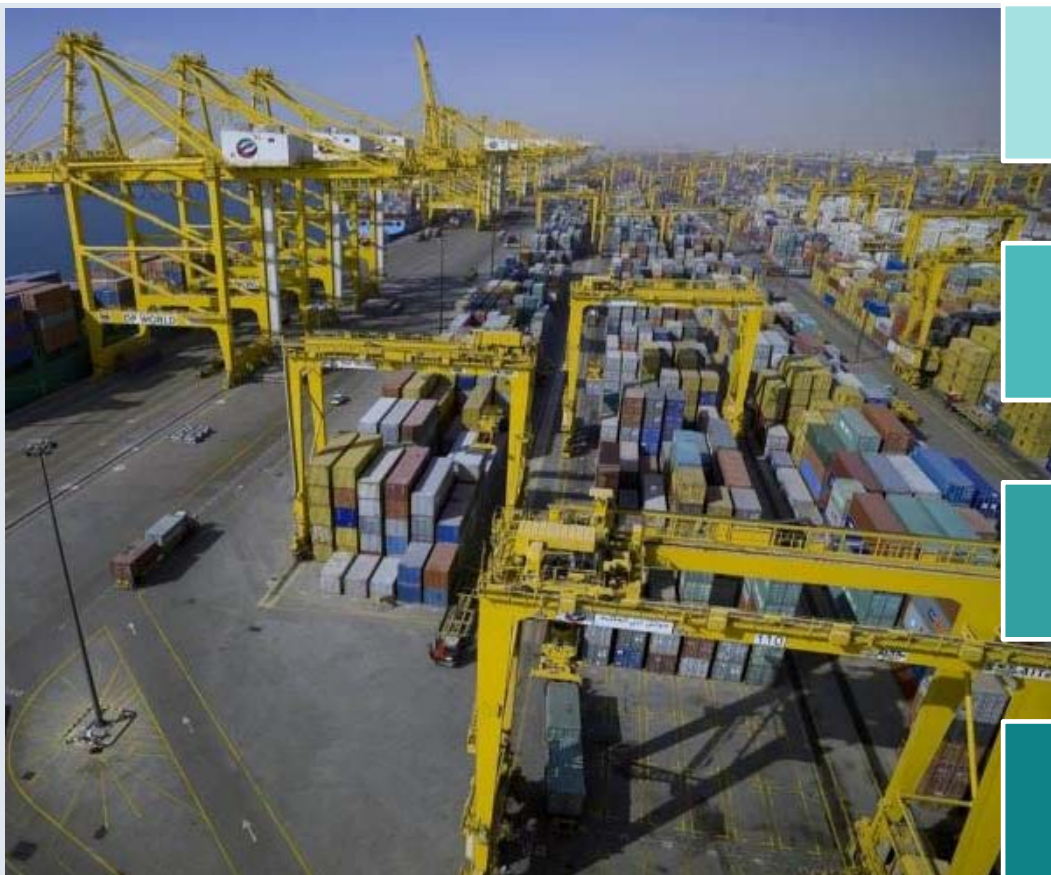
Crane Automation Paradigm Change

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Terminal automation



Productivity



Automation



Complexity



Delayed „Go Live“

Automation drivers

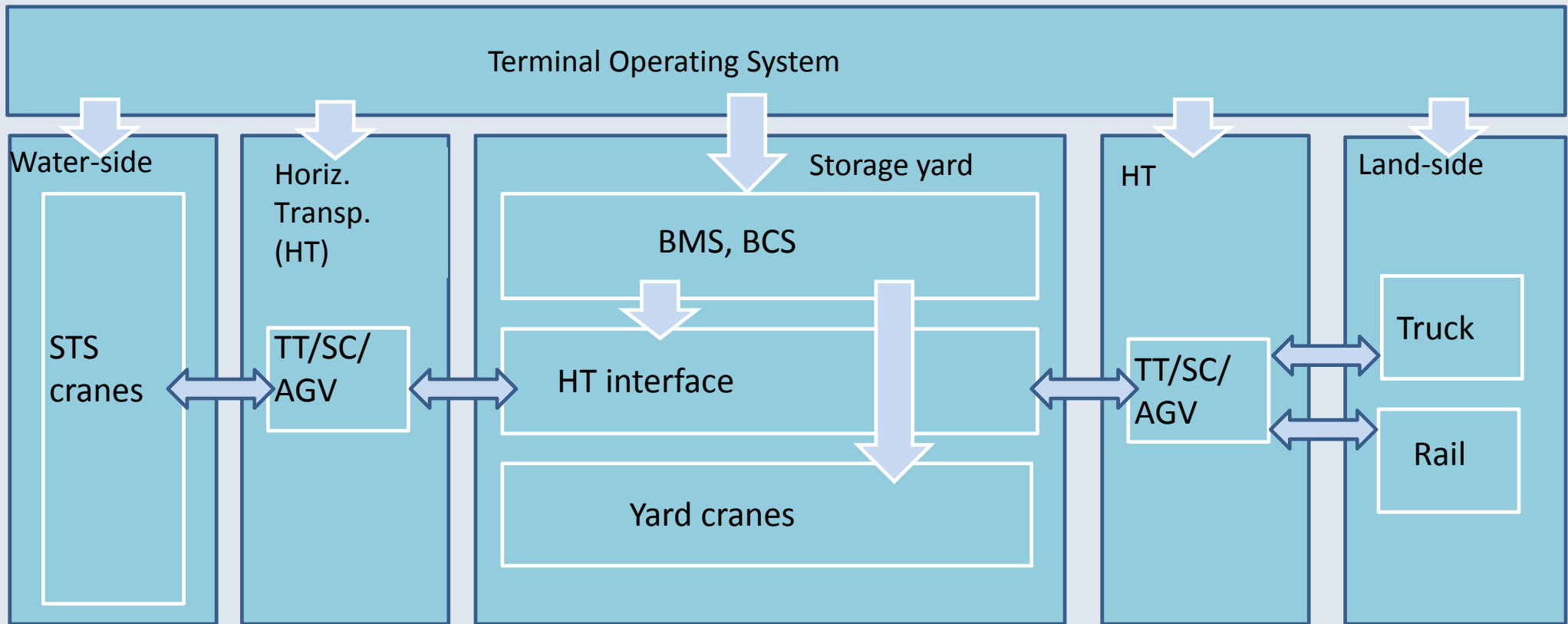
Pro:

- Reduced OPEX
- Performance
- Safety
- Yard density

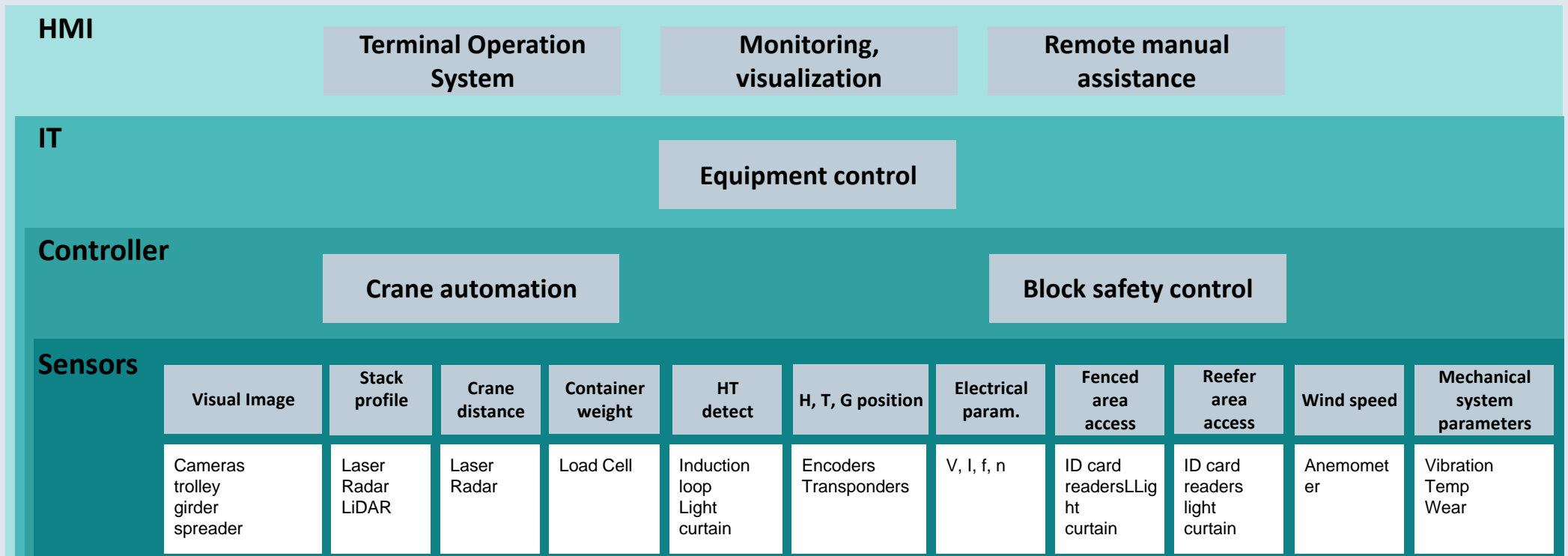
Con:

- High capital invest
- Deployment in large lumps
- Reduced flexibility
- Risk

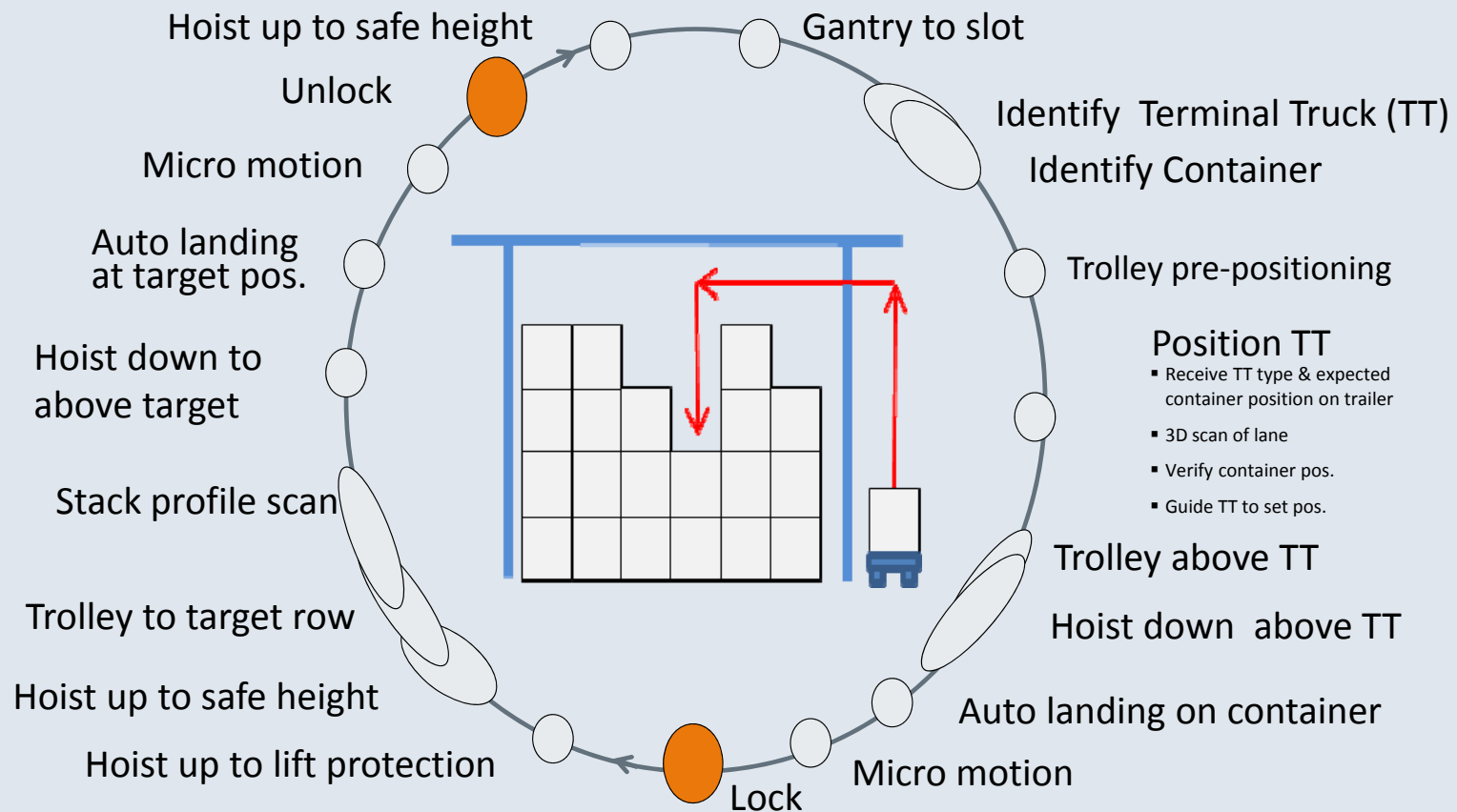
Automated terminal



Crane software architecture

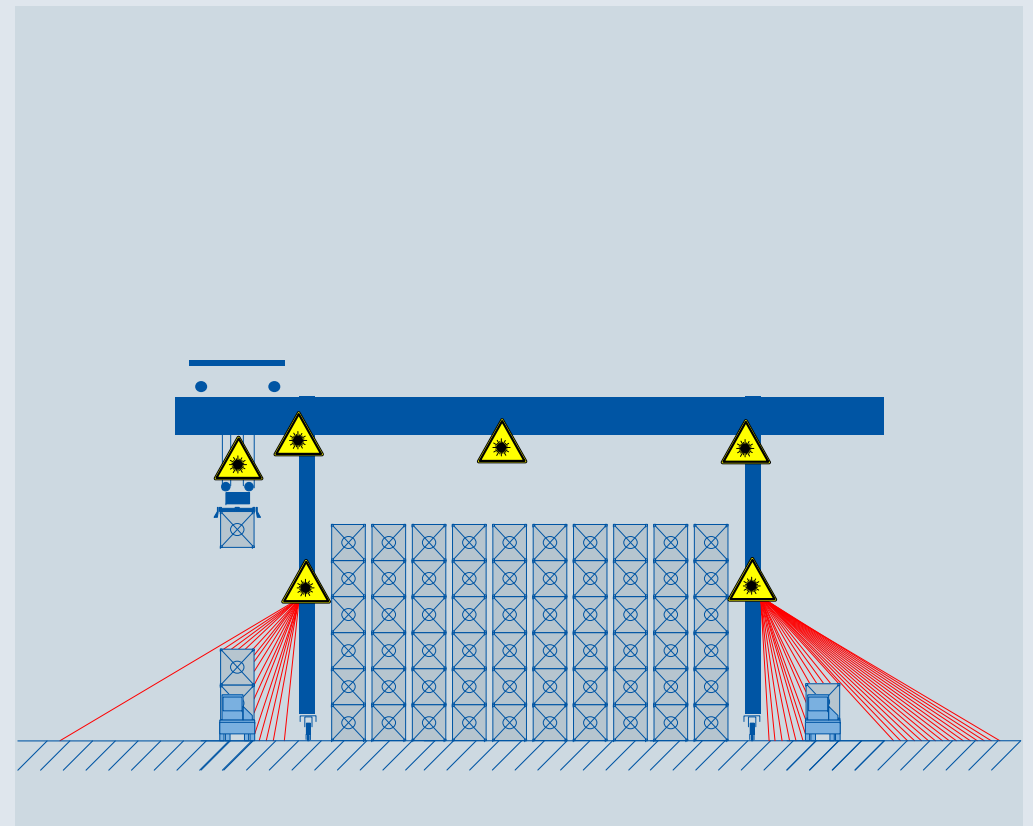
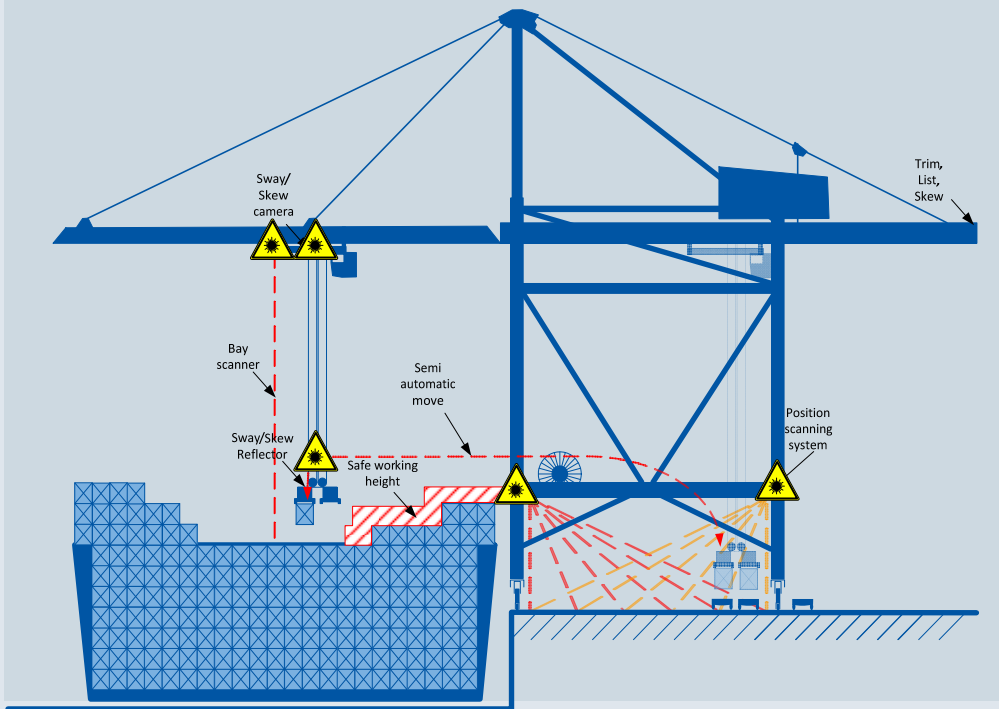


Automatic operation cycle

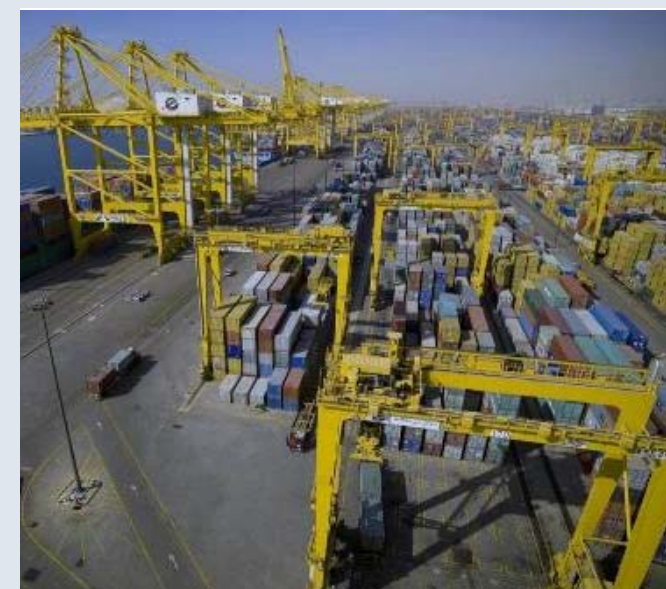


Sensors on automated cranes

⚠ Sensors



Innovation cycles



**Sensors
3 years**

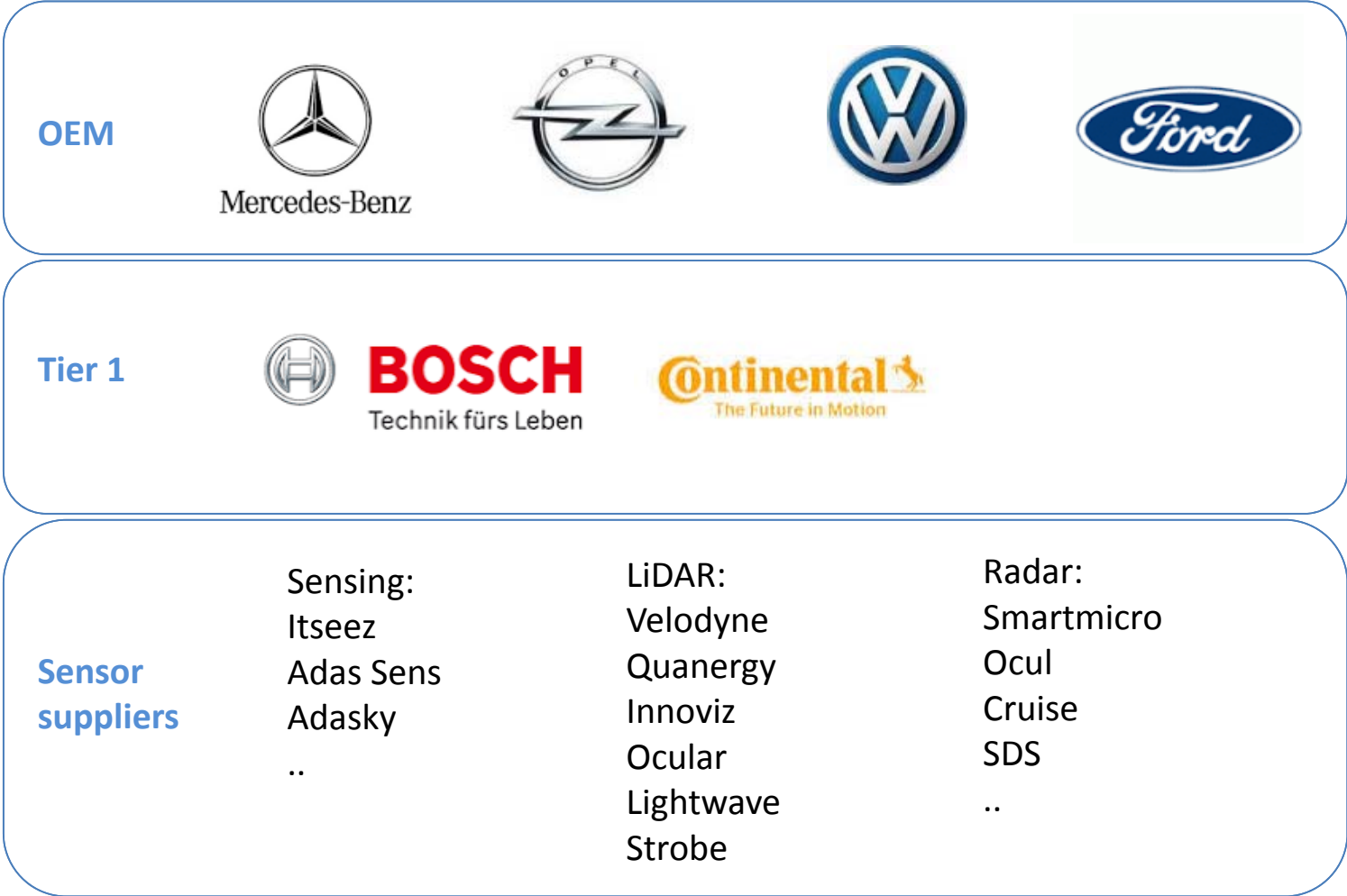


**Electrical system
15 years**



**Crane
30 years**

Automotive analogy

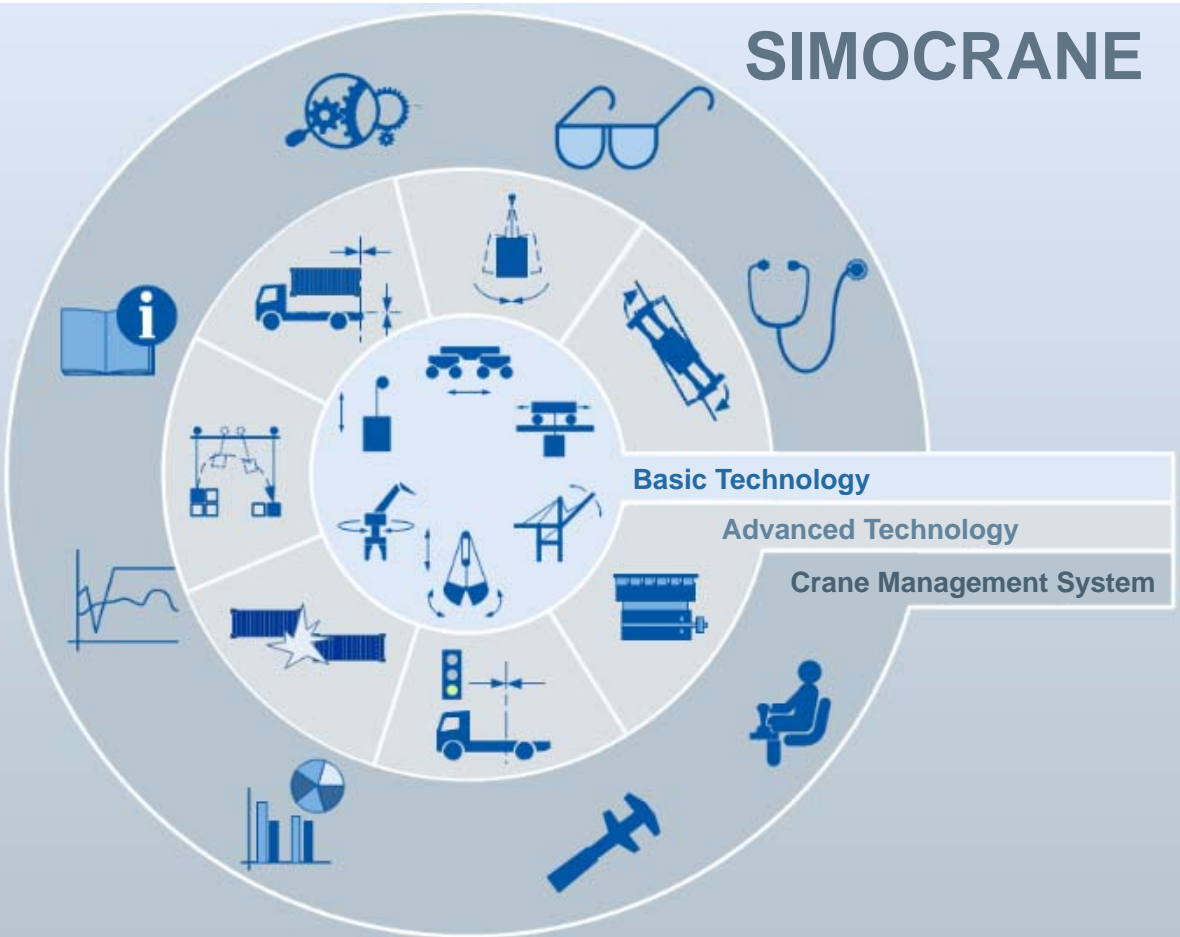


Interface standardization



SIMOCRANE – Modular Software

SIMOCRANE



Interface example

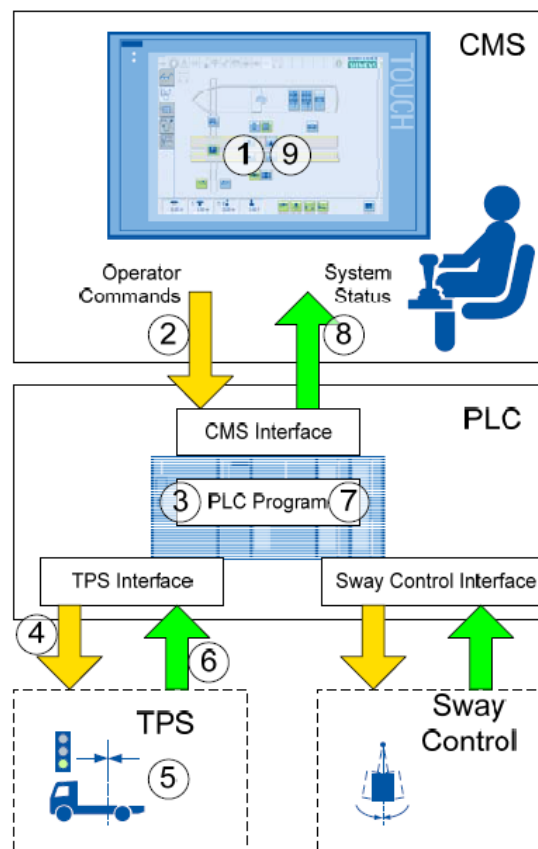
Interface Document

SIMOCRANE CMS V4.1 SP1
Application • June 2011

Applications & Tools

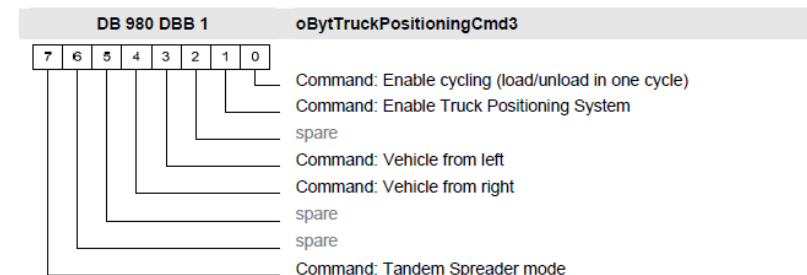
Answers for industry.

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3.16.1 CMS to PLC ("Operator commands")

No.	Address	Tag name	Description	Type
1.	DB 980 DBB 1	oBytTruckPositioningCmd3	Binary information see below	Byte
2.	DB 980 DBB 4	oBytSwayControlCmd4	Binary information see below	Byte
3.	DB 980 DBB 5	oBytSwayControlCmd3	Binary information see below	Byte
4.	DB 980 DBB 24	oBytLane2Number	Lane number 1 (waterside)	Byte
5.	DB 980 DBB 25	oBytLane1Number	Lane number 2 (landside)	Byte
6.	DB 980 DBB 26	oBytStoreCurrentPosition	Teach actual positions of Hoist and Trolley for a lane. 0 ... no action 1 ... lane 1 2 ... lane 2 ... 32 ... lane 32	Byte
7.	DB 980 DBB 28	oBytLane2Status	Binary information see below	Byte
8.	DB 980 DBB 30	oBytLane1Status	Binary information see below	Byte



Conclusion

Automation

pro:

- Reduced OPEX
- Performance
- Safety
- Yard density



con:

- High capital invest
- Deployment in large lumps
- Reduced flexibility
- Risk

Mitigation:

- Modularity
- Standardization
- Simulation
- Pre-testing

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Thank you !