

# LEADING THE FUTURE OF CONTAINER TERMINAL AUTOMATION

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A S I A



27<sup>th</sup> November, 2024

# Outlines

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How Camco leads the future of container terminal automation

Two automation examples



**ABBY ZHANG**

CEO CAMCO ASIA



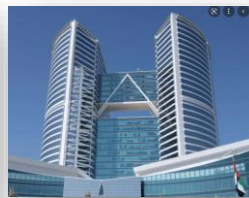
CAMCO Headquarters in Belgium



CAMCO Shanghai Office



CAMCO USA Office



CAMCO UAE Office



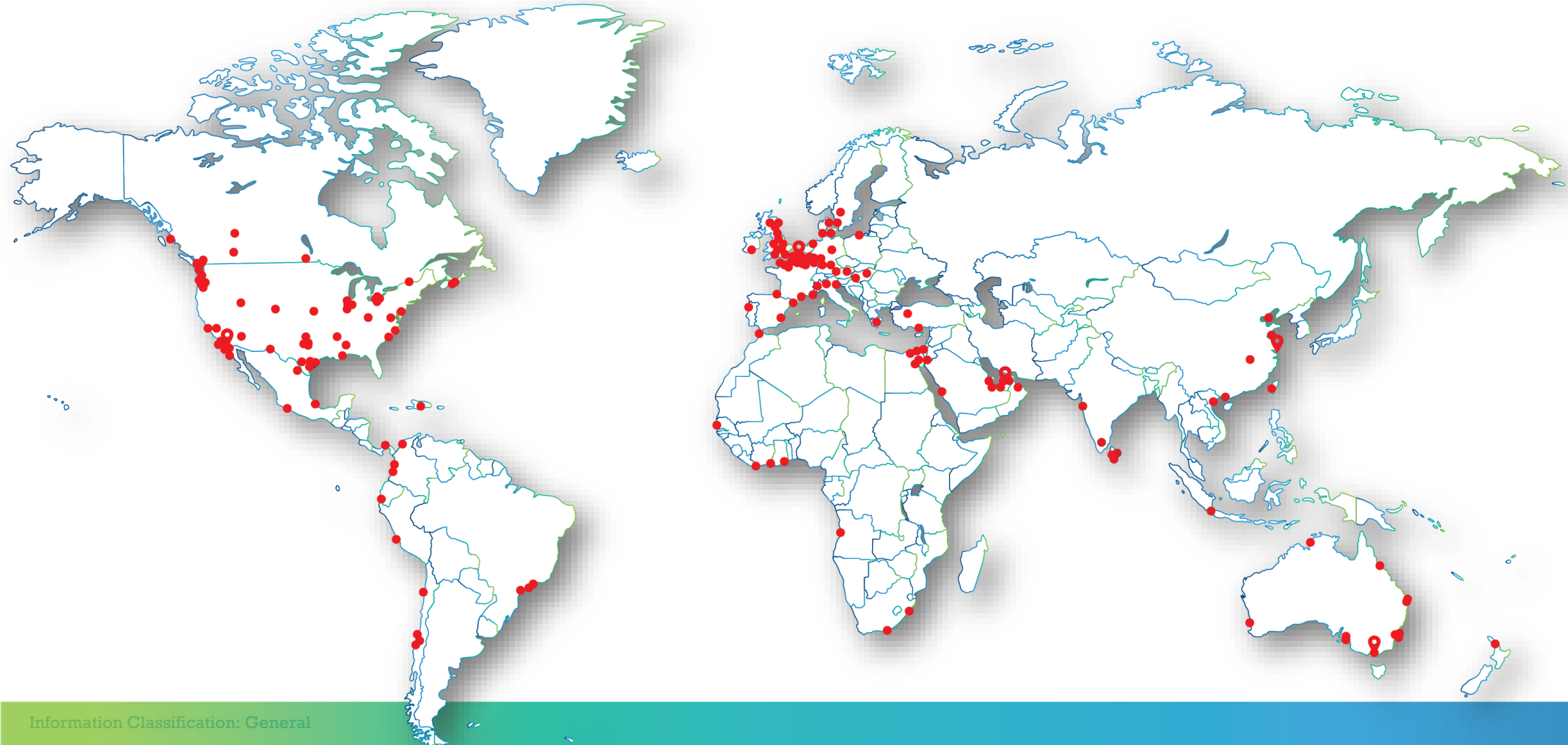
CAMCO Australia Office

- **25 Years  
The longest history**  
CAMCO established in 1999, with 288 employees becomes the biggest company in terminal automation. CAMCO is the most stable technology company guarantee to provide long term services for her supplied systems.
- **300+  
Biggest Project Reference**  
More than **300** container terminals worldwide installed Camco automation systems, it makes Camco the global leader in our industry with the richest experience and knowledge for all types of projects. And same time all the new technology developed by CAMCO are proved.
- **5 M&S teams  
The Efficient Service**  
With five M&S teams located in Belgium, Abu Dhabi, Shanghai, Los Angeles and Australia, CAMCO provides the 24/7 full time efficient maintenance service globally.
- **Innovation Focus**  
With a >30 engineers R&D team, CAMCO never stopped innovation, it guarantees the customers of CAMCO have always the most advanced technology in the industry.
- **Design and produce own hardware  
In-house engineered Solutions**  
Camco designs, develops and implements its own technologies. Unlike sales organizations or system integrators, we keep total control over our hardware and software, and support a long-term product strategy.

# About Camco



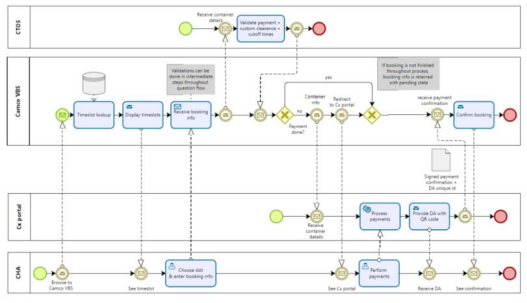
**60** Countries      **300+** Project Reference





# Why Terminals need Automation ?

# 6 reasons



# Why Terminals need Automation ?



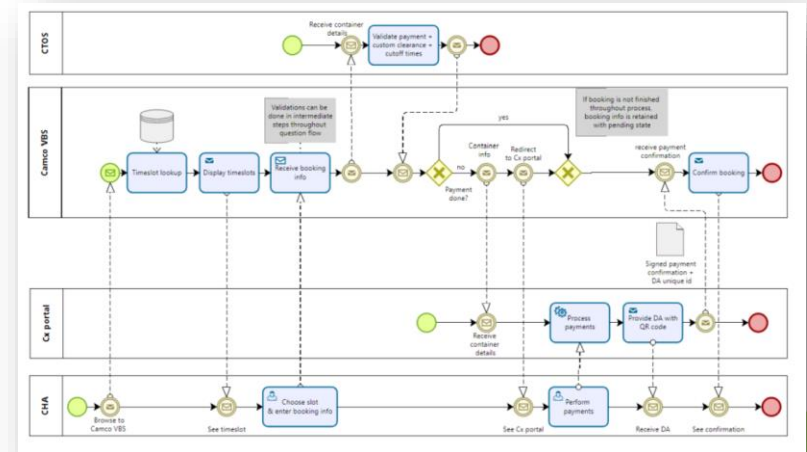
## ONE: Increasing safety

Through digital transformation, we can eliminate the need for workers in hazardous areas such as gates and under STS cranes, where many accidents with severe injuries frequently occur.



## TWO: Removing human mistakes and frauds

Digitalizing processes introduces a structured and controlled system to your operations. Each process step is mandatory, with data validated through OCR technology. All human interventions by clerks are logged, and every step, along with related data and images, is archived for future use. This archived data facilitates efficient querying, retrieval, fraud detection, and analysis.



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# Why Terminals need Automation ?

## THREE : Enhance Sustainability

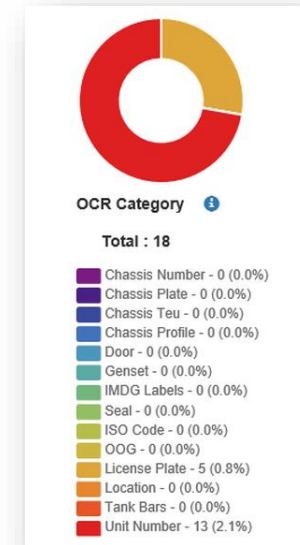
Having queues at the gates is very bad for the environment and increases the carbon emissions

Digitalizing gate processes reduces truck pass through time to less than 60 seconds eliminating queuing at the gates



## FOUR : Enhancing productivity and maximizing efficiency

Digitalized processes generate analytical data through key markers. This data can be used to define KPIs, leading to faster and more efficient operations for trucks, trains, and vessels. More accurate checks result in better utilization of the infrastructure



# Why Terminals need Automation ?

## FIVE : Increase operational control

Digital transformation gives dashboards allowing to better control the operations.



## SIX : Reduce costs

By digitalization and automation of the operation process, one can save on operational costs.

Workers in the gates, usually 20 people (3 shift of 8 people) can be replaced by making men less gates needing only 1 remote operator

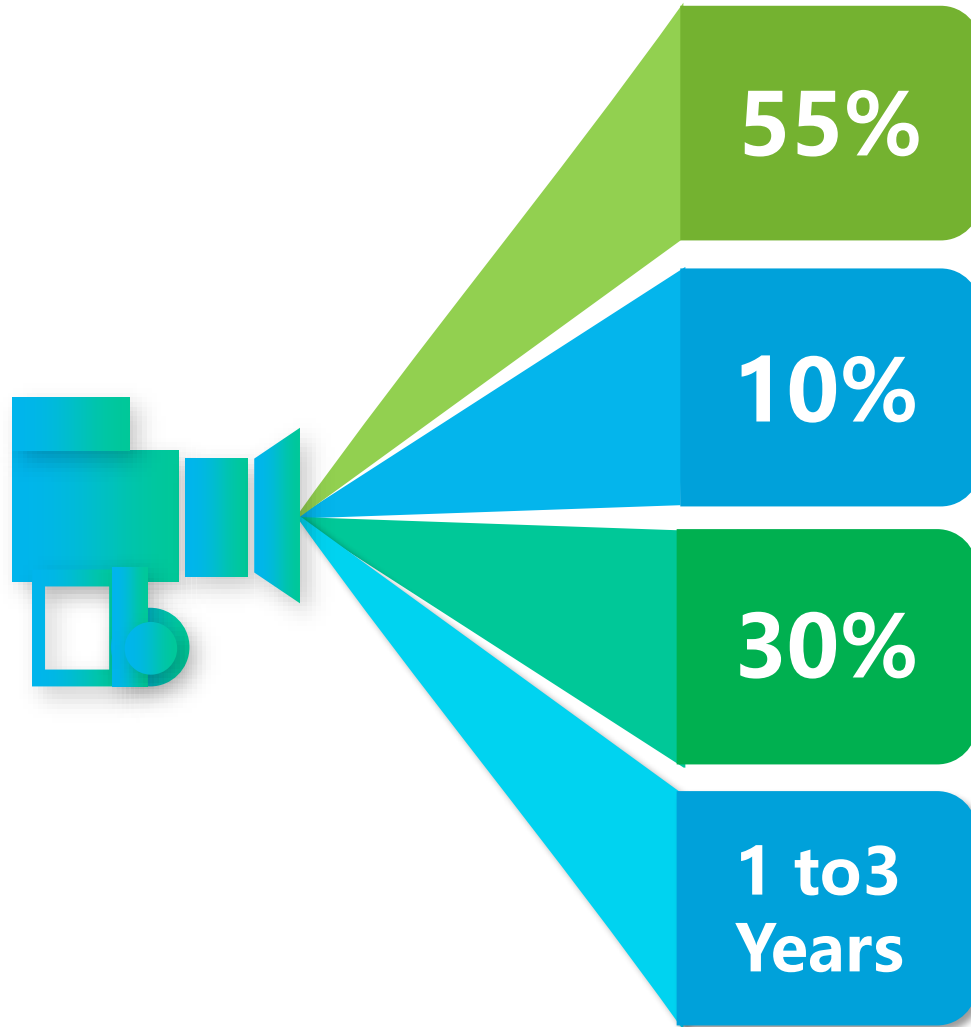
With most of our customers, the crane OCR investment can be paid back in 1 year.





# Why Terminals need Automation ?

**With Automation**



## Operational cost saving

Some customers said that their operational cost saving up to 55% after the terminal upgraded with automation.

## Carbon emissions

“The automated terminal not only increases the port’s handling efficiency, but also reduces carbon emissions by up to 10 per cent,” said Chen Wuyuan, president of Shanghai International Port Group.

## Productivity

Some terminals tell the productivity increased round 30% after they upgraded their terminals with automation.

## ROI

By increasing the productivity , eliminating the human mistakes and accidents, reducing the cost ,normally the terminals can get back their investment in automation in 3 years more or less.

# How Camco leads the future of container terminal automation ?

## Automation solutions

## Digital platform

### RAIL AUTOMATION

START PROCESSING TRAINS WITHOUT DELAY AND IMPROVE TRAIN TURNAROUND TIME

- ▶ OCR RAIL PORTAL
- ▶ RMG OCR CAMERAS
- ▶ RTLS
- ▶ SPREADER CAMERA

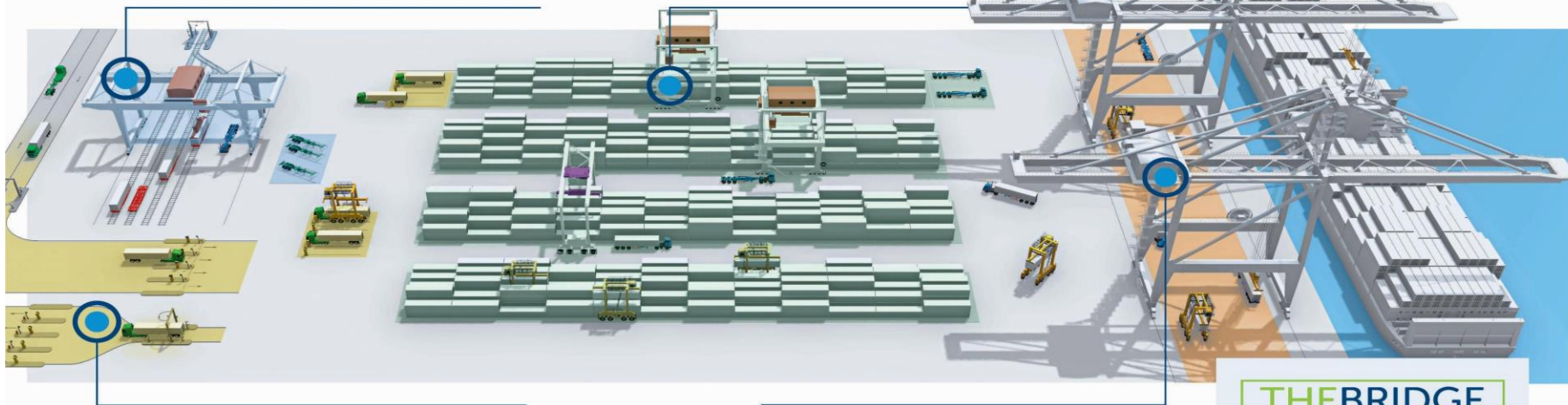
### YARD AUTOMATION

FROM A STEP BY STEP INTEGRATION TO FULL INTEGRATION OF TERMINAL PROCESSES

- ▶ RFID RTG/RMG TRUCK HANDOVER
- ▶ VMT MANUAL / AUTO JOB STEPPING
- ▶ RTG/RMG OCR CAMERAS
- ▶ ASC KIOSKS
- ▶ RTLS
- ▶ SPREADER CAMERA

Cameo's virtual mirror of your complete terminal. RT Digital Twin, a real-time digital representation of all assets and associated processes and systems, is the ultimate automation step for process analysis, optimization and simulation.

### RT DIGITAL TWIN



### GATE AUTOMATION

THE INDUSTRY REFERENCE IN VISION-BASED GATE AUTOMATION SOLUTIONS

- ▶ OCR PORTALS
- ▶ KIOSKS
- ▶ VBS VEHICLE BOOKING SYSTEM
- ▶ RFID

### QUAY AUTOMATION

IMPROVING WATERSIDE OPERATIONS FOR A LEANER, GREENER INDUSTRY READY FOR INCREASING TRAFFIC

- ▶ OCR BOXCATCHER
- ▶ TT AND SC IDENTIFICATION AND ALIGNMENT
- ▶ BLV BAY LOAD VERIFICATION
- ▶ RTLS
- ▶ SPREADER CAMERA

### THEBRIDGE

Camco's recently developed integrated platform, The Bridge, enhances integration across all operational levels by providing a unified web-based system that connects GOS, truck OCR, rail OCR, RTLS, and Crane OCR, enabling the management of multiple terminals and Camco installations from a single screen.

Digital transformation



2 examples:

Camco would suggest terminals begin with gate automation

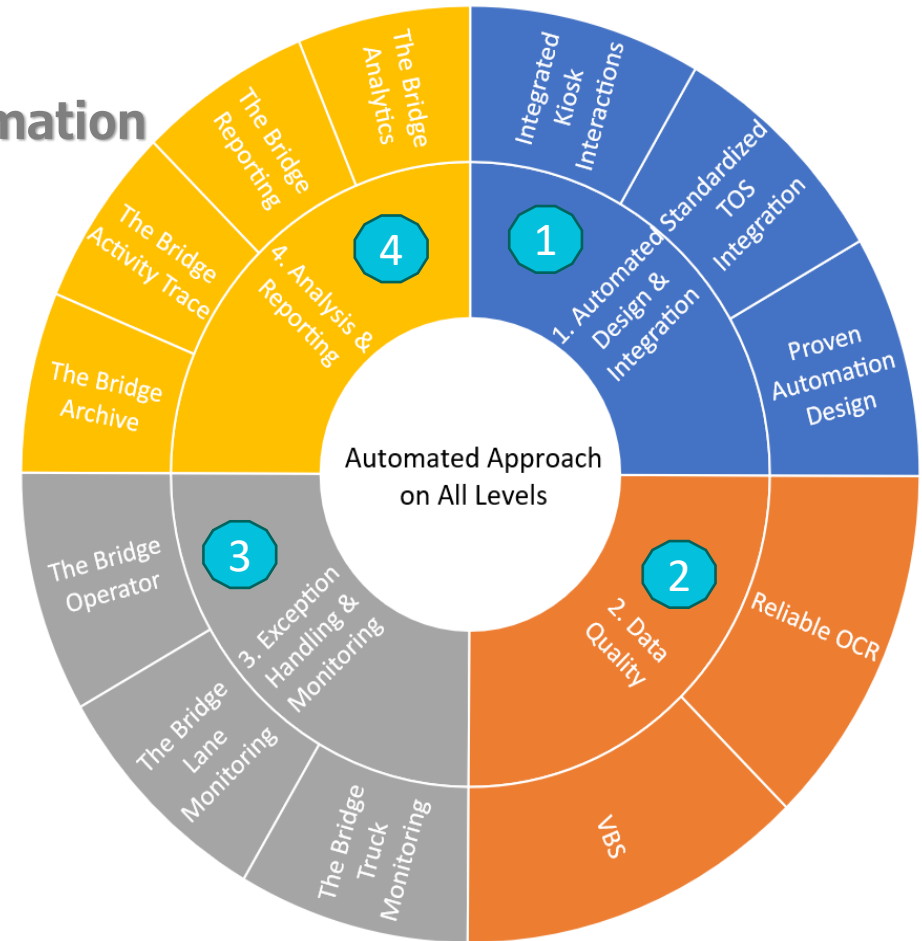


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## Gate automation ≠ installing OCR cameras

In 4 golden rules to a structured approach of gate automation

- 1 Design: physical, business processes, KPI's
- 2 Maximize Data Quality: use OCR&VBS
- 3 Implement Exception handling & monitoring
- 4 Analysis & reporting for feedback





The KPI of a successful gate automation project should be:

Average time at an In-gate kiosk (\*1): 70 seconds

Based on following processes:

- Truck driver identification by card
- Biometric check of truck driver (fingerscan)
- Input of appointment/booking number
- Confirming transaction overview screen
- Input of 1 seal number of 1 export container
- Selection of container position on chassis for 1 Import container

Number of GOS exceptions: 3% - 6%

Number of TOS exceptions: 2% - 4%

# Expected Performance

Typical job exception analysis (generated by dashboard)



Visits

Total : 624

- Without jobs - 593 (95.0%)
- With jobs - 31 (5.0%)

Total = 5%



Job Category

Total : 41

- OCR Jobs - 18 (2.9%)
- TOS Jobs - 23 (3.7%)
- Tank Jobs - 0 (0.0%)

OCR = 2,9%

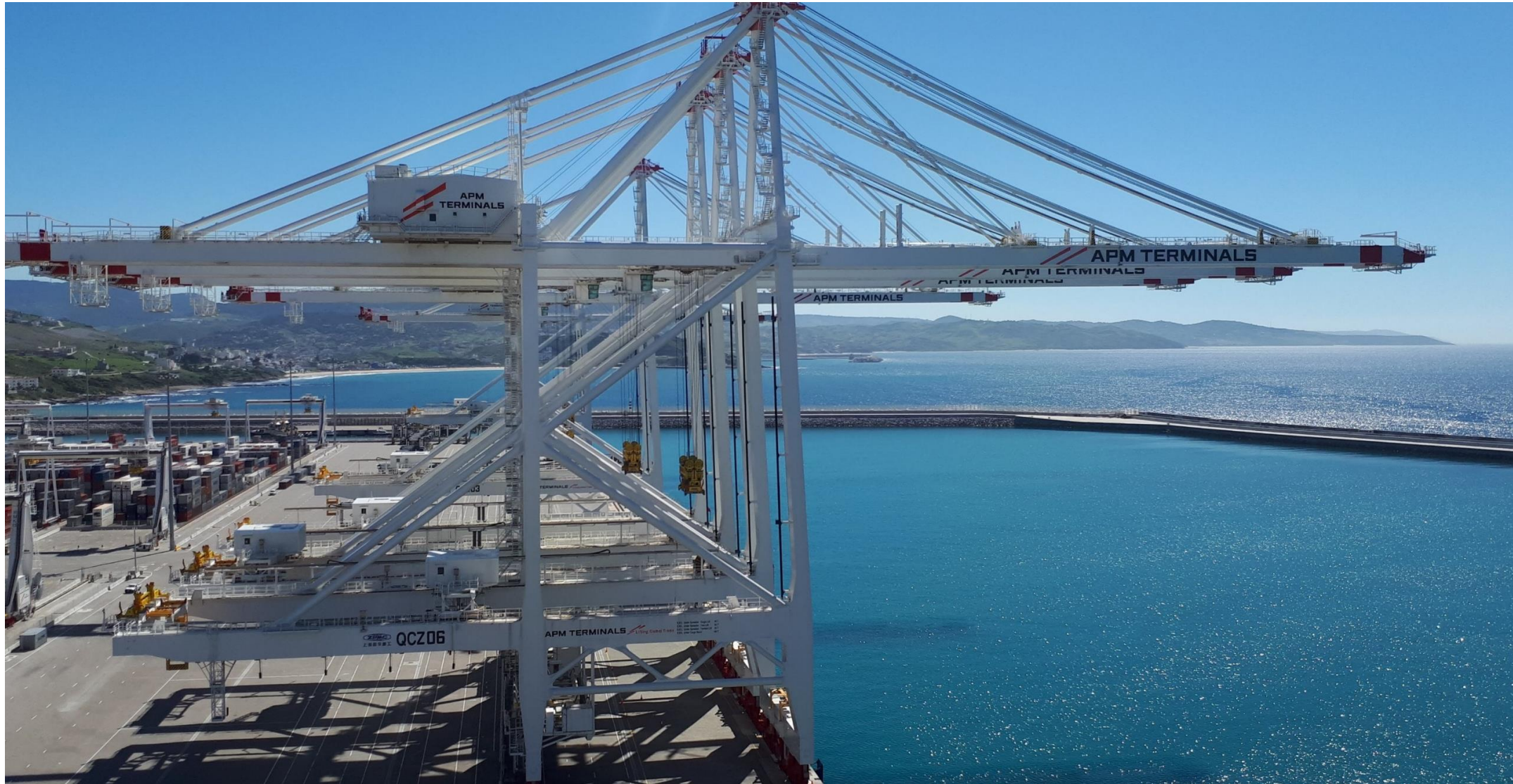


OCR Category

Total : 18

- Chassis Number - 0 (0.0%)
- Chassis Plate - 0 (0.0%)
- Chassis Teu - 0 (0.0%)
- Chassis Profile - 0 (0.0%)
- Door - 0 (0.0%)
- Genset - 0 (0.0%)
- IMDG Labels - 0 (0.0%)
- Seal - 0 (0.0%)
- ISO Code - 0 (0.0%)
- OOG - 0 (0.0%)
- License Plate - 5 (0.8%)
- Location - 0 (0.0%)
- Tank Bars - 0 (0.0%)
- Unit Number - 13 (2.1%)

## 2 examples of automation: Crane OCR





# BoxCatcher

Unparalleled STS crane OCR



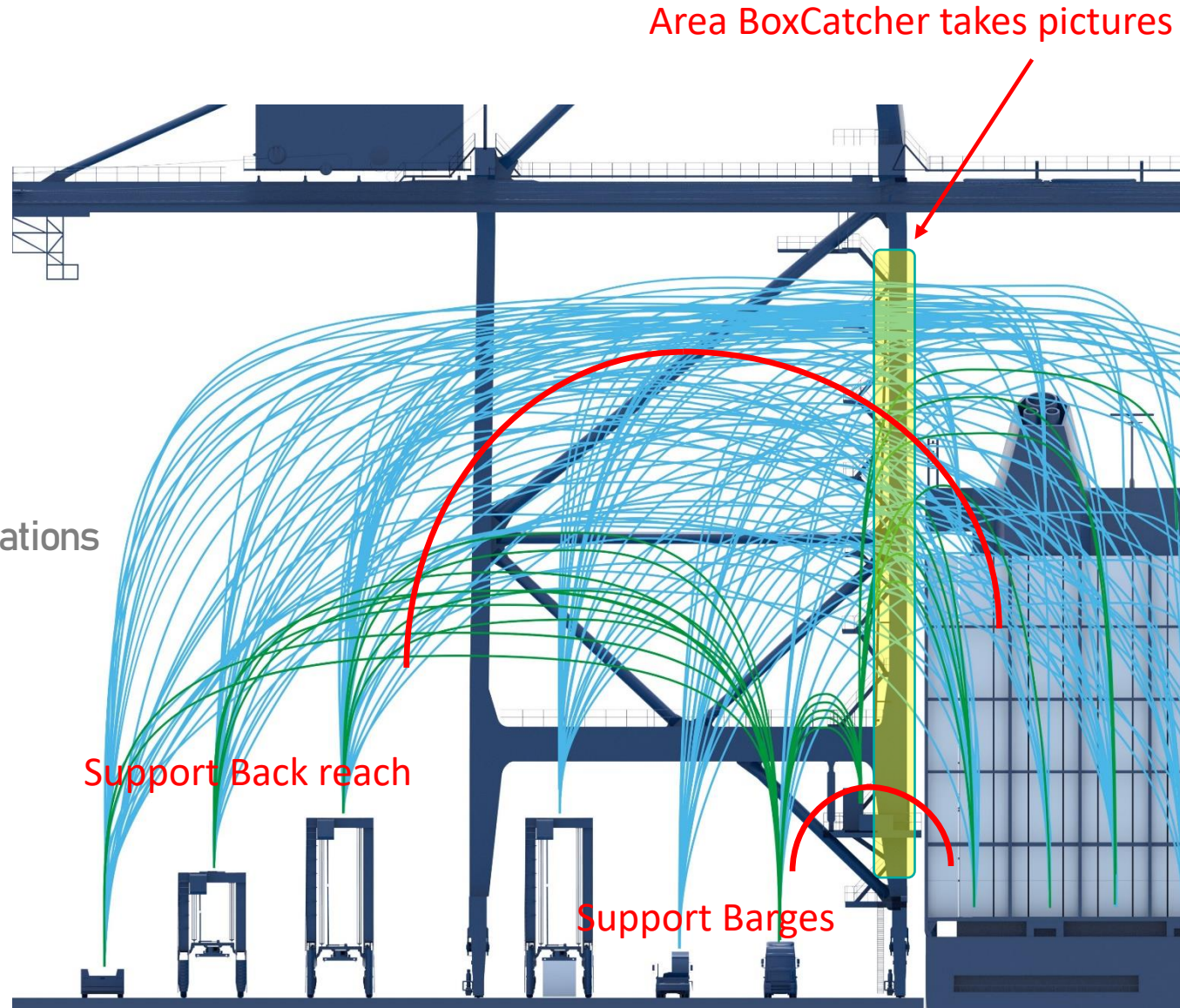
Camco's Boxcatcher is the most advanced  
OCR camera system



# The only dynamic crane OCR system in the world

## Supported moves

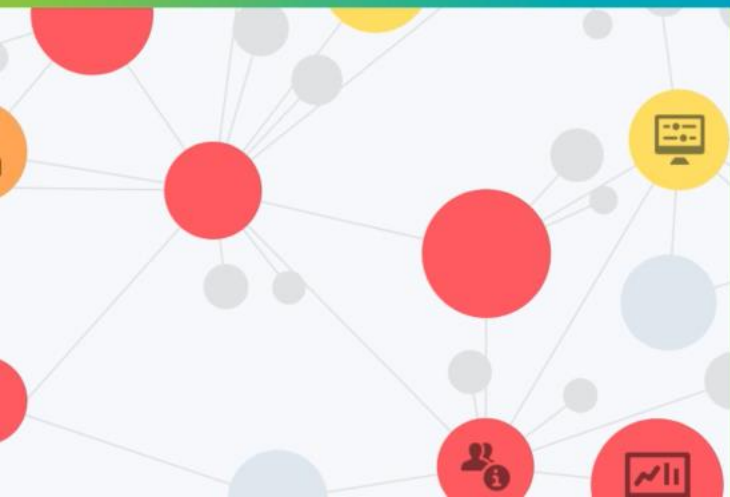
- Supports portal beam moves
- Support back reach moves
- 20/40ft 2x40ft 2x20ft 4x20ft combinations





# THE BRIDGE

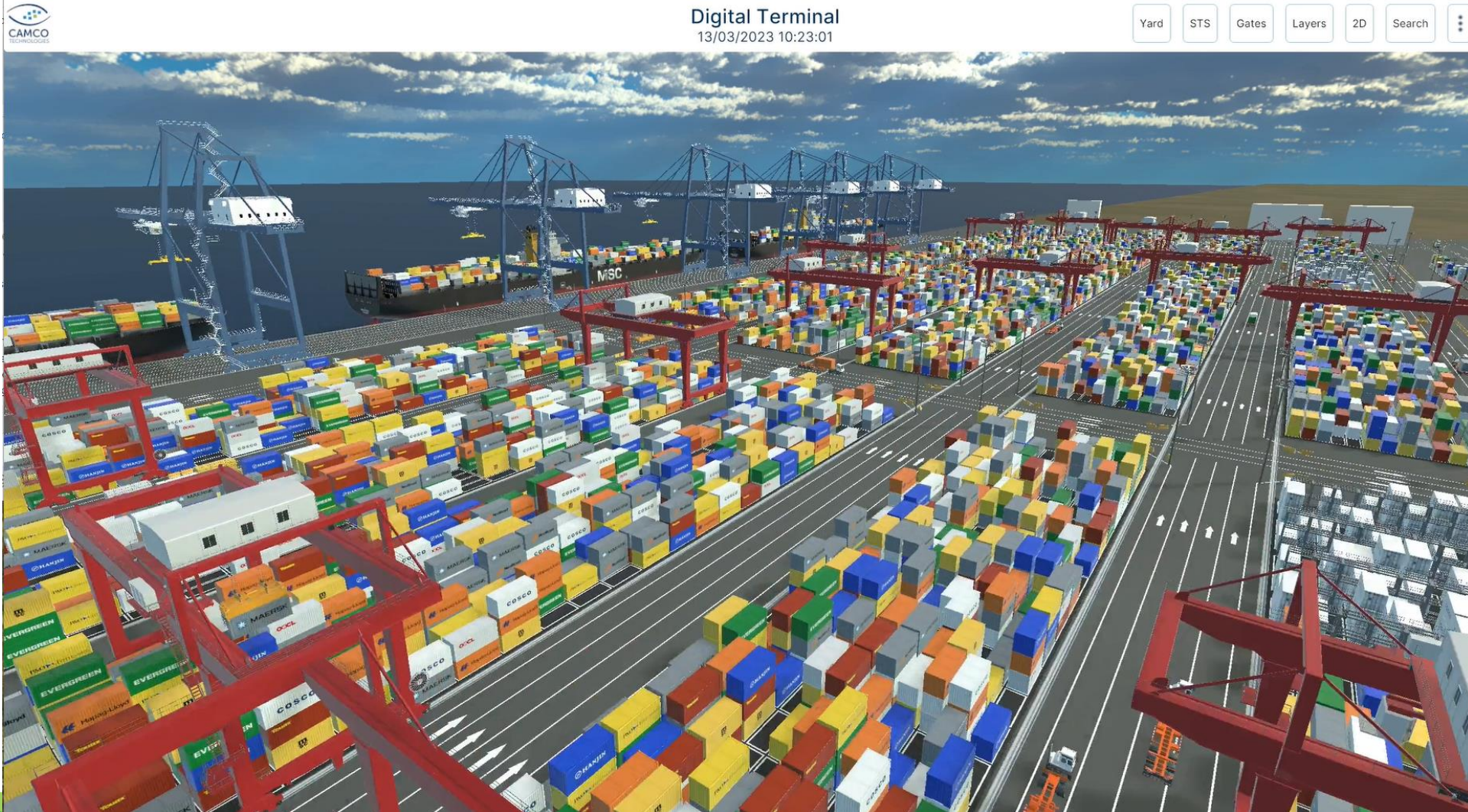
Empowering container terminals  
through automation





# Real Time Digital Twin

## A real time interactive 3D model of a terminal



**RT DIGITAL TWIN**  
Management by Intelligence

Camco, partnering for smarter terminals

*Thank you*

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**CAMCO**  
TECHNOLOGIES