



**TMEiC**  
*We drive industry*



**Automation And Remote  
Control deliver consistent high  
Productivity in Container  
Terminals**

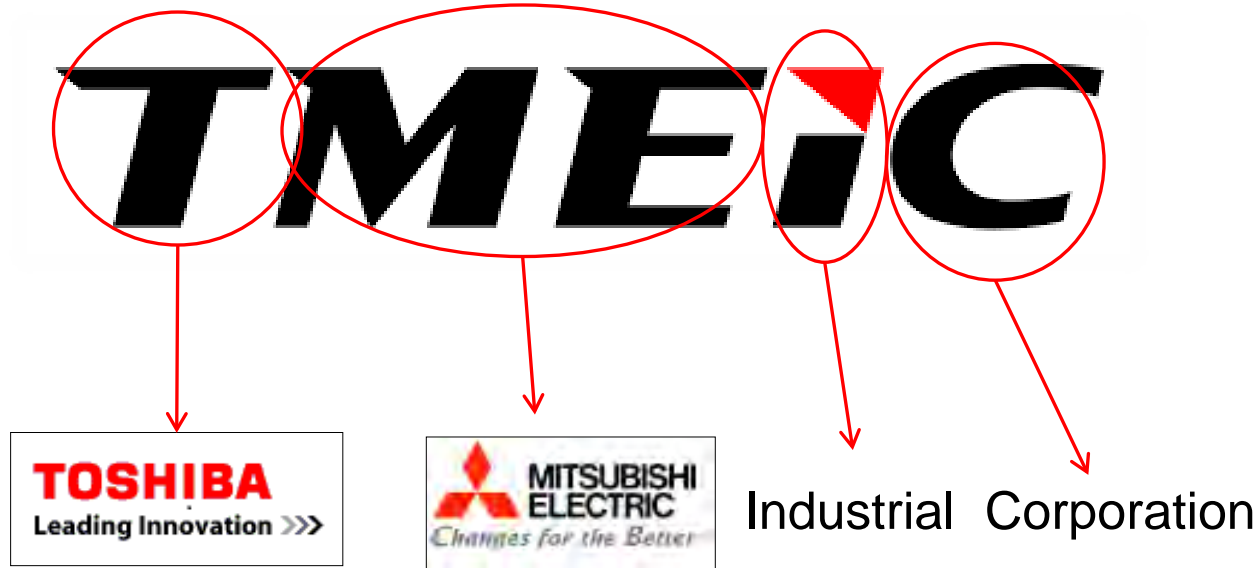
**18th Trans Middle East Exhibition and Conference**

**[WWW.TMEIC.COM](http://WWW.TMEIC.COM)**

# Agenda

1. Who is TMEIC
2. Challenges at manual operated Terminals
3. What can be done?
4. Operator support systems
5. Stack profiling / stack anti collision
6. OCR system
7. Automated gate systems
8. Remote controlled equipment
9. Have robots execute repetitive tasks
10. Conclusions

# Who is TMEiC?



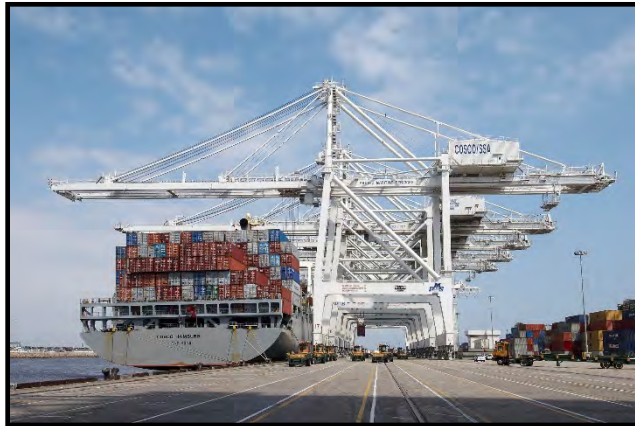
TMEiC is a global drive and automation systems supplier with manufacturing, engineering, sales, and service facilities around the World.





# Powering Port Equipment

## Electrical Crane Control and Automation Systems



Ship to Shore Container Cranes  
or Quay Cranes



Rubber Tire Gantry  
Crane - RTG



Ship Unloaders – Grab type



Wide Span Rail Mounted Gantry Cranes



Automated Stacking Cranes (ASC & ARMG)

# TMEIC Global Crane Projects

- 
- Over 5000 TMEIC Crane Control Systems worldwide
  - Over 600 Automated Cranes Systems worldwide
    - Multiple designs with various crane OEM's
    - Interfaces with multiple TOS Systems
  - Millions of TEU's being moved every year around the World with TMEIC Crane Control Systems



# Challenges at manual operated Terminals

## Competitiveness:

- Need to increase efficiency and productivity
- Need to ensure consistent operations
- Need to optimize operations and maximize equipment utilization.



# Challenges at manual operated Terminals

## The human factor:

- Humans sometimes make mistakes
- Humans sometimes work inconsistently





# The human factor

- Humans are vulnerable





# What can be done?

## **Stay Competitive:**

- **Increase efficiency and productivity**
- **Ensure consistent operations**
- **Optimize operations and maximize equipment utilization.**

**Add operator support systems, remote controlled equipment and automation.**

**Have robots execute repetitive and monotonous tasks.**

# What can be done?

## **Avoid the human factor:**

- Humans sometimes make mistakes

**Add operator support systems and automation.**

- Humans sometimes work inconsistently

**Have robots execute repetitive and monotonous tasks.**

- Humans are vulnerable

**Avoid direct exposure to danger. Get the people out of harms way by having remote controlled equipment .**

# Operator support systems

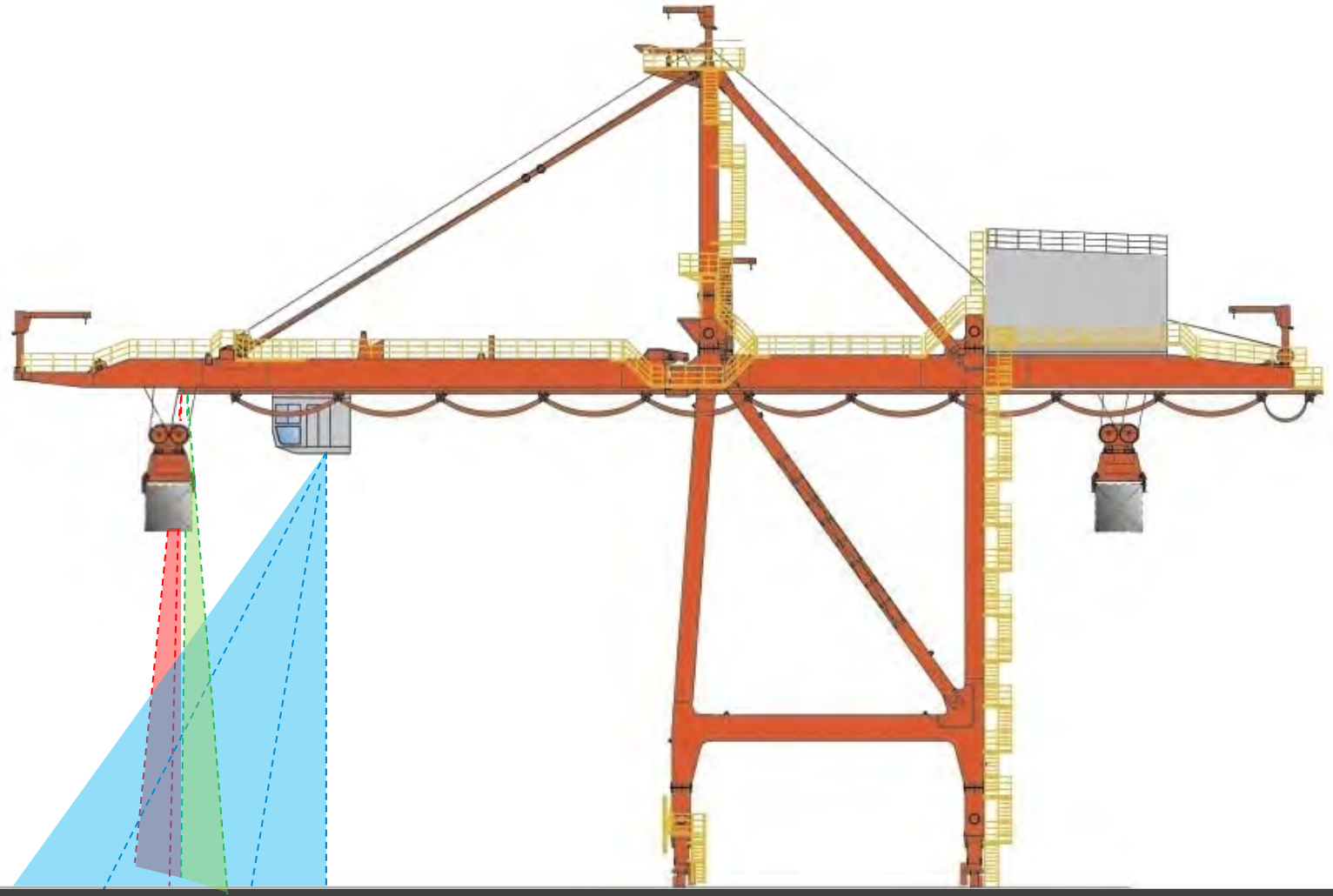
## For example:

- Stack profiling / stack anti collision
- Soft landing / load anti collision
- Anti sway and anti skew systems
- Crane to crane anti collision
- Crane to obstacle anti collision
- Truck lift detection
- Truck and Straddle Carrier positioning system
- OCR system
- CCTV cameras (to avoid blind spots)
- Automated gate systems
- Automated container damage detection
- RFID personnel detection system



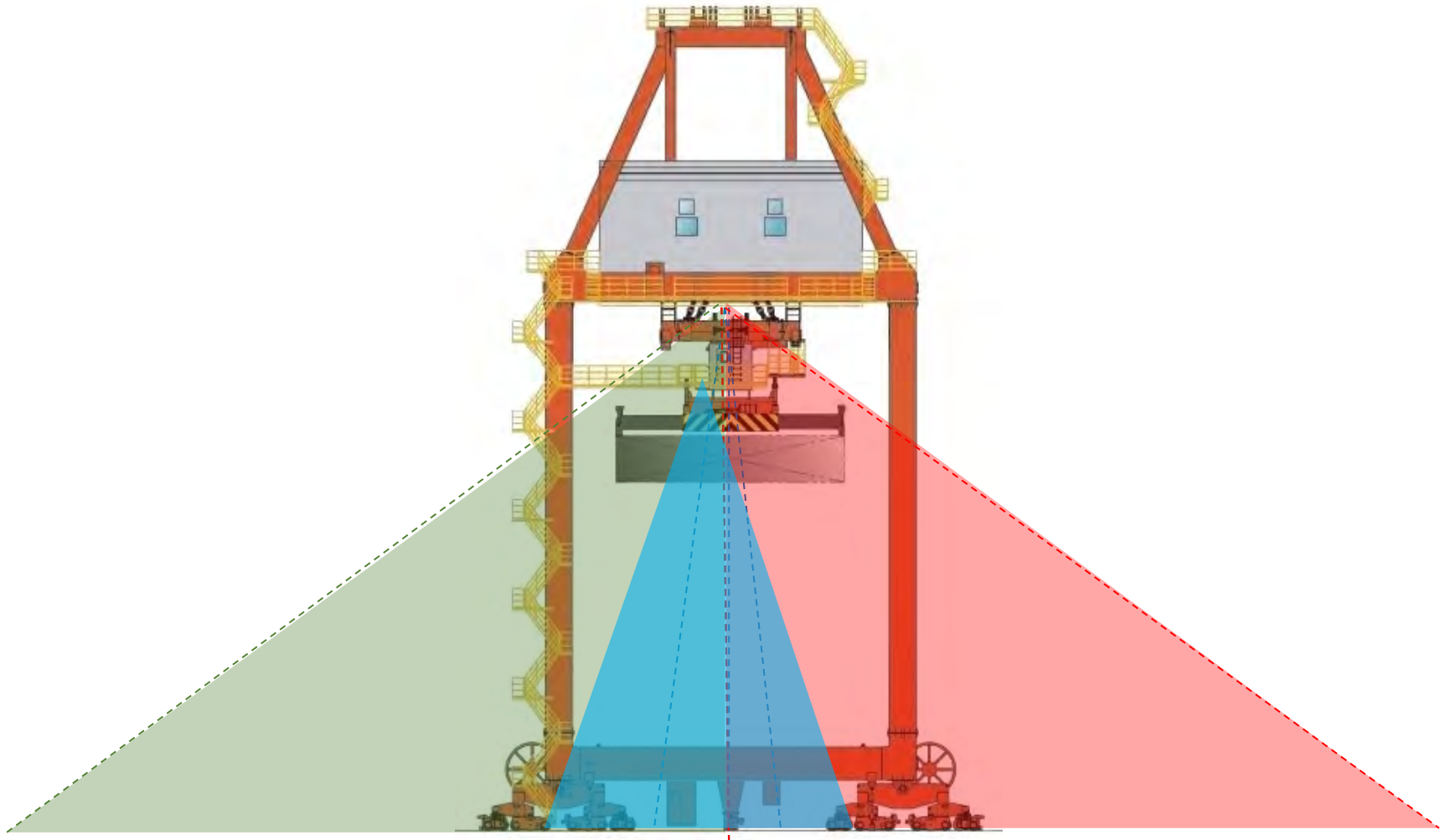
# Stack profiling / stack anti collision

## Enhanced STS anti collision and soft landing



# Stack profiling / stack anti collision

## Enhanced STS anti collision and soft landing



# Stack profiling / stack anti collision

**System should provide detection for adjacent stacks**





# Stack profiling / stack anti collision

## Benefits:

Cranes are easier to operate

Less operator fatigue and as a result less error

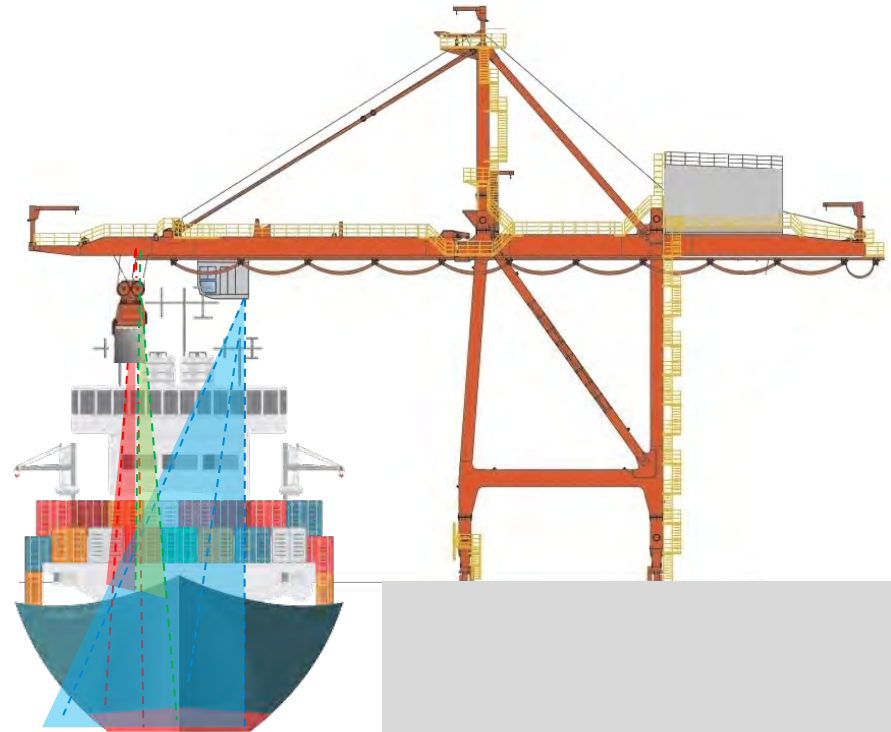
Minimize spreader, chassis and container damage due to hard landings

Extend wire rope life

Hatch cover detection

Flipper “up” confirmation

Increased productivity



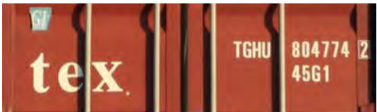
# OCR system

## System automatically Reads and detects

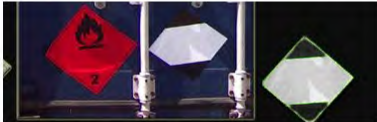
Damage Inspection



Container Code Recognition



IMDG – Dangerous Goods



Seal detection



Door direction



# Automated gate systems

## DRIVER PROCESS

Driver Identification

Appointment check

Safety Rules

Cargo validation

Exception handling

Printing tickets

Clerk communication





# OCR system & Automated gate

## Benefits:

- Less wrongly identifies license plates and container numbers
- Less clerk / spotter fatigue and as a result less error
- Less clerks in the terminal close to cranes and horizontal transport
- Real time reporting to TOS
- Better work environment for clerks
- Container damage inspection
- Increased productivity



# Remote controlled equipment



versus



Picture courtesy of Abu Dhabi Port Webpage

# Remote controlled equipment / ASC RTG RMG

## **ROS Systems designed for Automated Stacking Cranes (ASC), Rubber Tired Gantry Cranes (RTG) and Rail Mounted Gantry Cranes (RMG):**

- Manual Remote Truck Loading / Unloading, Land Side, Stacking, and Rail Yard Operations
- Automated Truck Loading / Unloading, Land Side, Stacking and Rail Yard Operations (exception handling only)
- Maintenance / Service ROS for all operations without limitations (exception and service handling only)



# Remote controlled equipment / ASC RTG RMG

## Typical ASC, RTG, RMG remote control desks

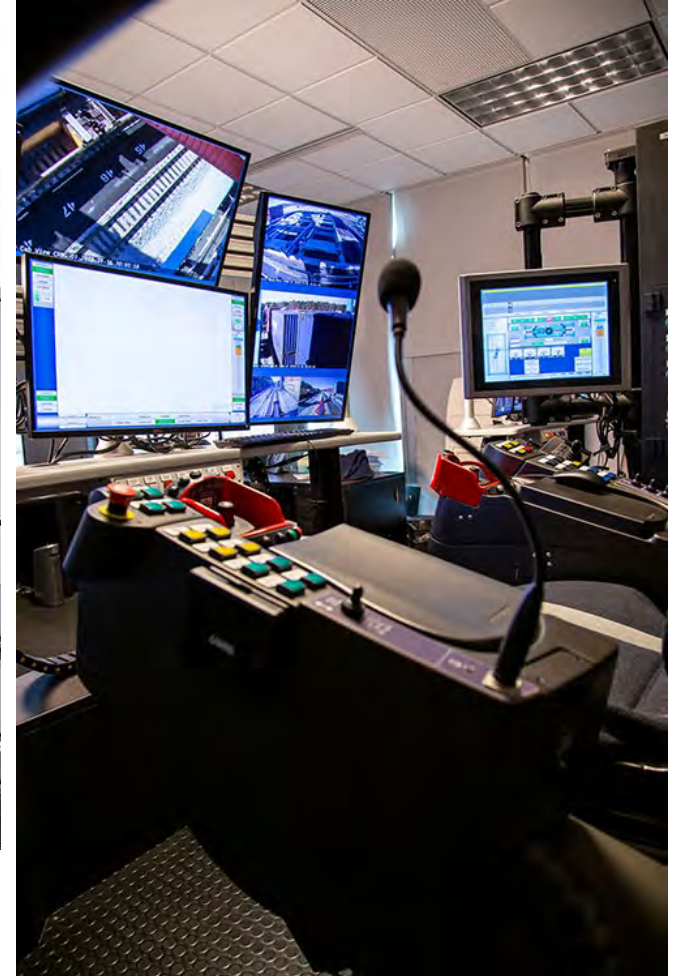


# Remote controlled equipment / Intermodal

## Advanced intermodal RMG remote control station



Picture courtesy of Brieda Cabins Webpage



# Remote controlled equipment / Service

## Maintenance / Service ROS



Picture courtesy of Abu Dhabi Port Webpage

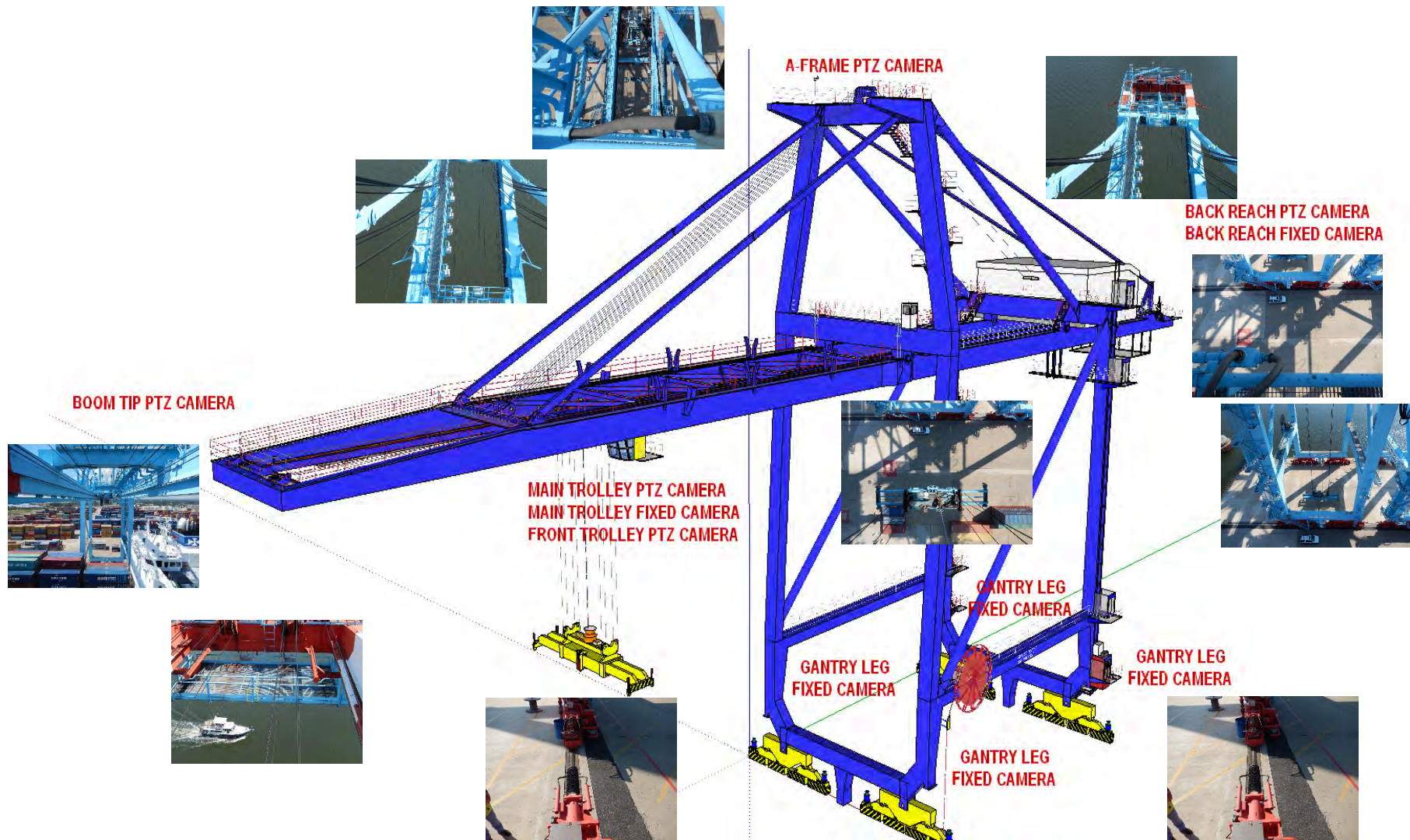


# Remote controlled equipment / STS

## **ROS Systems delivered for Ship to Shore Cranes (STS):**

- Manual Remote Ship, Semi Automated Lashing Platform and Land Side Operations
- Advanced Semi-Automated Operating System, Automatic Pickup / Dropoff on Dock, Automatic takeover for Pickup / Dropoff on Ship, Selectable Lashing Platform (Coning/DeConing) Mode, Optimized Path determination, TOS communication
- Maintenance / Service ROS (exception handling only)

# Remote controlled equipment / STS



# Remote controlled equipment / STS



Picture courtesy of Brieda Cabins Webpage

Enhanced  
Operating  
Environment





# Have robots execute repetitive tasks



**Reduced lighting power consumption**  
**No personnel in the Yard**  
**Reduced emission**



# Conclusions

## Automation and Remote Operation Benefits:

- Safer – Just few remote operators in the office
- No personnel in the yard
- More productive and consistent operation.
- Higher eco efficiency due to automated planning and higher equipment utilization
- Better job environment, less operator fatigue
- Synergy Effects - Fewer crane operators handling multiple cranes
- Fewer work stoppages due to adverse weather conditions
- Equal Opportunities Employer - Allows persons who have usually not worked in a port environment and persons with disabilities the opportunity to operate cranes
- More attractive job, easier to hire personnel



**TMEiC**  
*We drive industry*

**Thank you**