

Morocco/Tanger - 27.04.2016 – 4th MED Ports 2016 Conference

# Siemens Cranes

Topic: Life cycle management for drive, control and automation systems in port equipment

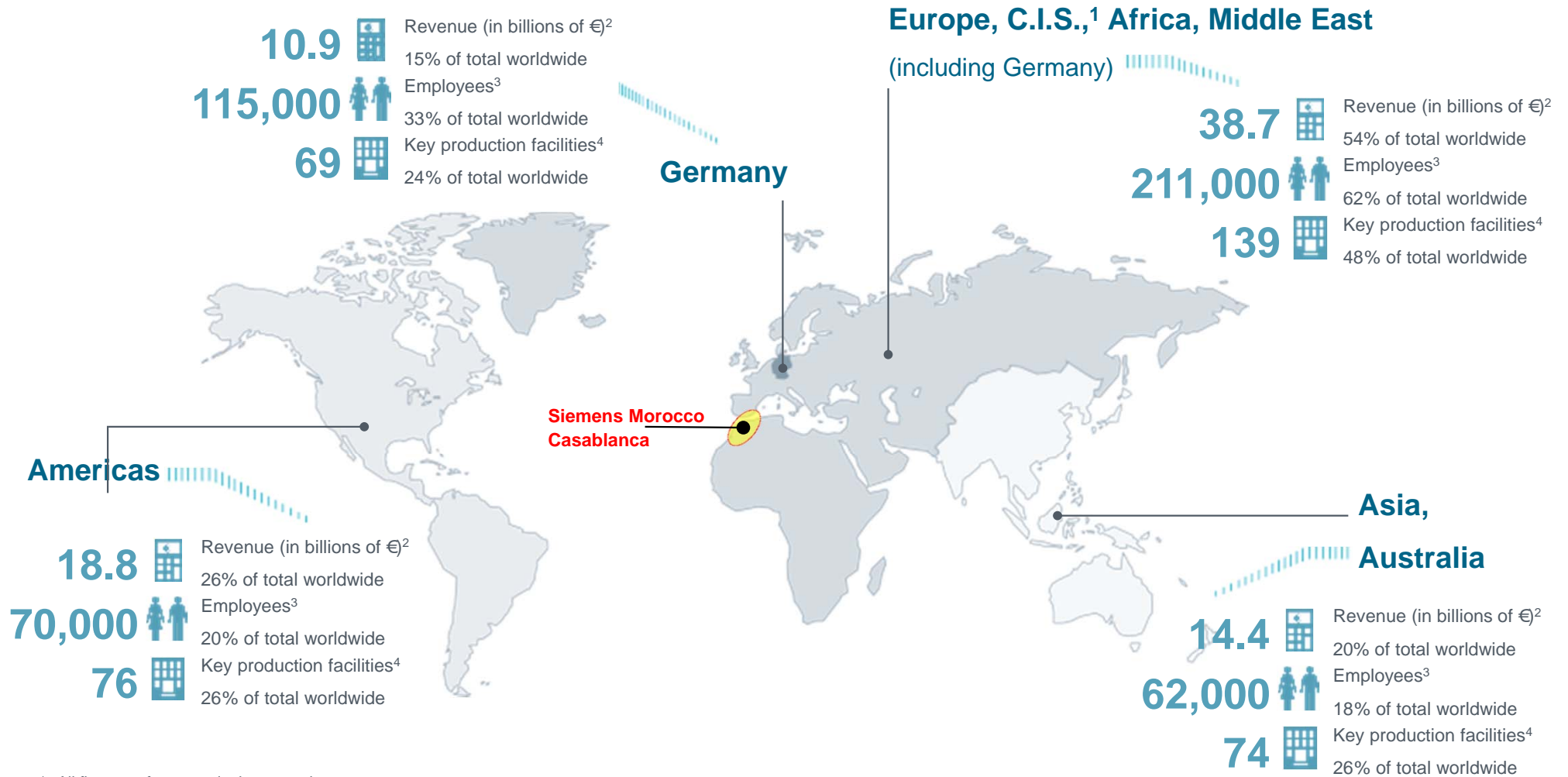
Presenter: Abdessalam El Azzouzi

# Agenda

- Installed in Mediterranean
- From single cranes to total terminal automation
- Modular and safe systems
- Life cycle management
- Modernization

# Siemens – Global presence

## Close to customers all over the world



All figures refer to continuing operations.

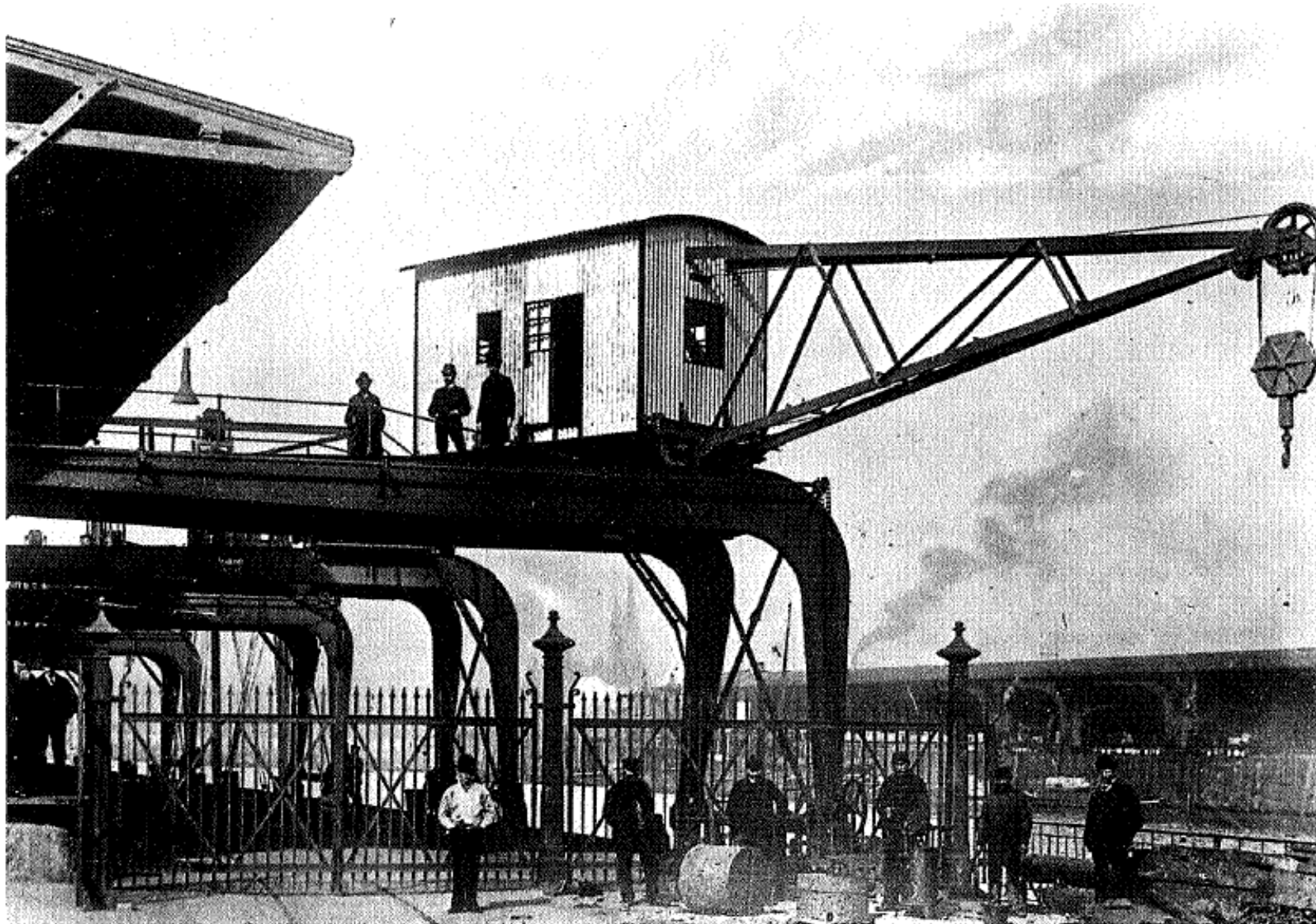
1 Commonwealth of Independent States. 2 By customer location. 3 As of September 30, 2014. 4 Fifteen employees or more.



# Hamburg 1891

Siemens delivers its first electrical crane (1,5t / 1m/s) with energy regeneration

SIEMENS

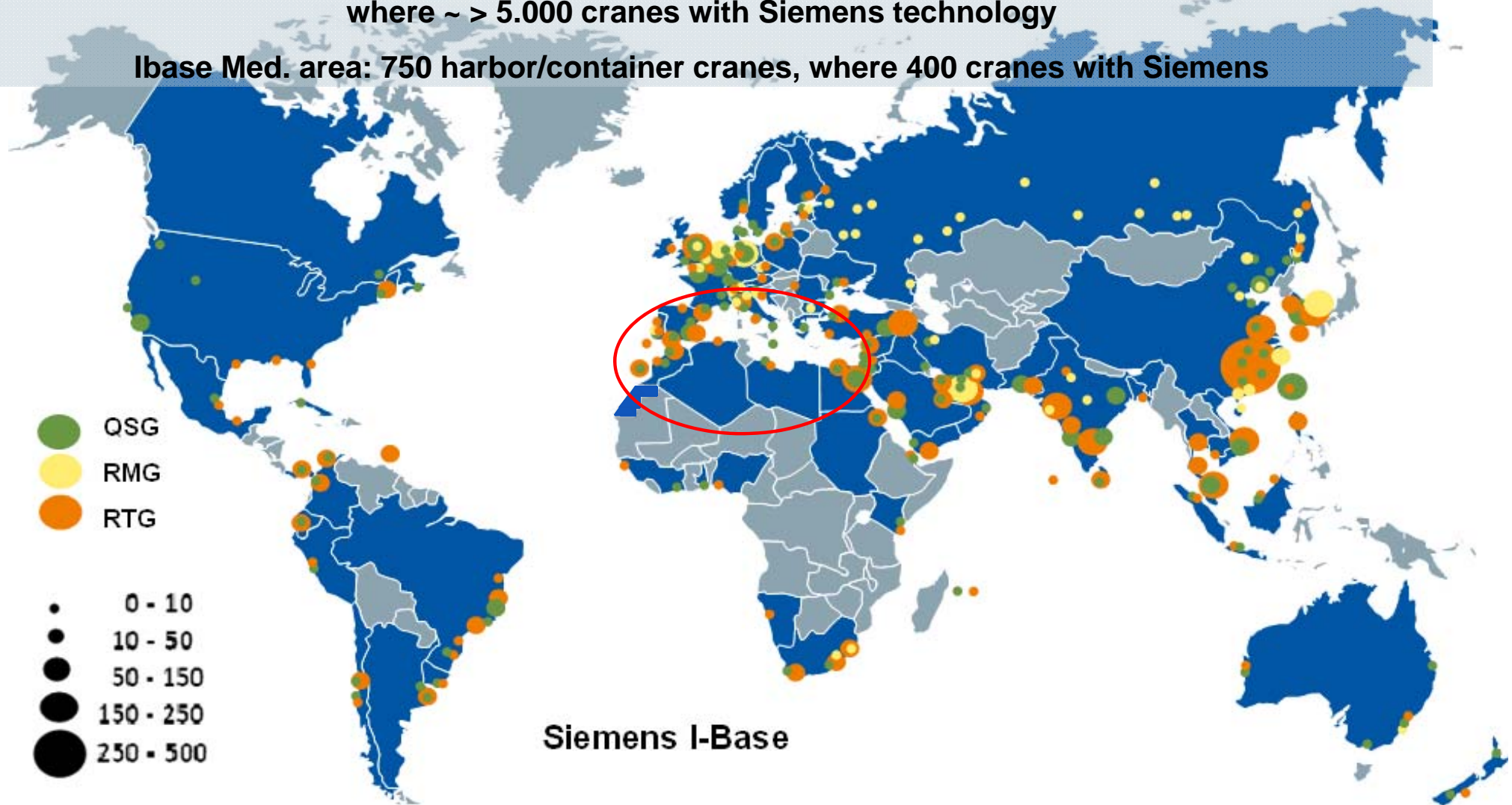


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# Siemens worldwide installed base

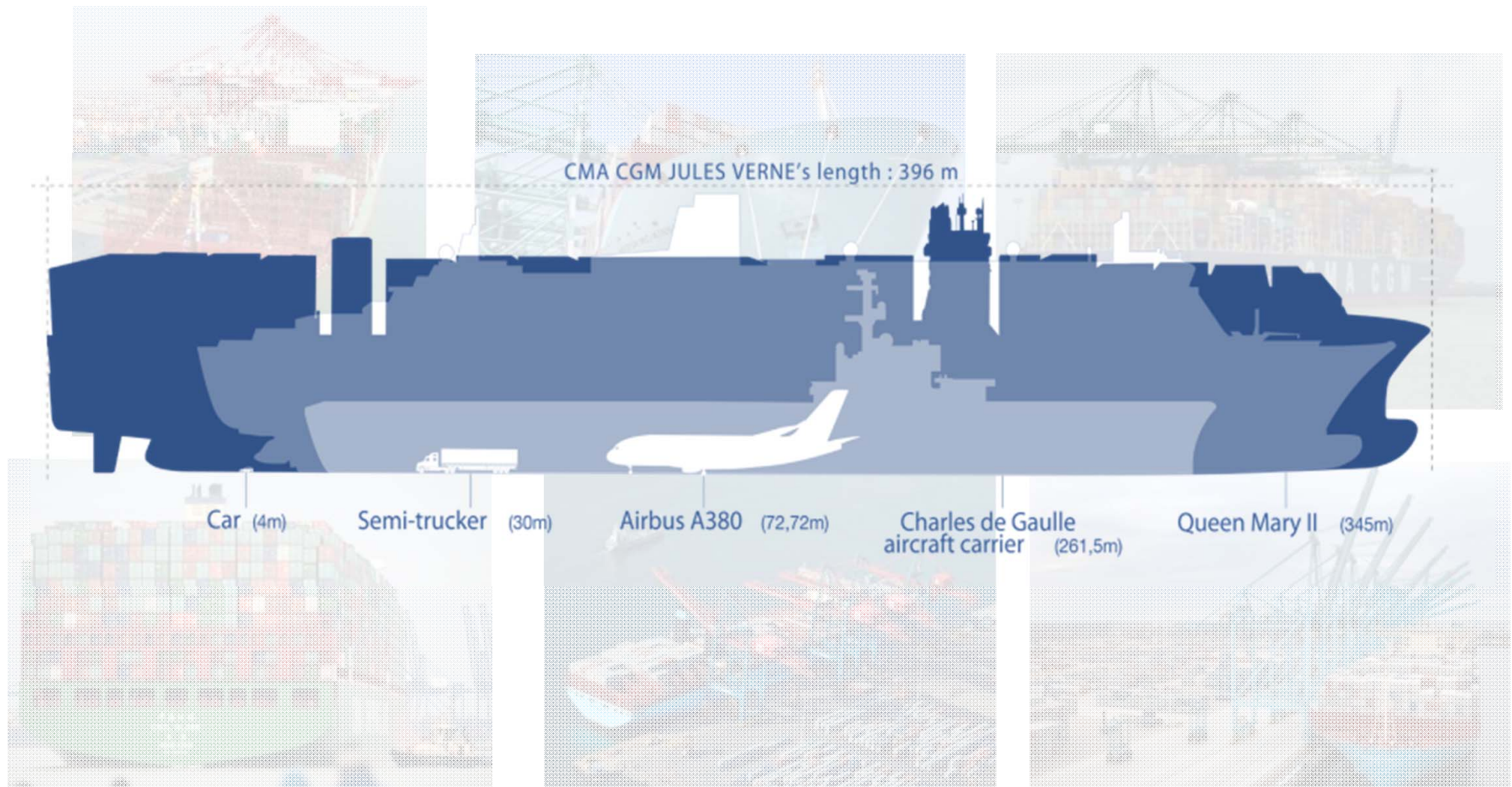
Total (worldwide) installed base ~18.500 harbor/container cranes - operational where ~ > 5.000 cranes with Siemens technology

Ibase Med. area: 750 harbor/container cranes, where 400 cranes with Siemens





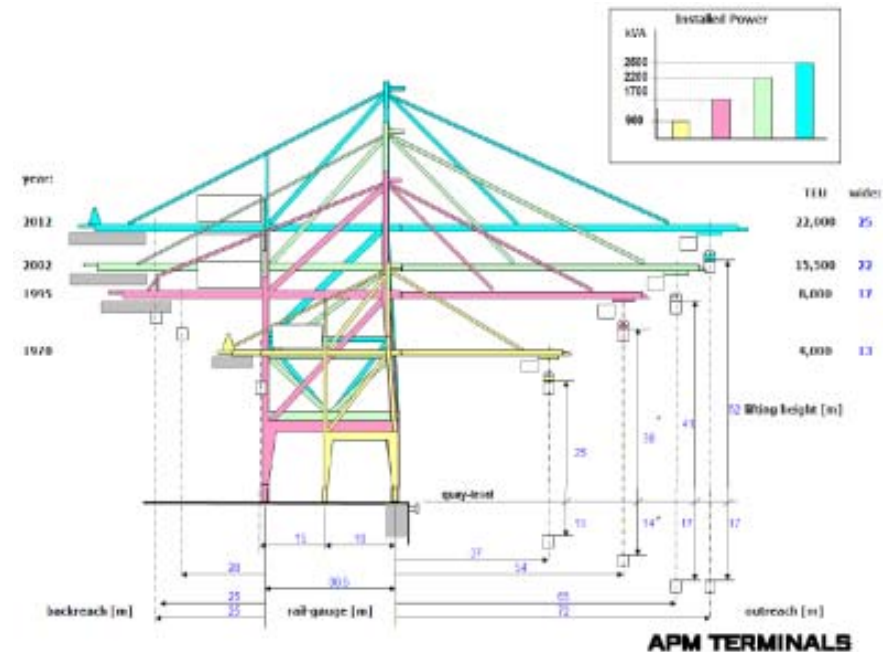
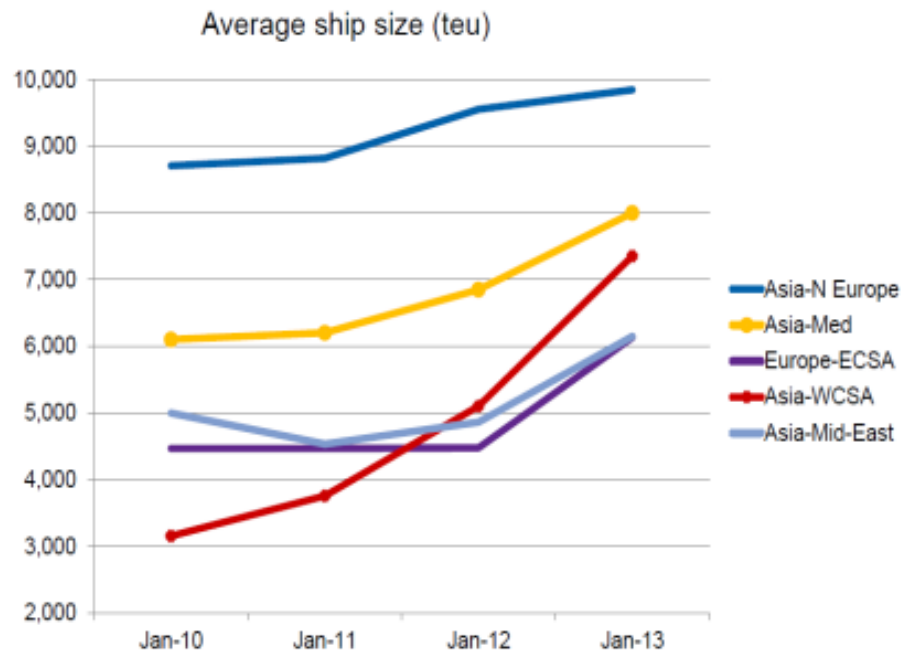
# What do the names “Emma”, “Jules Verne”, “Globe” or “Oscar” have in common?



**Bigger ships are being used to due lower cost per transported container**

# This trend has significant influence on the world's Cranes business

## Vessel cascading



Terminals from all over the world need more & bigger cranes to handle bigger ships



# Introduction harbor cranes

## Harbor Cranes



## Industry Cranes



## Cranes for other tasks





# Siemens Drive Train Portfolio For Cranes

**Drives & Motion Controller**

**Inverters** **High Performance Motion**

**SINAMICS**



**SIMOTION**



**SIMOCRANE**



**Motors**

**LV motors**  
1LG4 / 1LP4 / 1LA8

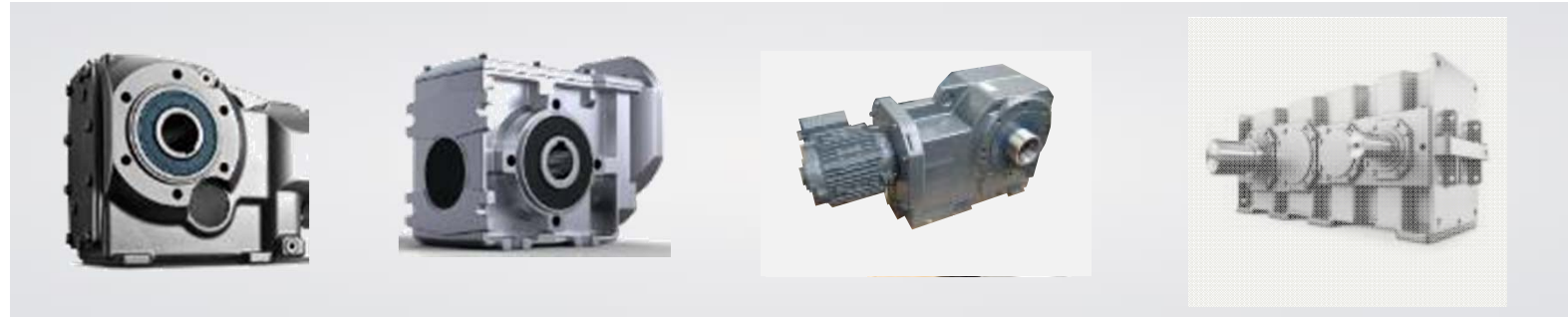


**Asynchronous servo motors**

1PL6  
1PH7  
1PH8

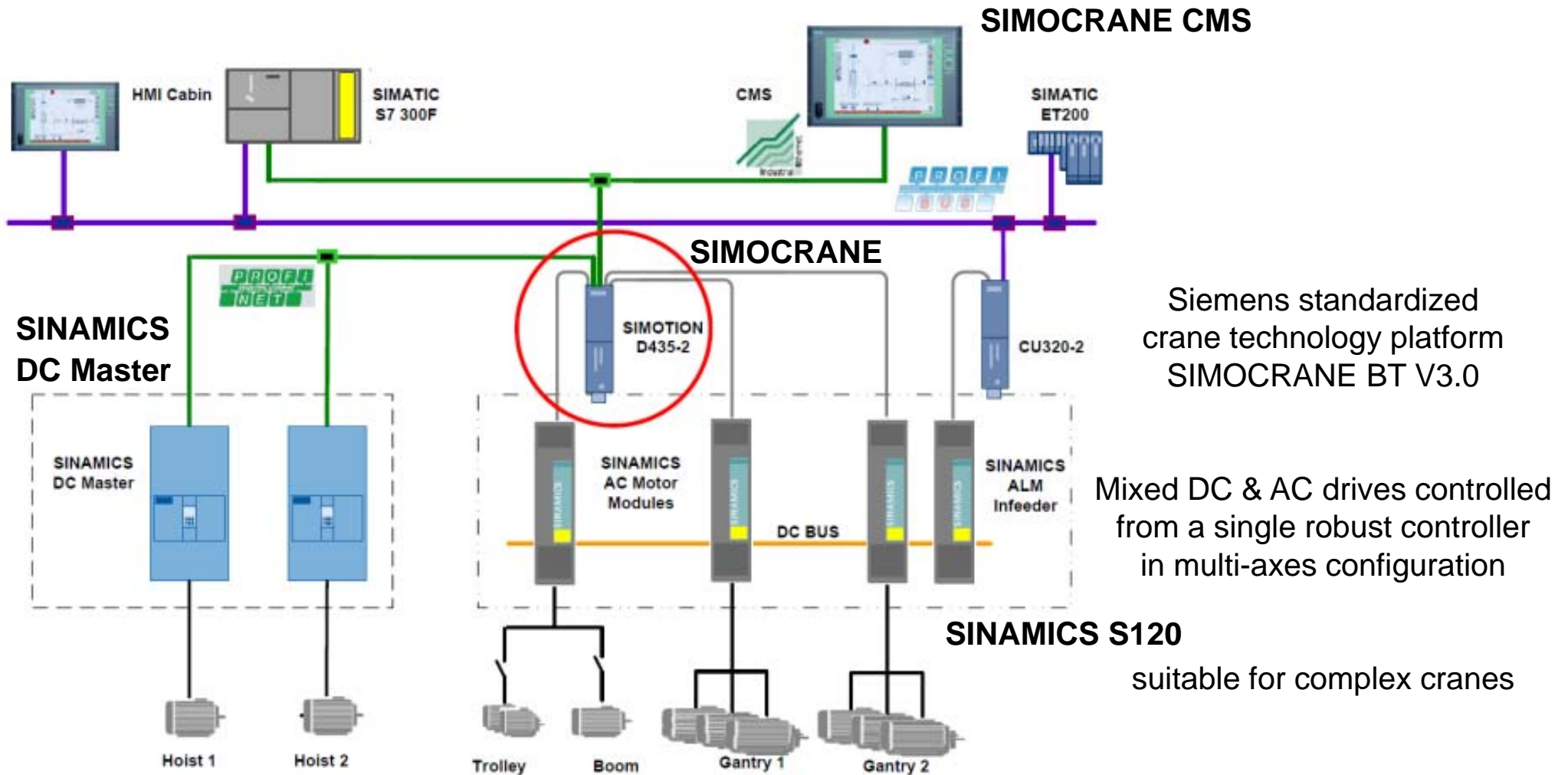


**Gears & Geared Motors**



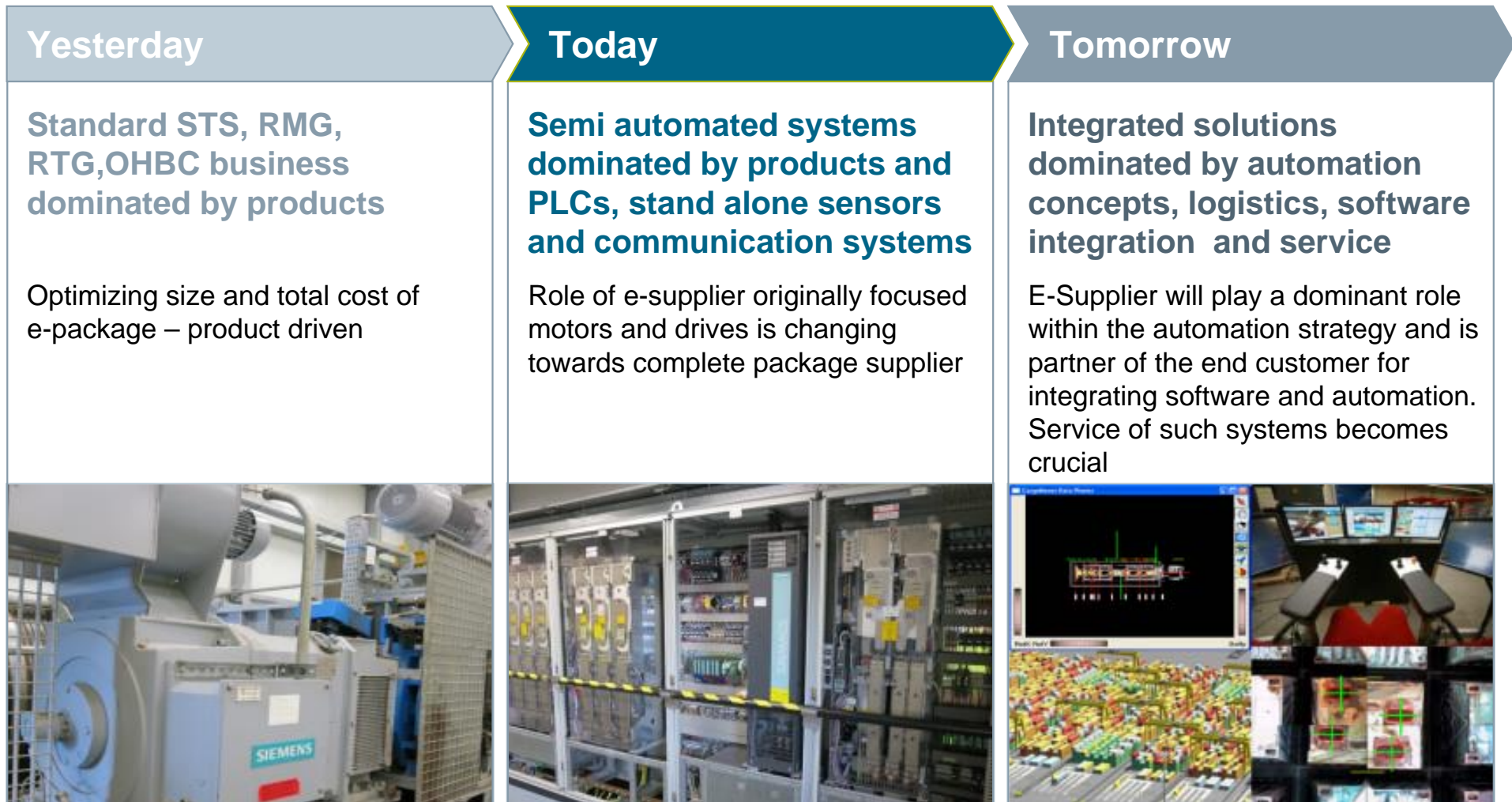
# SIMOCRANE with SINAMICS

Multi-axes configuration with AC and DC Technology



Integrated full solutions

# PD LD CR Evolution of Portfolio





# SIMOCRANE Modular Crane Control & Automation

## Technology

### Basic Crane Control Modules

hoist, gantry, trolley, boom hoist, grab, slew



### Advanced Crane Technology Modules

Sway Control, Truck/Vehicle Positioning System, Active Skew, Trajectory control, Collision Prevention, Profile scanning, ECO technology, Crane Management System

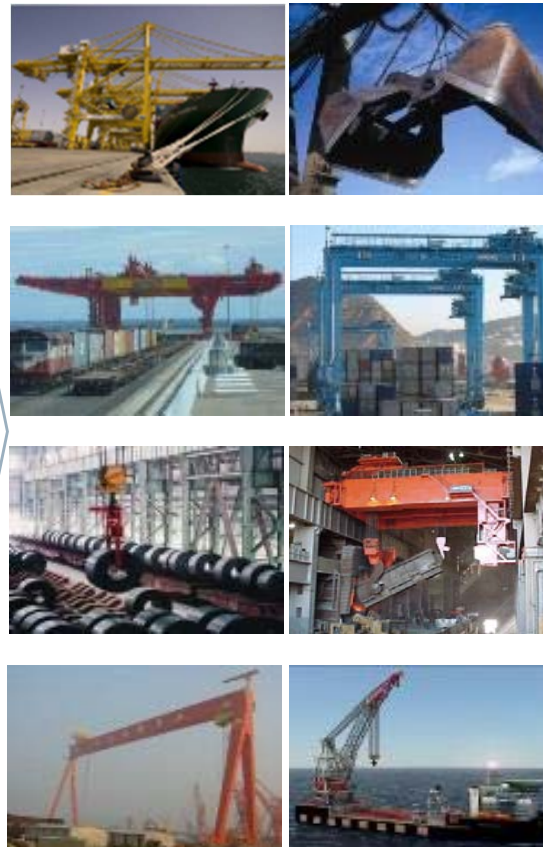


### Modular Automation

Remote Control, Profile Scanning, Identification, Final Landing



## Applications

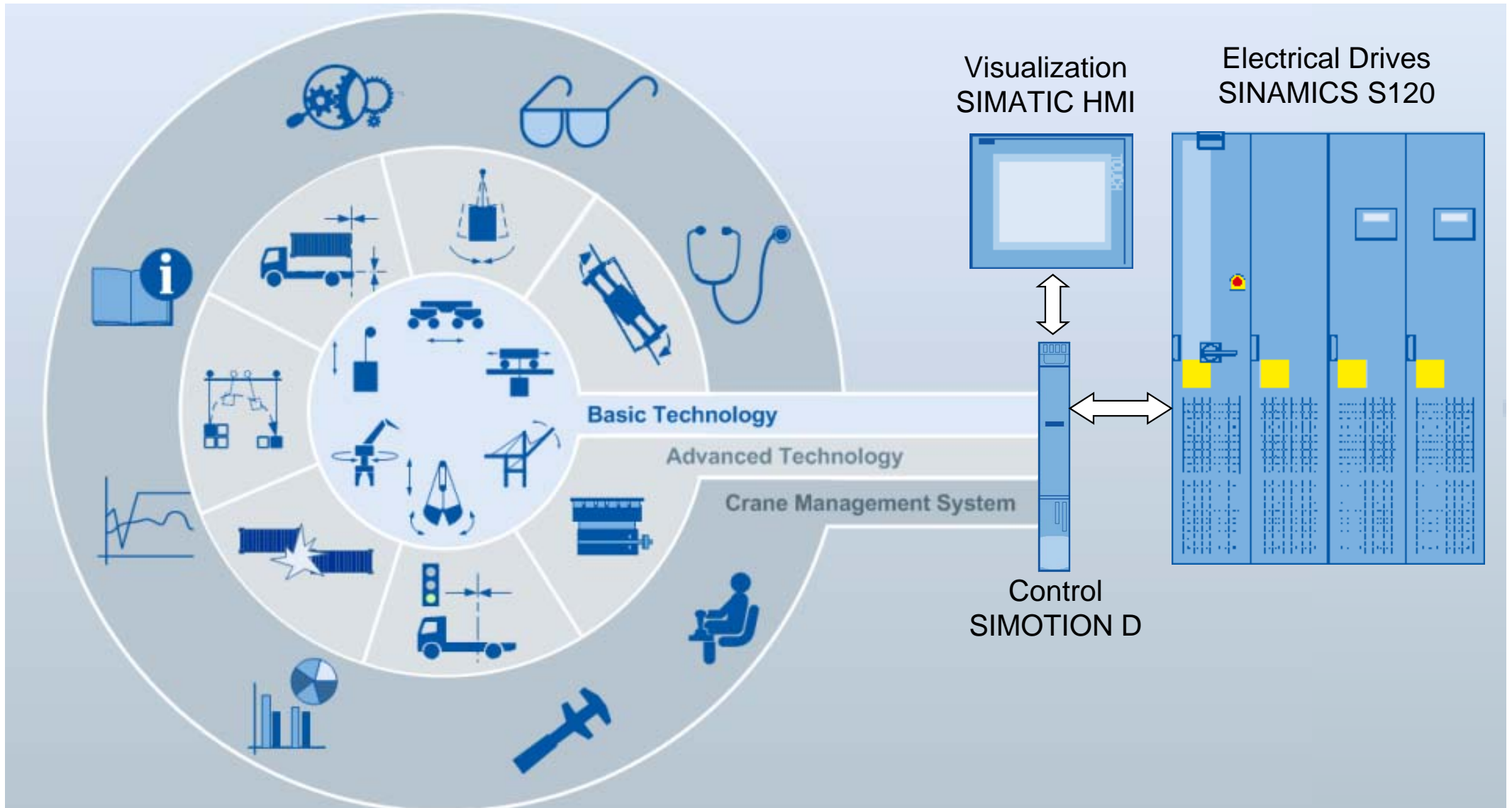


## Customer benefits

- Maximized reliability, productivity, availability and energy efficiency
- Utilization of high quality Siemens components ensures lowest life cycle cost
- Good serviceability through Siemens global presence
- Integrated safety

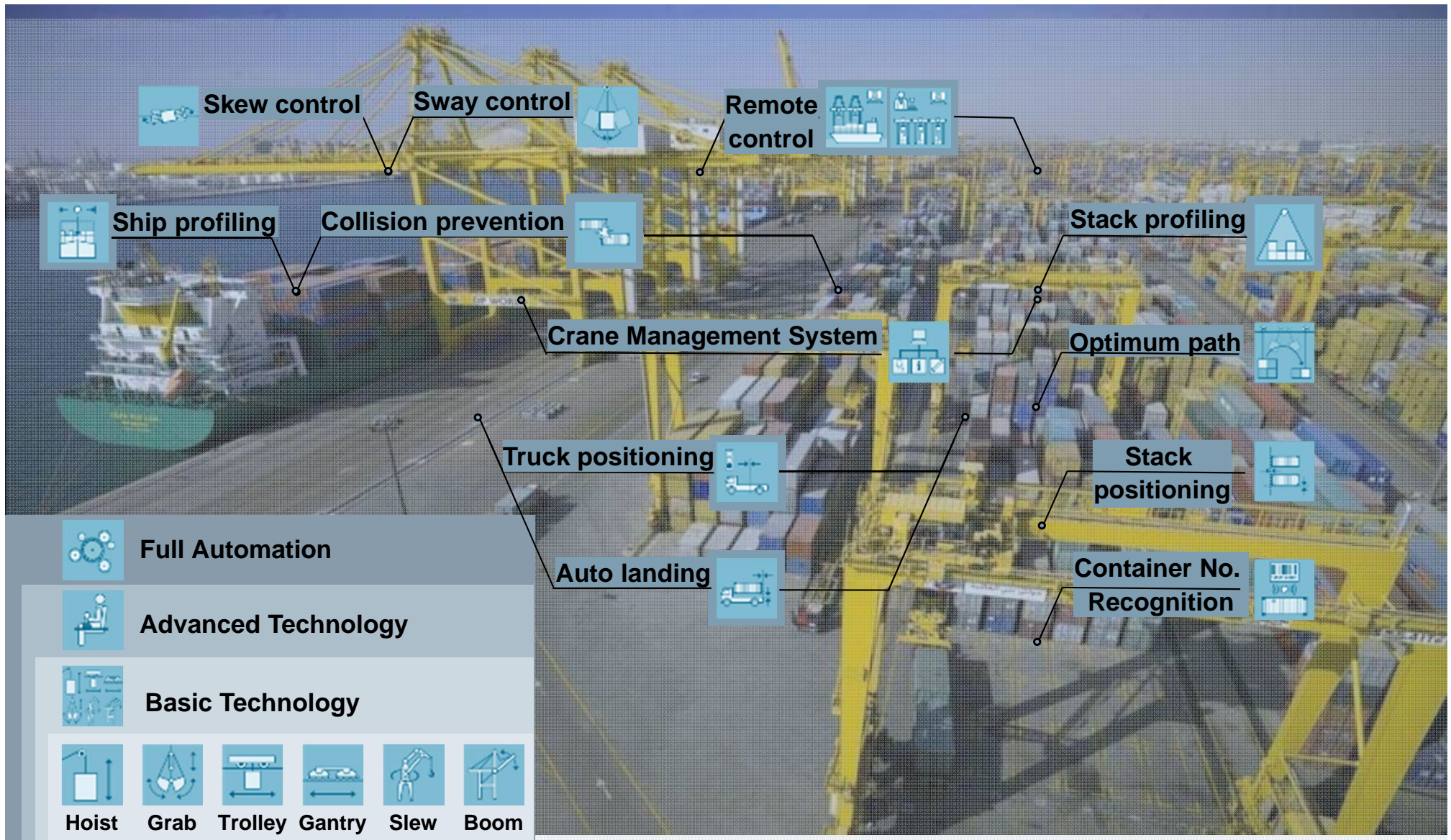
# SIMOCRANE Technology

Standardization with a modular software architecture





# SIMOCRANE Modules Modular Architecture



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# Remote control



- On-line 3D Terminals visualization
- Integration of Terminal Operation applications (TOS, Maintenance, Crane Management Video)
- Use case driven screen lay-outs (scenarios)
- Terminal Operation Simulation or Replay
- Touch panel control
- Mobile device support (smart phone apps)
- Virtual Reality Headset support

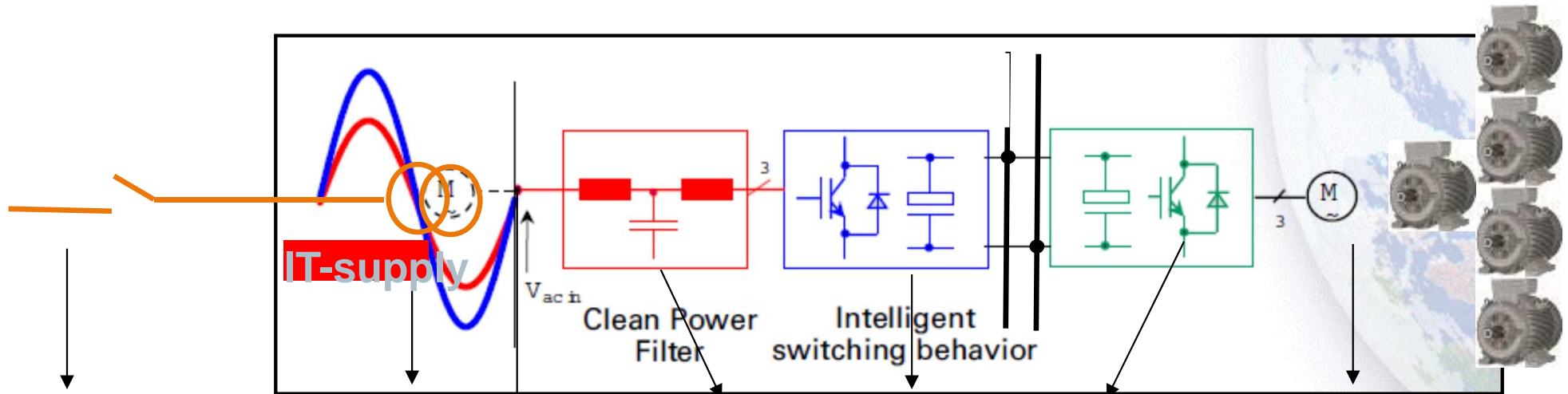


# Terminal visualization





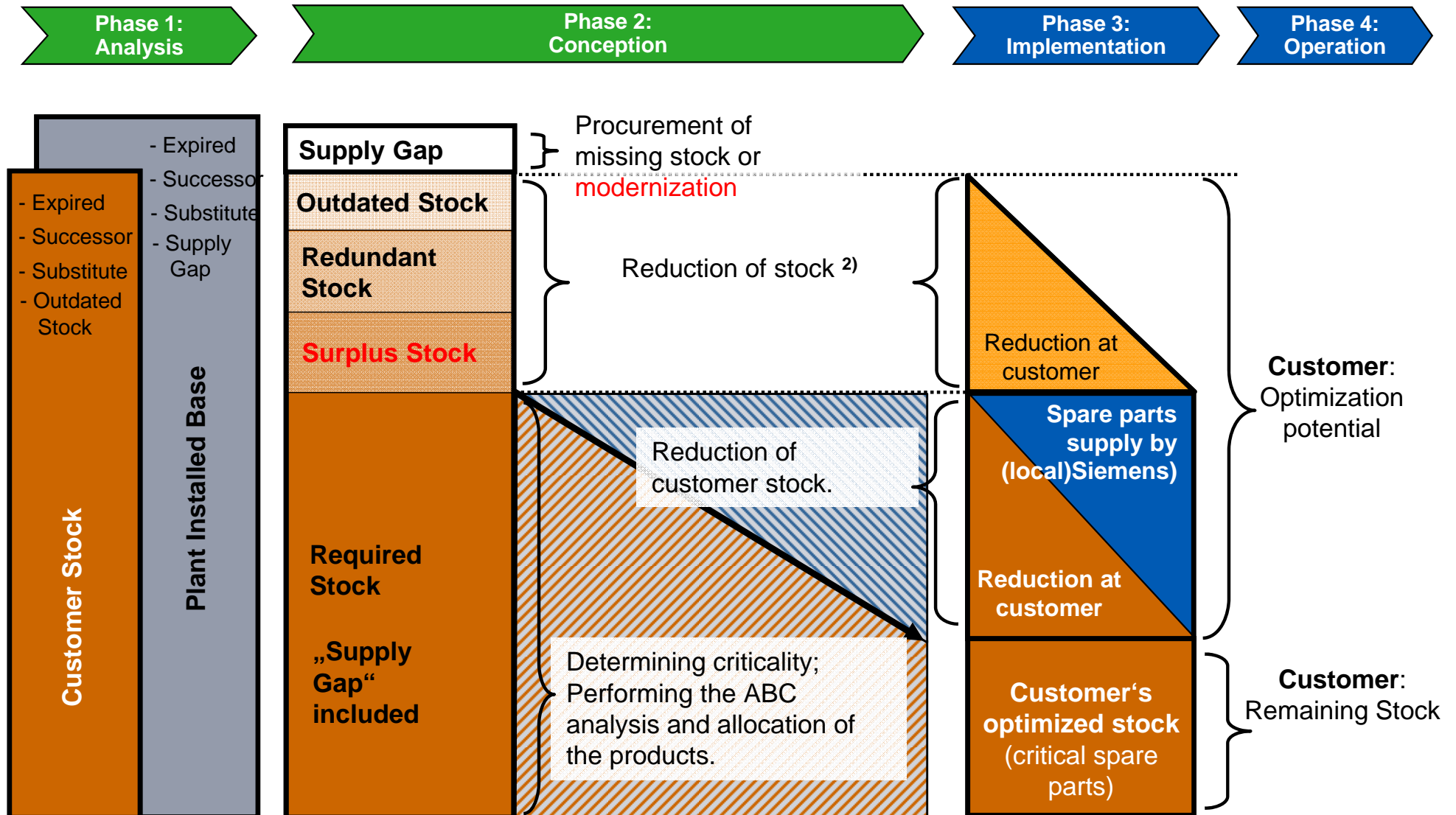
# Lifecycle management



- 1: Know the condition of components in machines
- 2: Keep track of abnormal usage
- 3: Maintenance based on actual needs
- 4: Systematic data analytics help develop better machines
- 5: True/better information for decision-making



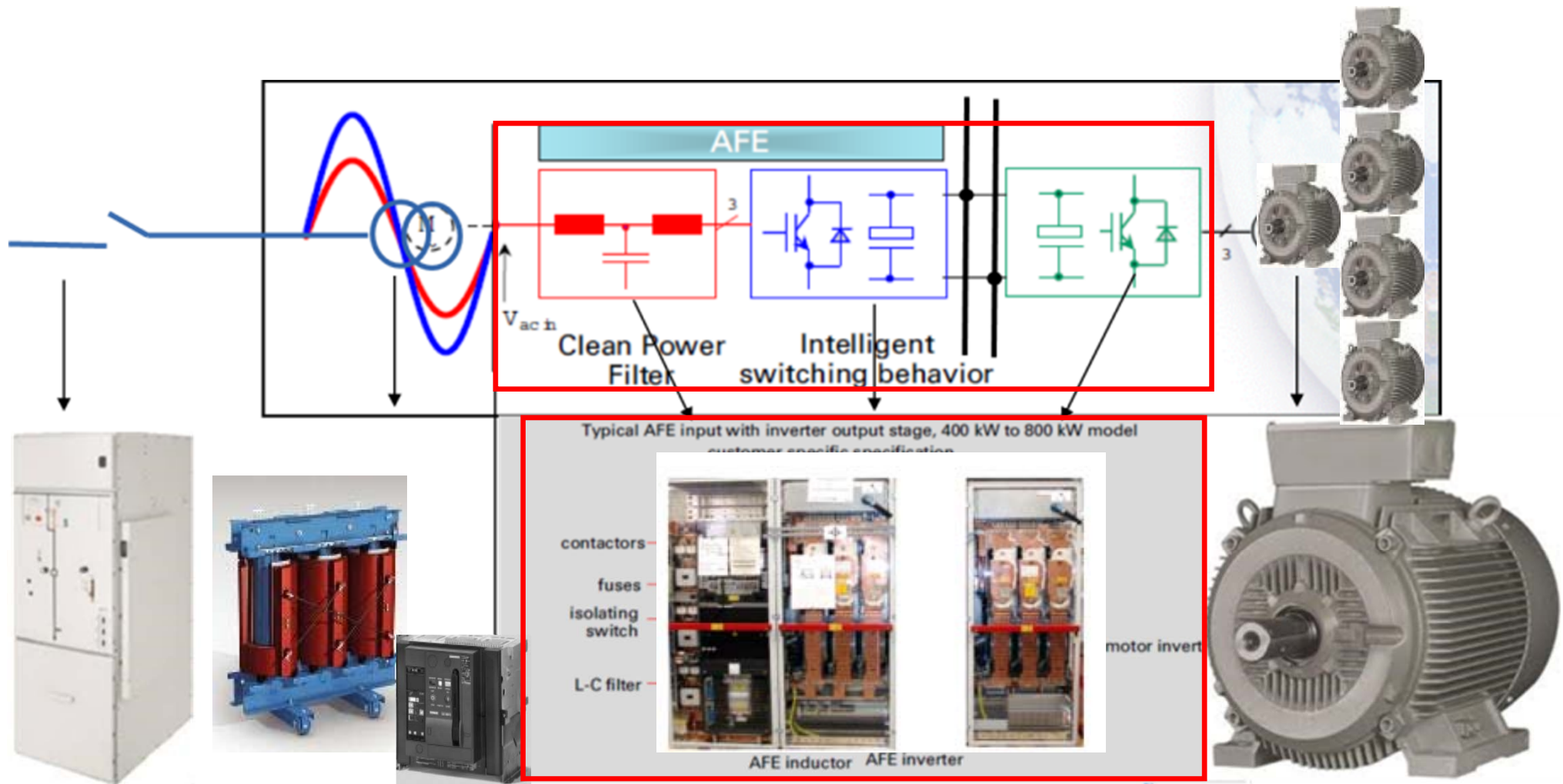
# Asset Optimization Services/ screening spares on stock



<sup>1)</sup> The figures are exemplary and not binding

<sup>2)</sup> No repurchase of customer stock by Siemens

# Technical approach for modernization





# Questions

Thank you for your attention!



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