

How Camco helps Terminals to achieve sustainability with gate automation



We automate,
you operate

JAN BOSSENS
2023-11-02



สวัสดี

Sa-wat-dee



From single product to integrated systems

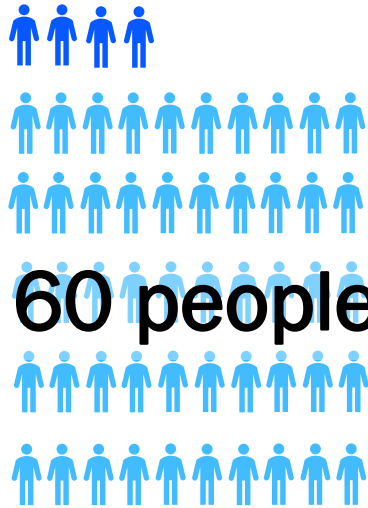


1999

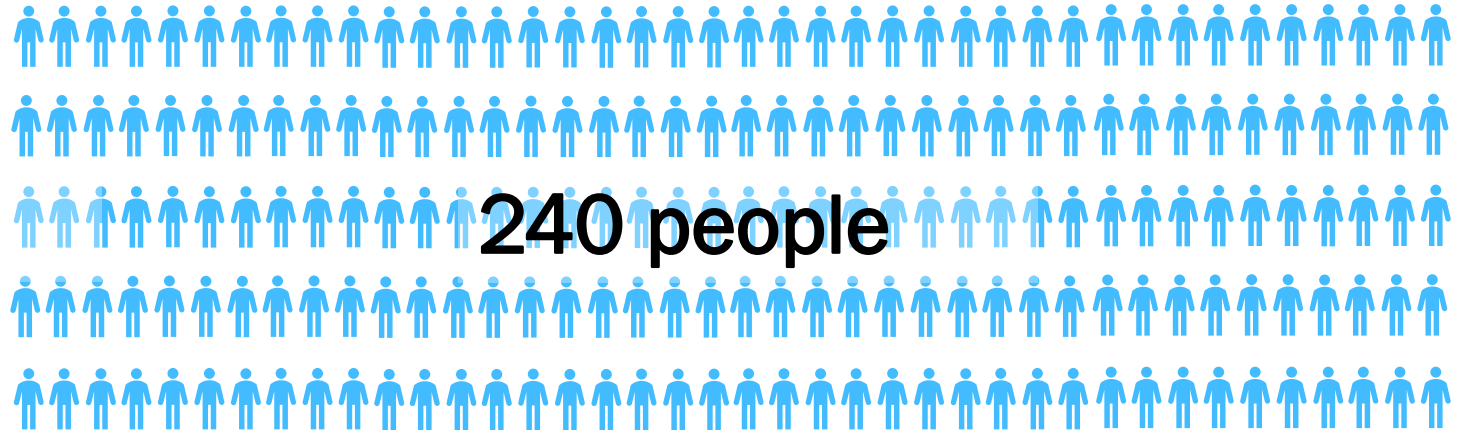
2002

2014

2023



60 people



240 people



Gate Automation
OCR portals+ kiosks



Rail Automation
OCR Rail portals



Quay Automation
STS



Yard Automation
RTG/RMG + RTLS

The BRIDGE

ADI

BLV

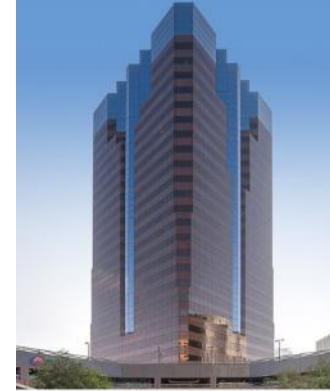
VMT auto
jobstepping

PCS
VBS+ITT

RT Digital
Twin



Camco Technologies NV
HQ in Leuven, Belgium
24 years in terminal automation



Camco US
One World Trade Center
Long Beach



Camco Middle East FZE
JAFZA ONE Tower – Building A



*CAMCO
TECHNOLOGIES
AUSTRALIA PTY LTD*



Camco China
Shanghai



Global terminal operators



Maritime terminal operators



Confidential. All rights reserved. No content can be reproduced without permission.

How can Camco help Terminals to Increase energy efficiency and green transitions

Sustainability strategy of Camco

The target is to reduce the carbon emission to NET-ZERO in 2035



ECO-DESIGNED PRODUCTS

All hardware from Camco are inhouse designed with the following principles:

- Repairability- all modularized
- **Durability >10 years life time**
- Recyclability

ENVIRONMENTAL FRIENDLY COMPANY CULTURE

Camco integrate environmental friendly policy, Camco rewards employees who comes more with **bikes** to work.

Design carbon friendly solutions

Business processes at the gates are **optimized** to reduce carbon emissions of trucks

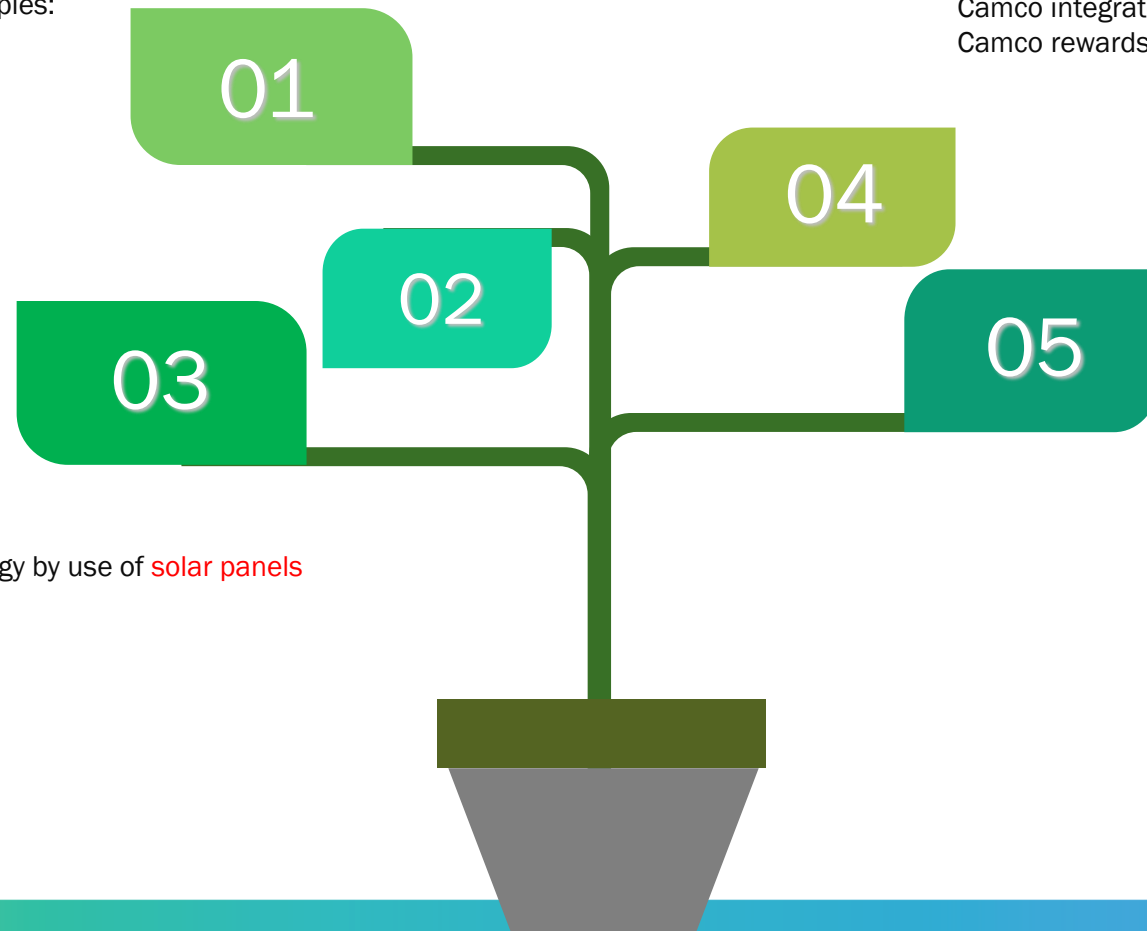
RENEWABLE ENERGY

Camco using renewable energy by use of **solar panels**

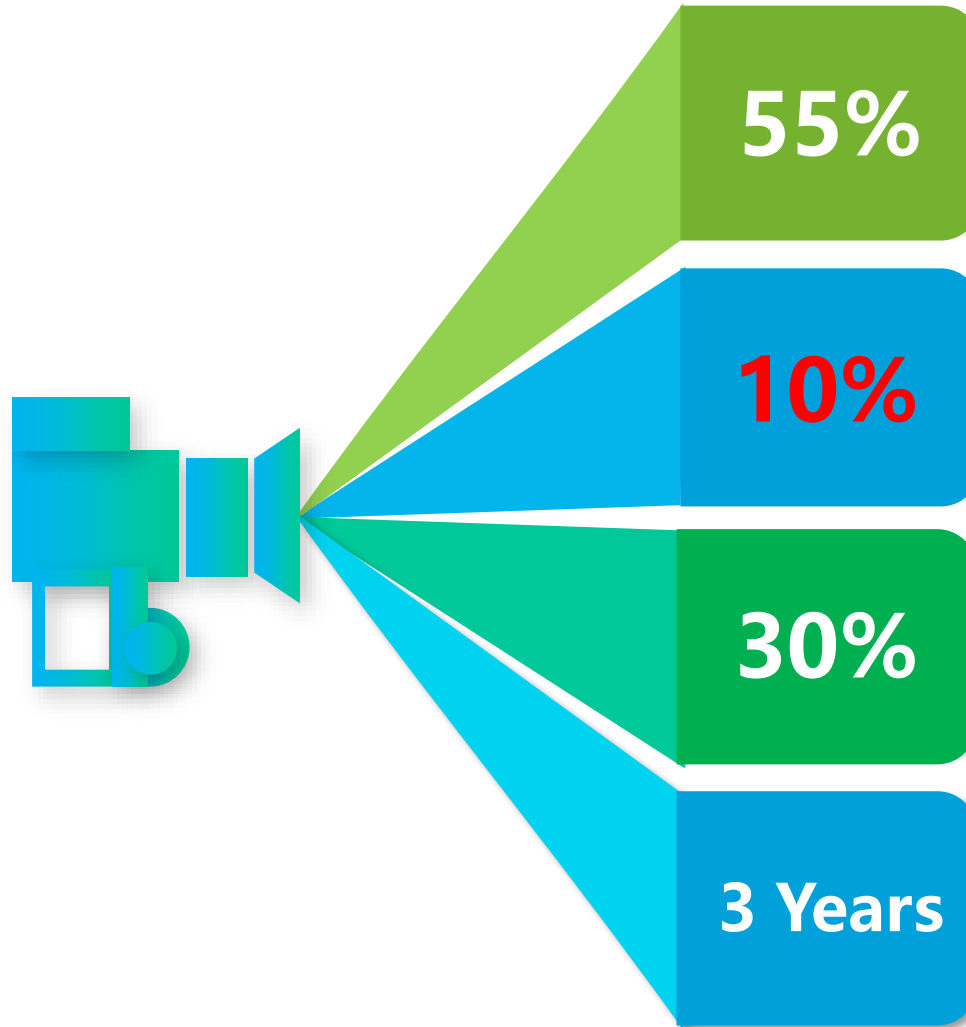
ECO-LEADED PRODUCT PROCESSES

Camco conducts all its production processes as ECO-Leaded

- Less waste
- **Circular use of materials**
- Source less & Source right



Investing in 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.

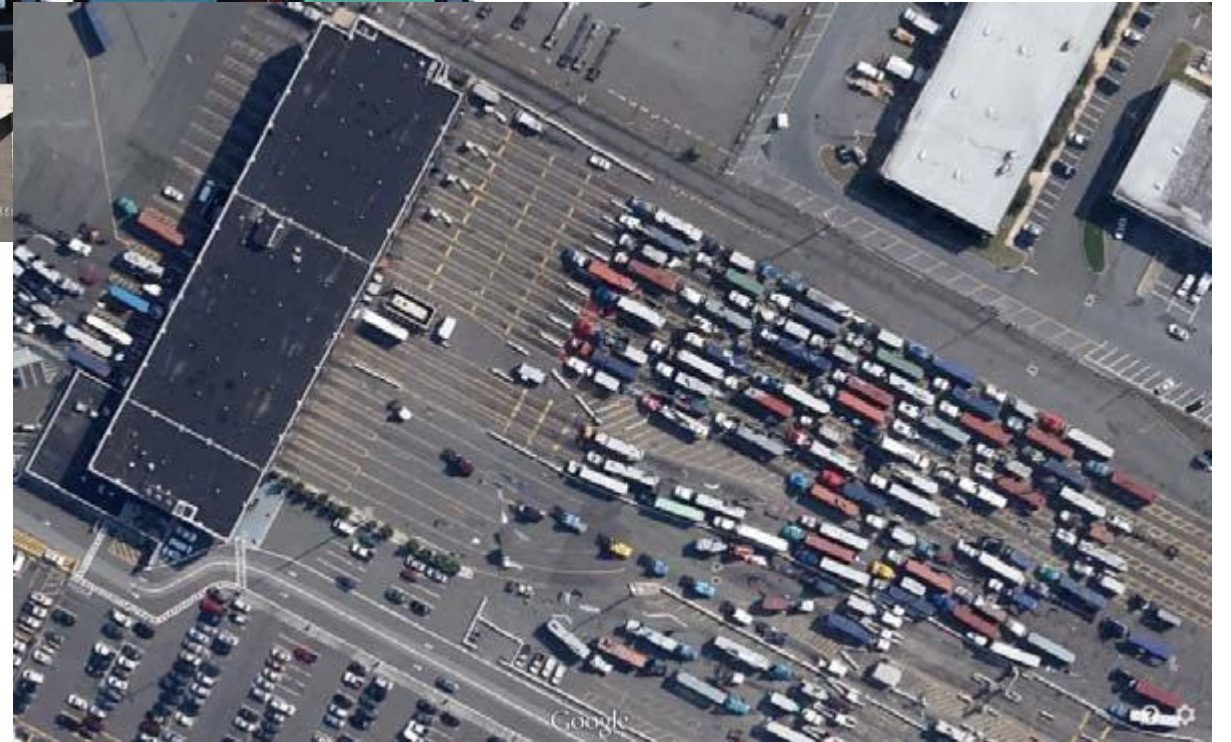
Productivity

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.

Reducing Carbon emissions by gate automation

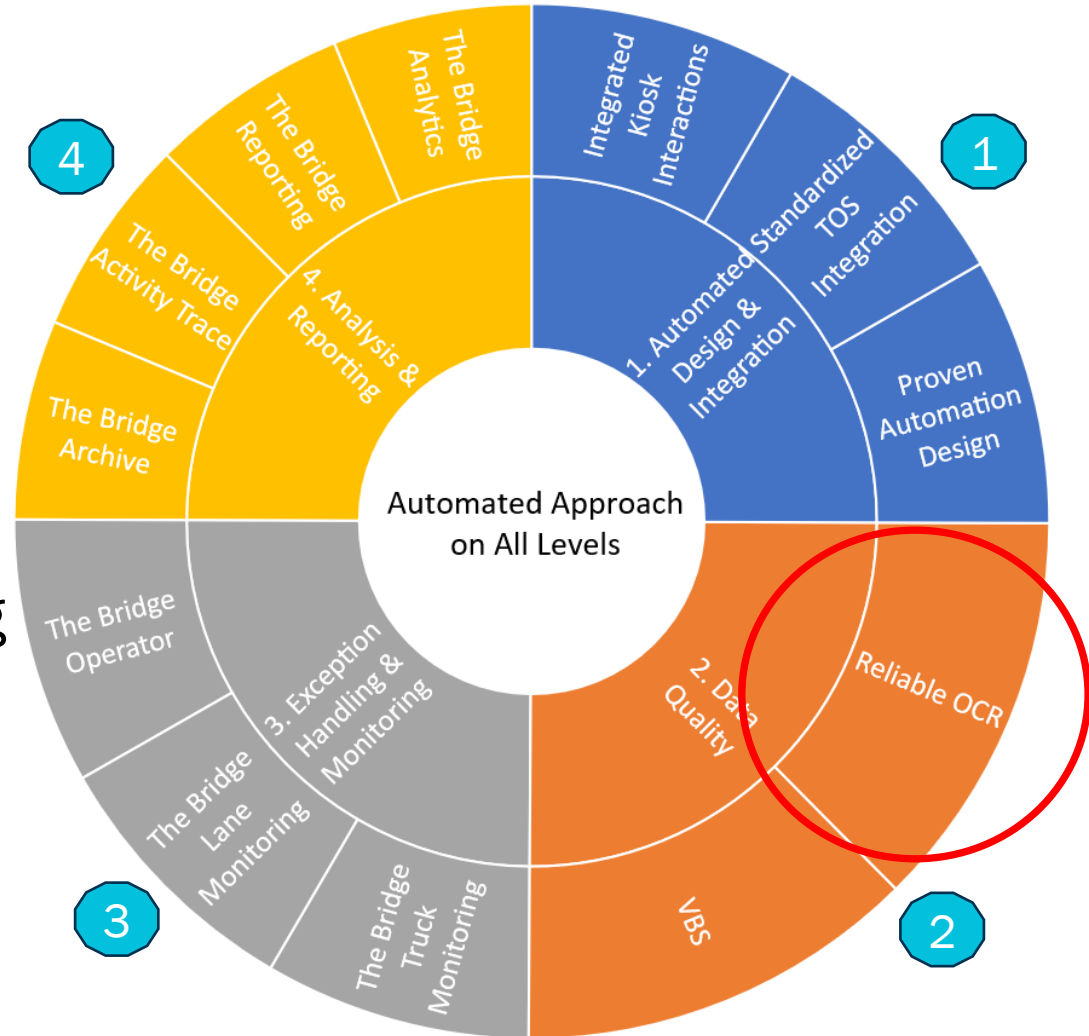


Reducing Carbon emissions by gate automation



In four steps to a successful gate automation

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



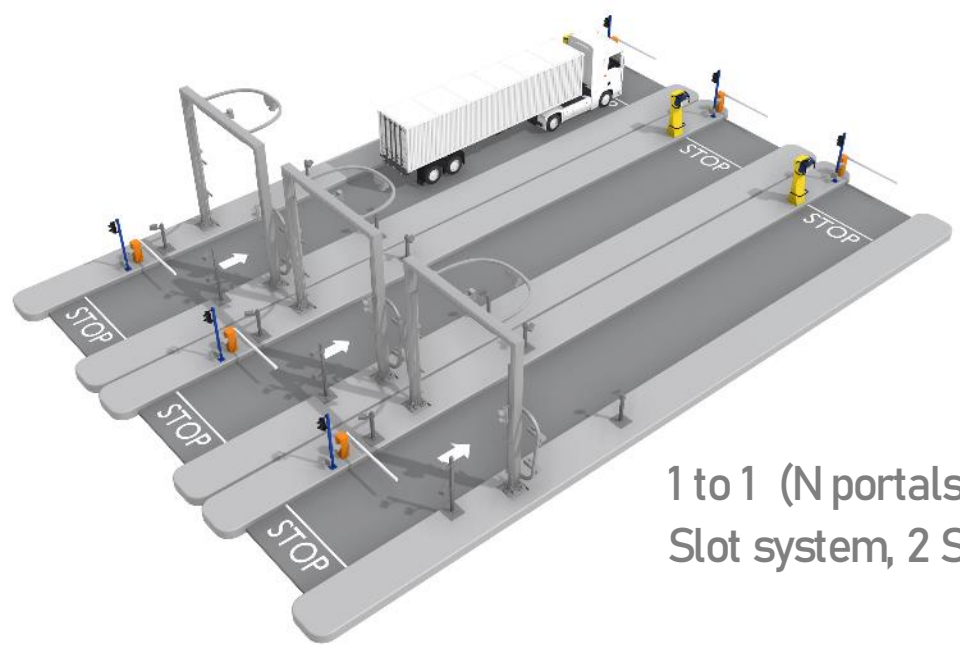
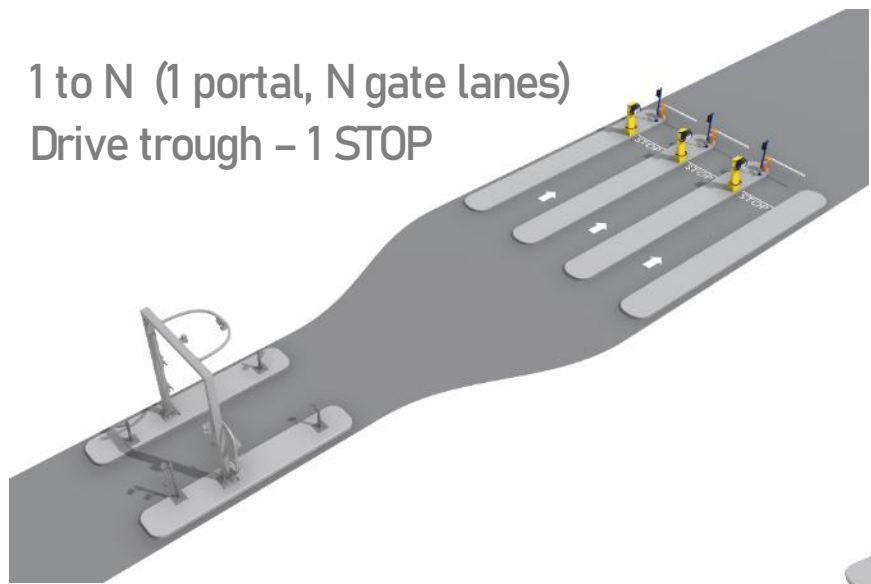
CAMCO = 24 years of experience

Step 1: design physical

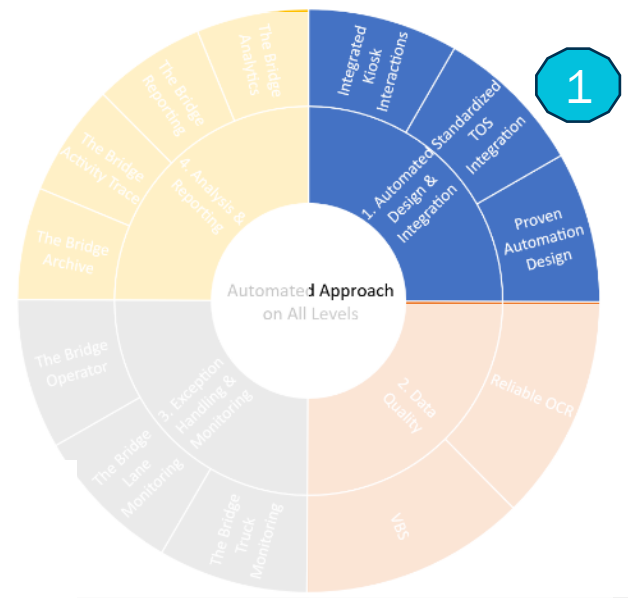


Physical gate layouts, 2 concepts

1 to N (1 portal, N gate lanes)
Drive trough – 1 STOP



1 to 1 (N portals, N gate lanes)
Slot system, 2 STOPS



Confidential. All rights reserved. No content can be reproduced without permission.

Example: video PSA/MSK Antwerp



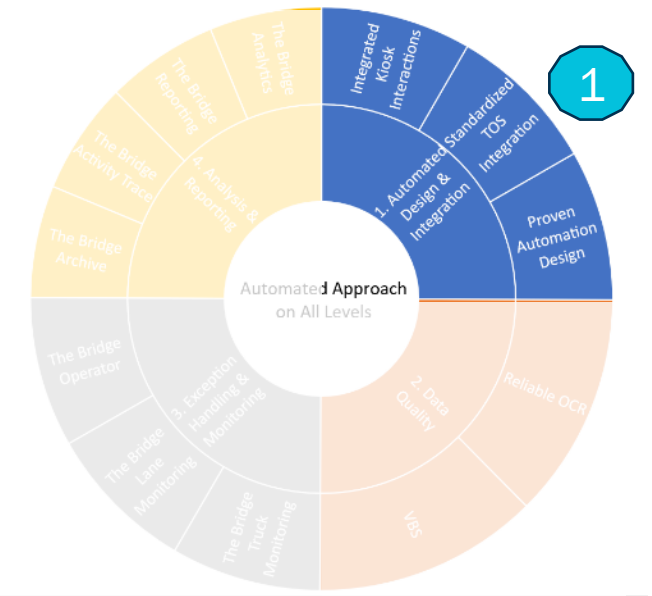
Check the gate business processes

Security processes

- Truck driver identification (port pass, driver license, ...)
- Biometric check of truck driver (fingerprint/face)
- Truck identification (license plate, RFID tag, ...)

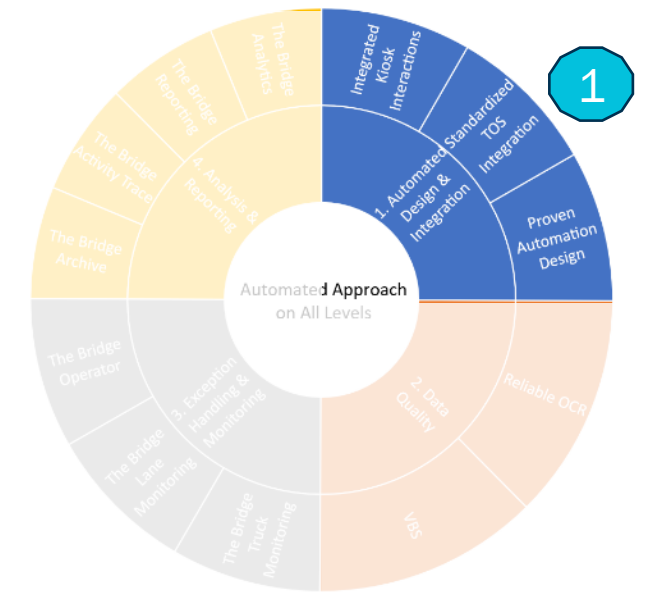
Logistic processes

- Input of appointment/booking number
- Input of seal number
- Selection of 20" import container position on chassis
- Damage inspection
- Empty inspection
- IMDG label check
- Weight check
- Many more.....



Define KPI's

Average time at an In-gate kiosk (*1): 70 seconds
Number of GOS exceptions: 3% - 6%
Number of TOS exceptions: 2% - 4%



(*1) 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

Step 2: Data Quality OCR

Use high end and market proven OCR Portals

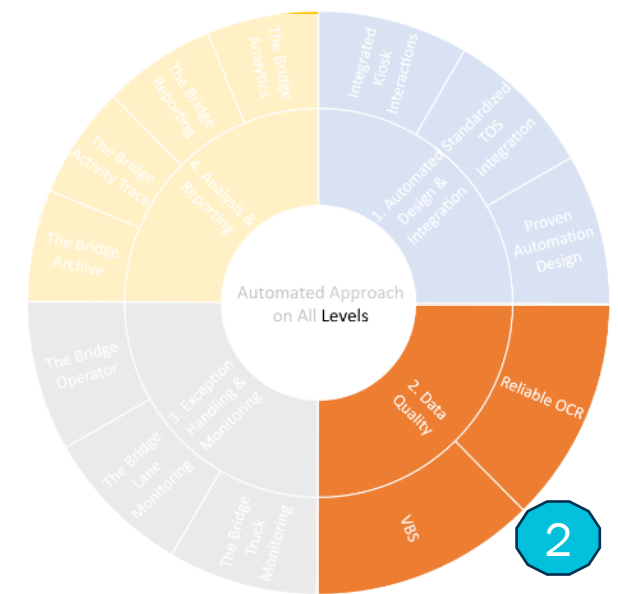


Container number	> 98%
ISO code	> 98%
IMO placards : presence	> 96%
IMO placards : class	> 93%
License plate number	> 98%
UN number : presence	> 96%
UN number	> 90%
ILU number*	> 98%
Trailer license plate *	region specific
Non-ISO container number*	> 98%
Container weight* °	> 90%
Chassis number*	TBA
Fleet number*	TBA

° Not if container tank volume is > 10%

* Extended feature

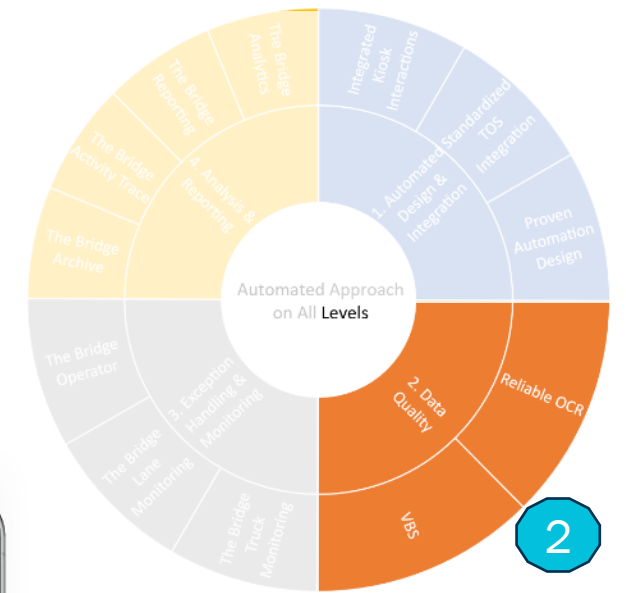
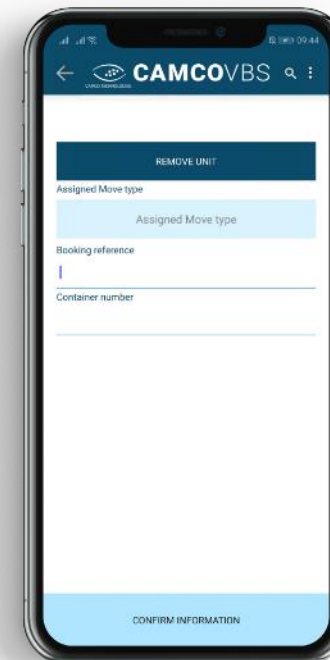
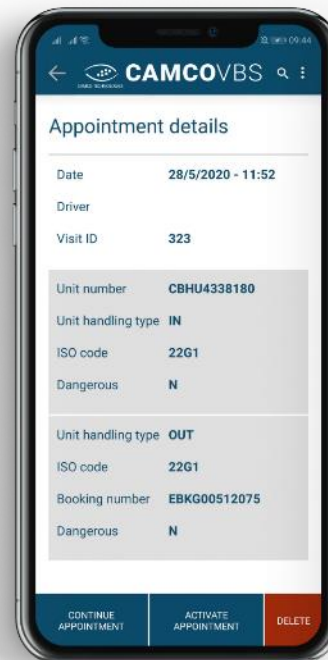
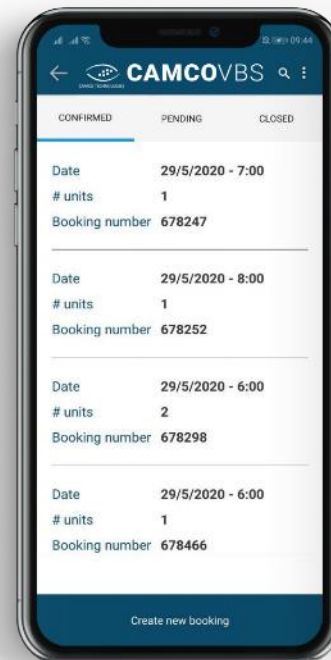
Container position on chassis	> 99%
Door direction	> 99%
Seal presence	> 95%
Cargo classification*	TBA
Genset presence*	> 95%
Tank container bars presence*	TBA
Tank valve detection*	TBA
Waste label detection*	> 95%
Wheel group count*	> 95%



Step 2: Data Quality Vehicle Booking System

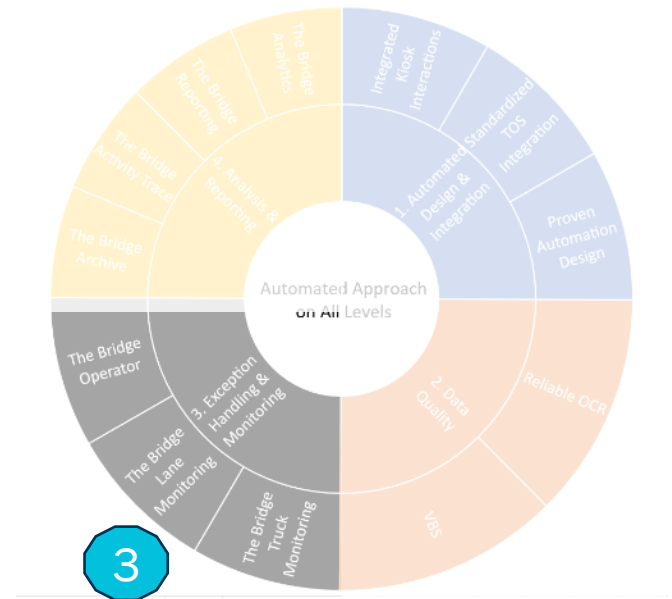
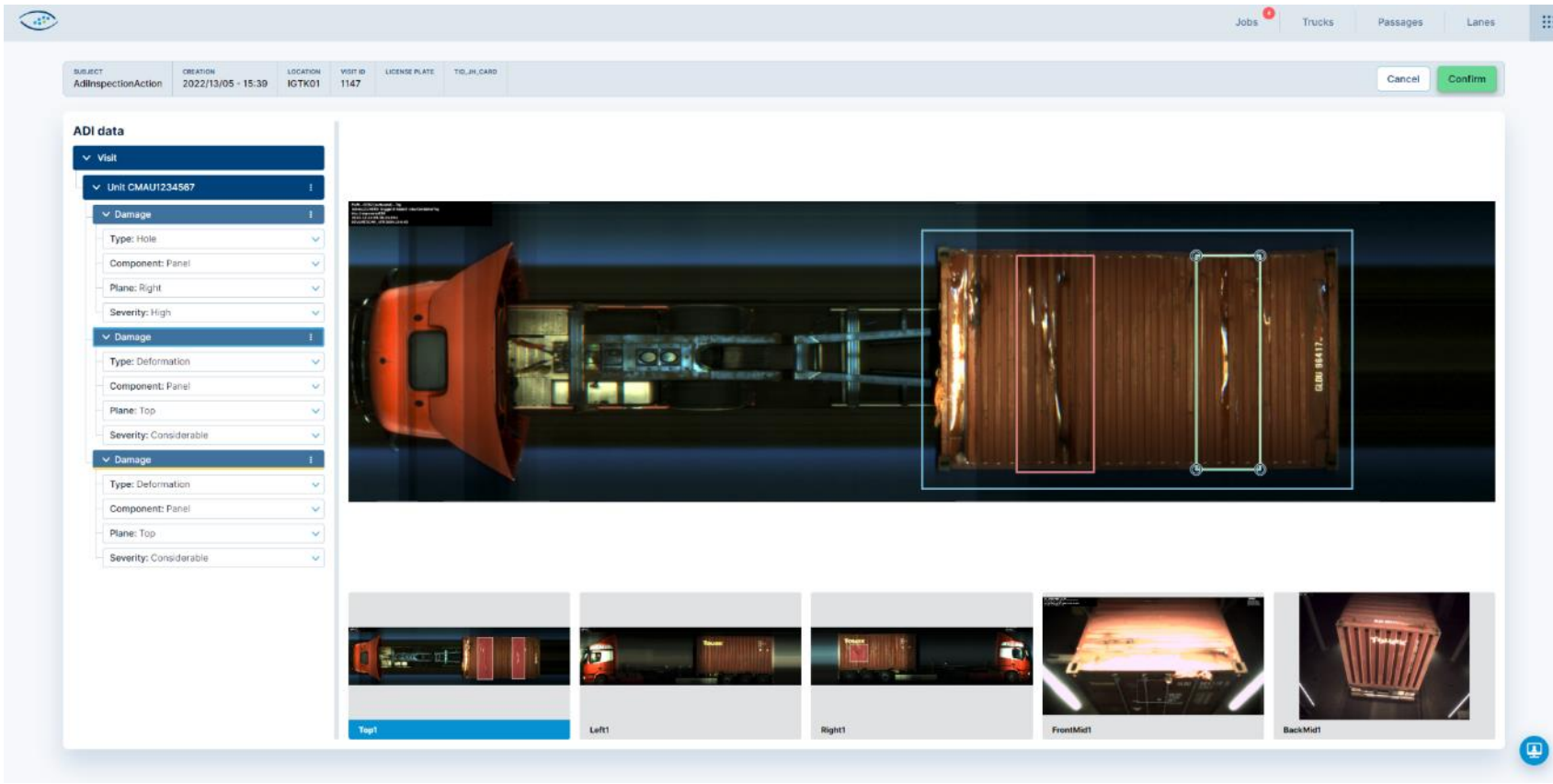
Use vehicle booking/appointment system

By pre-check data before truckers arrive at the gates



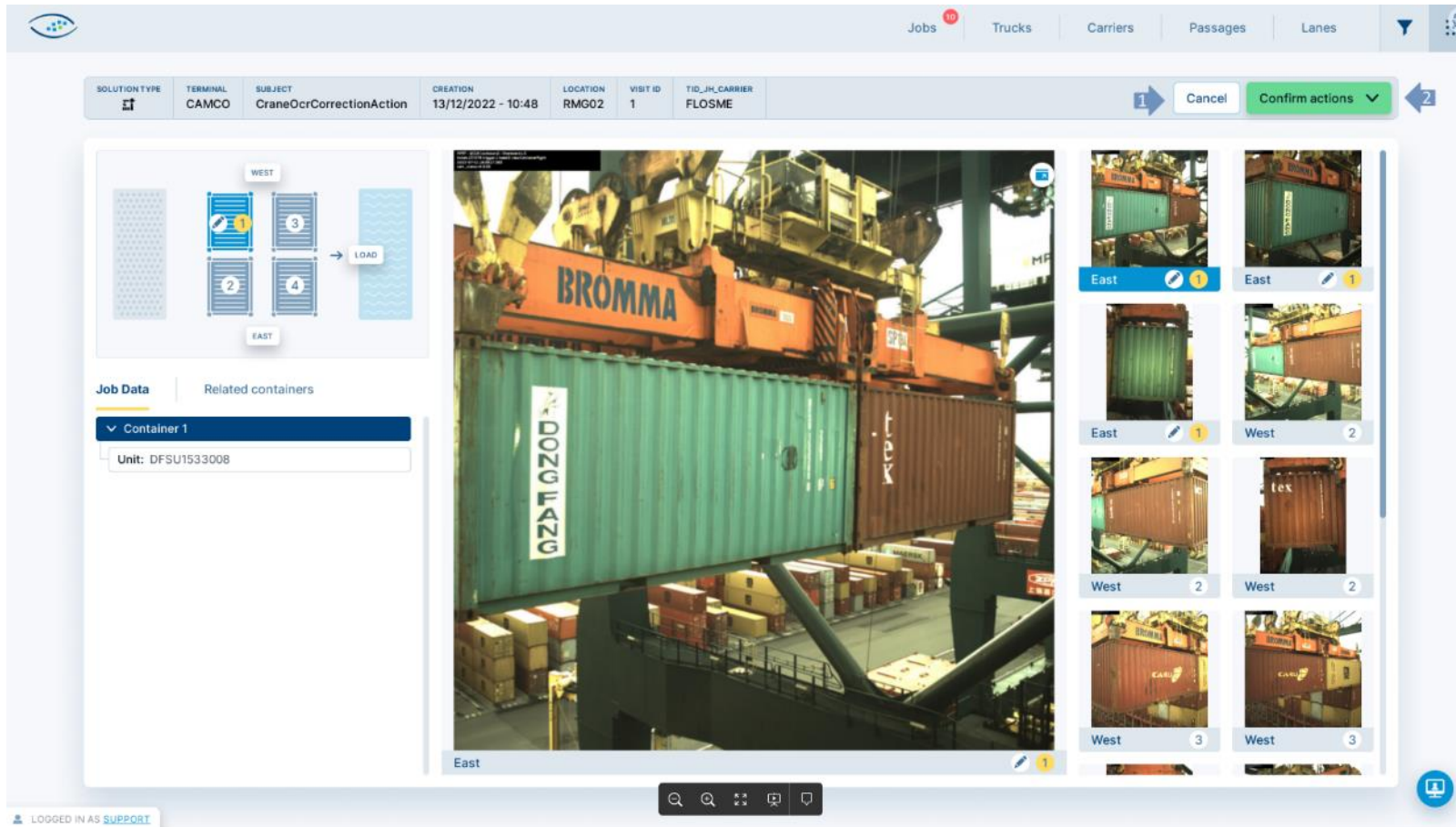
Step 3: Exception handling and monitoring

Exception handling part of our product THE BRIDGE

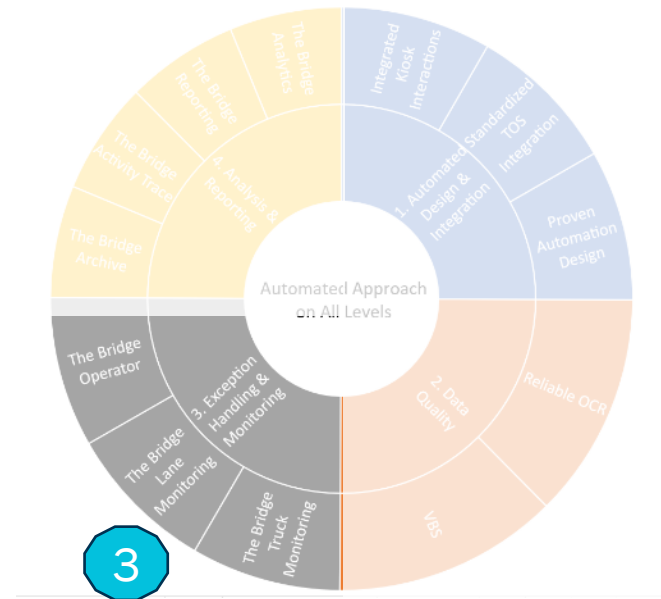


Step 3: Exception handling and monitoring

Exception handling part of our product THE BRIDGE



The screenshot displays the THE BRIDGE software interface for exception handling. At the top, navigation tabs include Jobs (10), Trucks, Carriers, Passages, and Lanes. Below this is a header bar with fields for SOLUTION TYPE, TERMINAL (CAMCO), SUBJECT (CraneOcrCorrectionAction), CREATION (13/12/2022 - 10:48), LOCATION (RMG02), VISIT ID (1), and TID_IH_CARRIER (FLOSME). Action buttons for 'Cancel' and 'Confirm actions' are visible. The main interface is divided into several sections: a schematic diagram on the left showing a 2x2 grid of containers (WEST/EAST) with numbered callouts 1-4 and a 'LOAD' arrow; a large central video feed showing a yellow crane lifting a green container with 'BROMMA' branding; and a grid of smaller video feeds on the right, each labeled with 'East' or 'West' and a number (1-3). A 'Job Data' panel on the left shows 'Container 1' with 'Unit: DFSU1533008'. The bottom left corner indicates 'LOGGED IN AS SUPPORT'.



Step 4: Analysis and reporting

job exception analysis is needed to reach KPI's



Visits ⓘ
 Total : 624
 Without jobs - 593 (95.0%)
 With jobs - 31 (5.0%)

Total =
5%

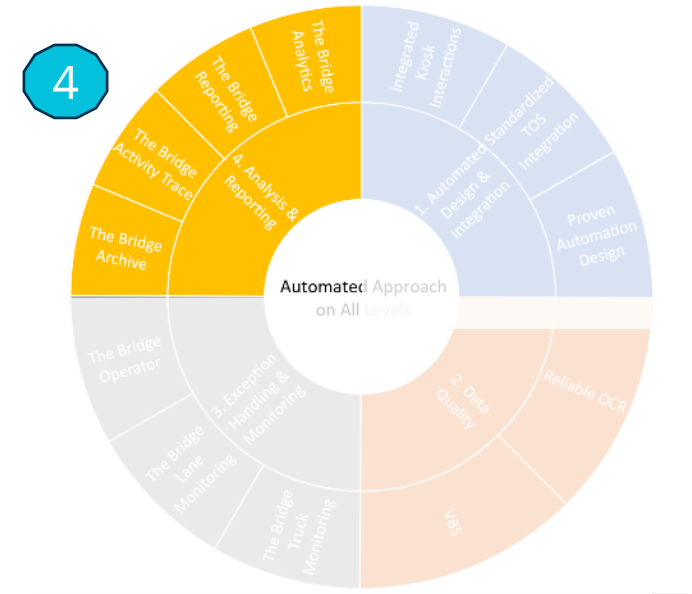


Job Category ⓘ
 Total : 41
 OCR Jobs - 18 (2.9%)
 TOS Jobs - 23 (3.7%)
 Tank Jobs - 0 (0.0%)



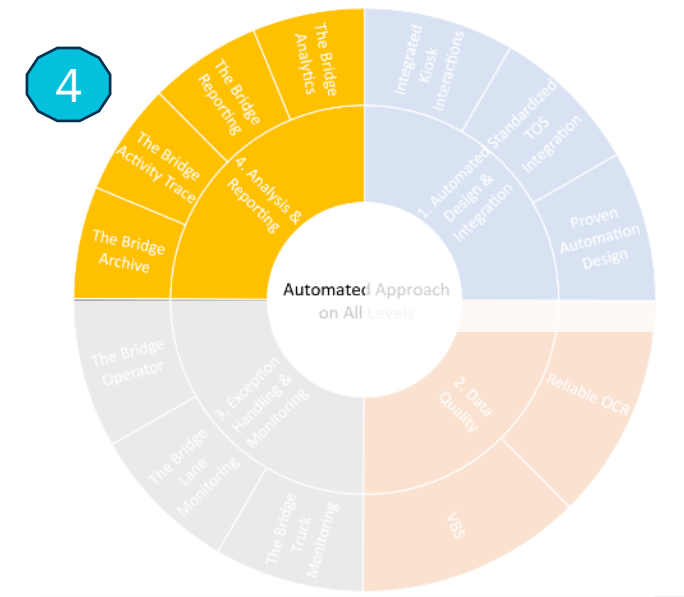
OCR Category ⓘ
 Total : 18

- 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%)



Step 4: Analysis and reporting

Typical job exception analysis (generated by dashboard)



Confidential. All rights reserved. No content can be reproduced without permission.

Example: 3 OCR portals with 8 gate

3 x OCR Portals

8 x kiosk lanes



Recent sales Q2/Q3 2023



- PSA Mersin Turkey, Gate automation
- Wan hai kaohsiung Taiwan, Gate automation
- ICTSI Rio Brazil, Gate automation
- HHIT Haiphong Vietnam, Gate automation/BoxCatcher(5)
- Hupac Piacenza Italy, Gate automation
- CMA CGM Khalifa Port AE, Gate automation + RTLS+ BoxCatcher(8)
- TNMSC Le Havre France, BoxCatcher (9+6)
- CCT Evergreen Panama, Gate automation
- SAGT Columbo Sri Lanka, Gate automation + BoxCatcher (9)
- WCT Colombo Sri Lanka, Gate automation/BoxCatcher(8)/RTLS
- NEOM Saudi, BoxCatcher (8)
- PSA Halifax Canada, Gate automation

ขอบคุณ

Kob khun

