

Realizing the Vision of e-Port: Automatic Gates and Its Related Subsystems at the Bangkok Port



กรมท่าเรือแห่งประเทศไทย

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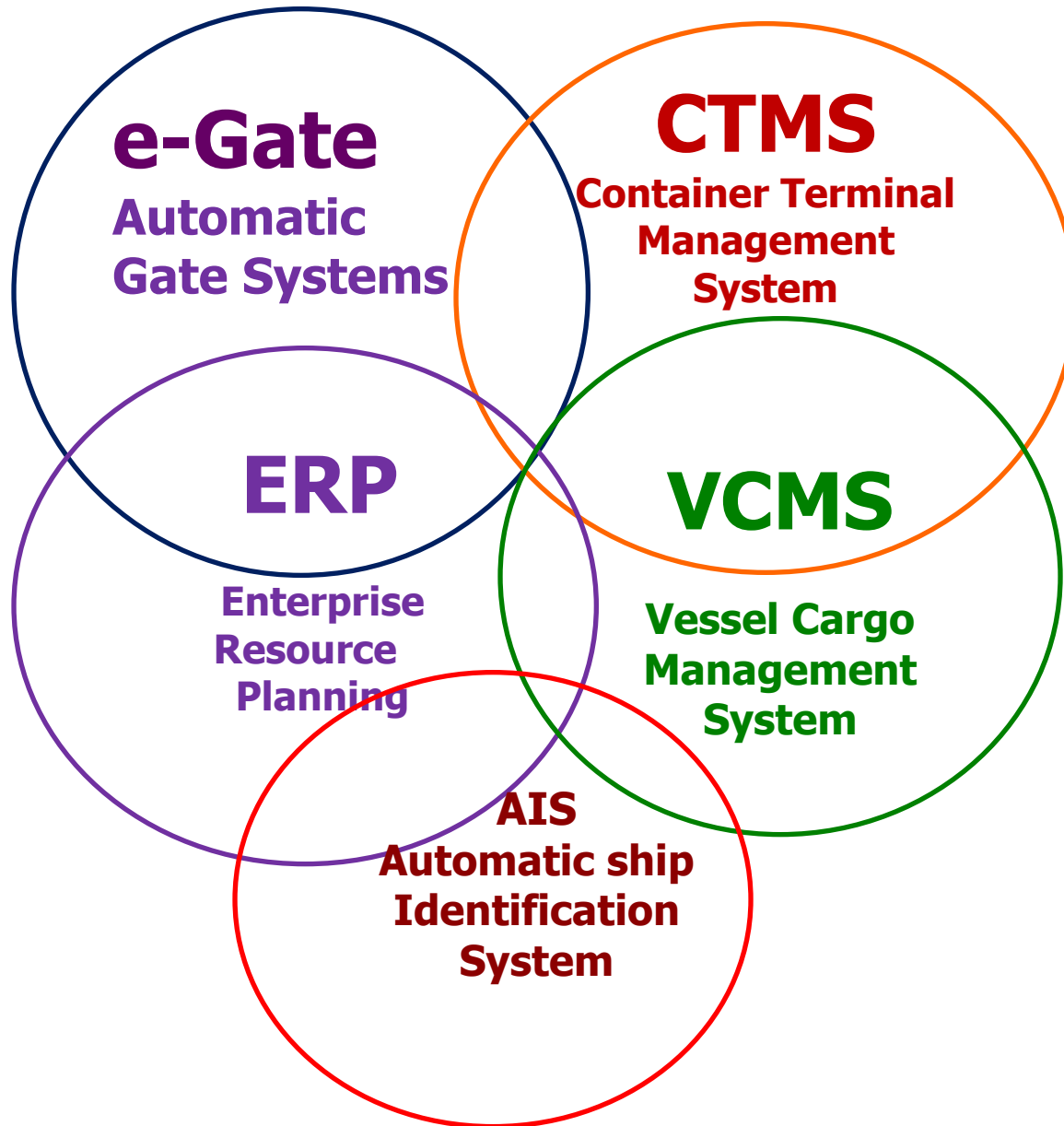


Objectives of the presentation

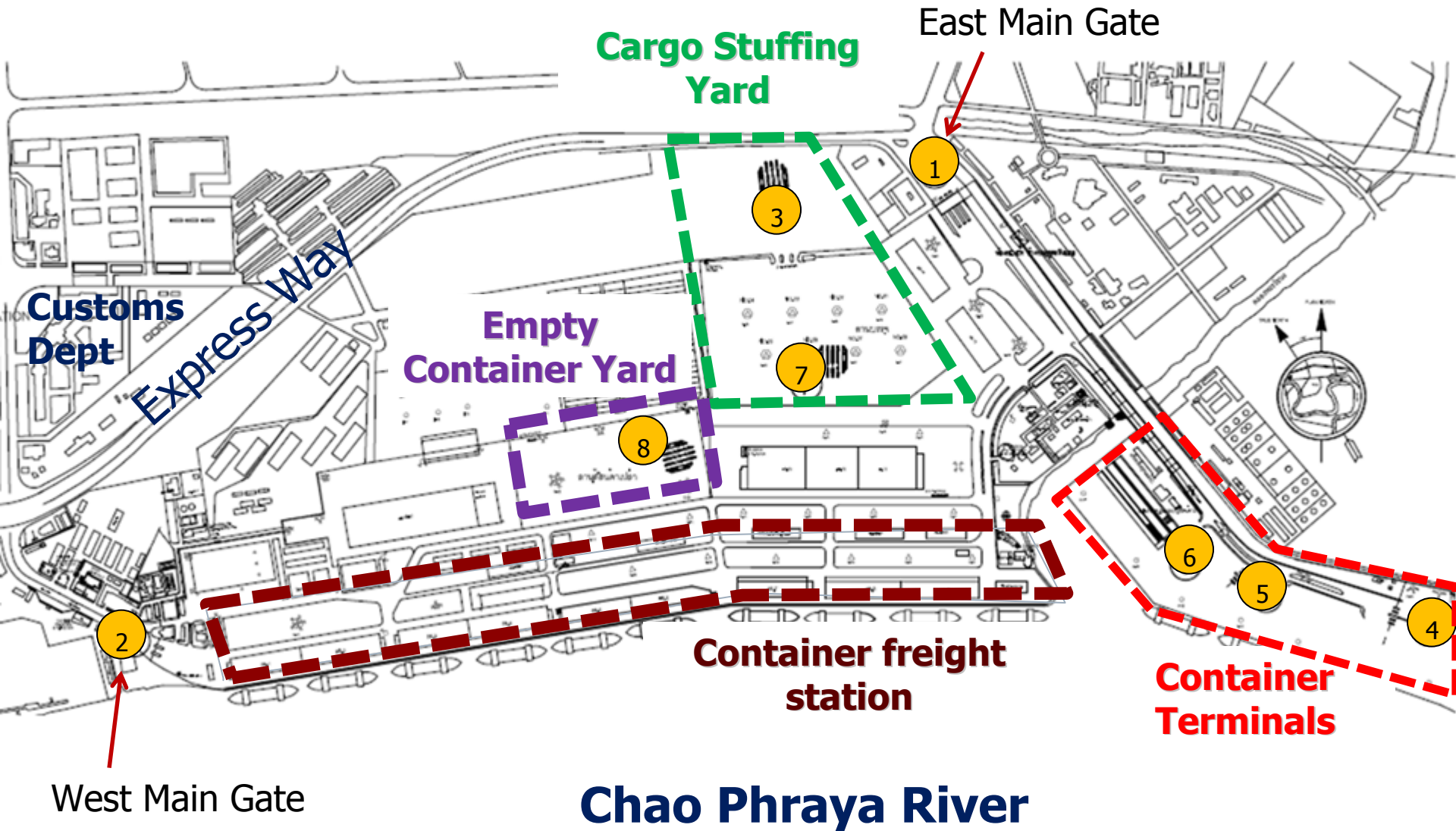
- To explain the overall **e-Port** system for **Cargo and Container Handlings**, and their **documentary procedures** at the Bangkok Port
- To describe **business processes** and **related technology** including e-Documents, RFID, Automatic Container ID Recognition and Camera Systems for automatic gates, port safety, cargo and container management and operations



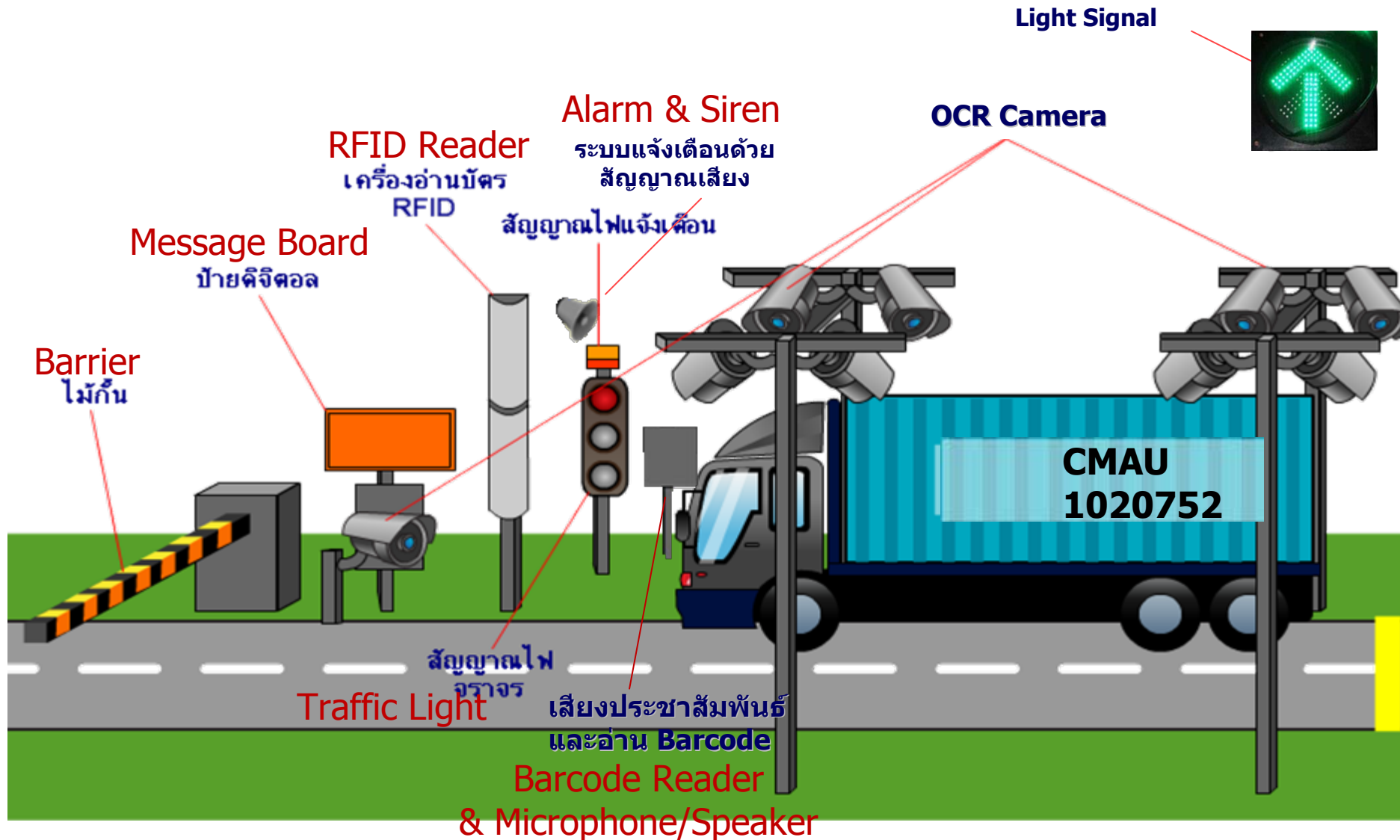
Subsystems of e-Port (for Bangkok Port)



Layout of the Bangkok Port (Klongtoey)



Equipments at the Gate



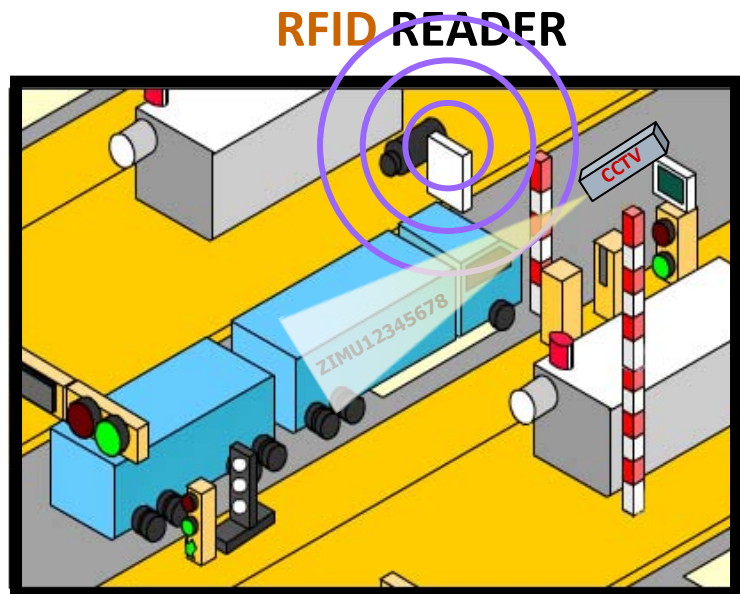
OCR = Optical Character Recognition
RFID = Radio Frequency Identification

Automatic Checking for Entering In/Leaving Out from the Gate



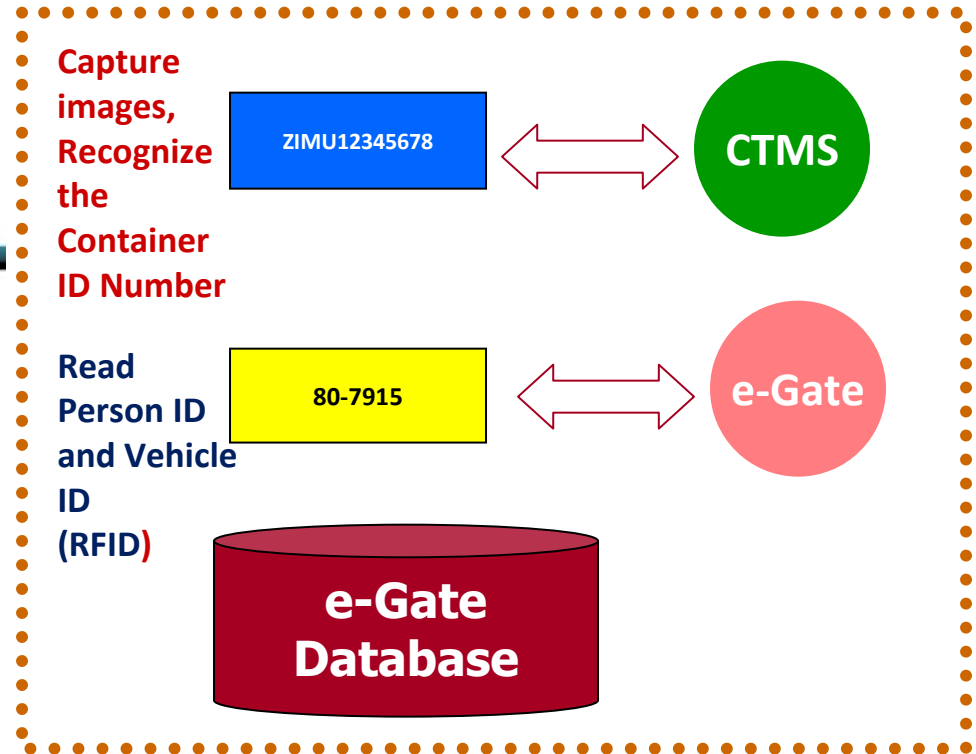
- Every time, any persons and vehicles enter in or leave out of the Gate
 - E-Gate System will automatically read the information about those persons and vehicles from the Radio Frequency ID cards (RFID) and the database.
 - Time stamps would be recorded, along with data cross checking with CTMS, VCMS and e-Customs systems for the permission to get in & out

Entering through the Main Gate



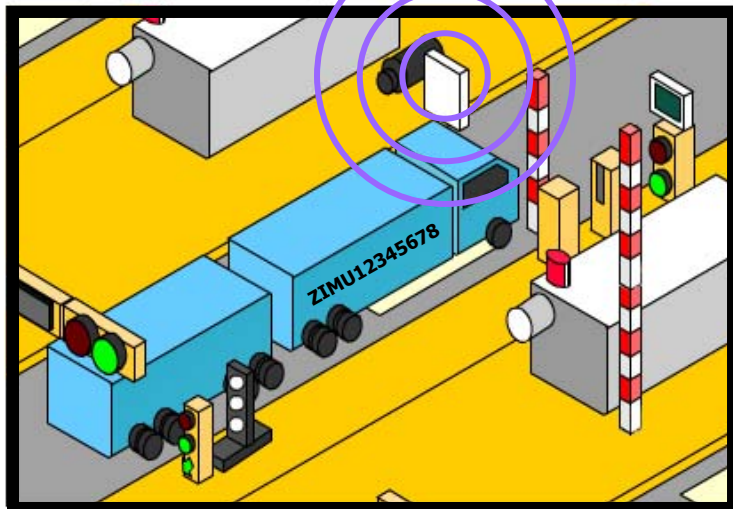
Business Operation

- Capture images of Containers and Automatically recognize the container ID number (CCTV & OCR)
- Identify the persons and vehicles entering into the port (security measure according to ISPS code)
- Automatically cross check for the permission of Export Containers with CTMS system and Paperless Customs System
- Information about entering time is recorded, with the Destination/Location Information displaying on the message board, and the gate barrier is open.



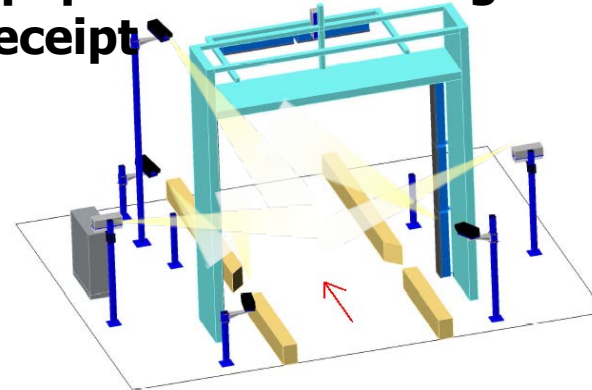
Entering through the Sub Gate (into the Container Terminal)

Read Container Number
RFID READER

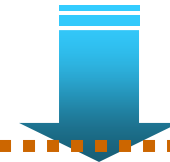


on site

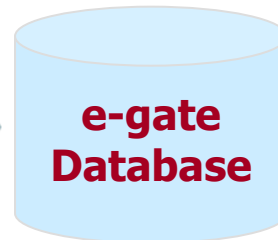
**Equipment Interchange
Receipt**



**Semi-Automatic
Damage Inspection**



Inform yard
location

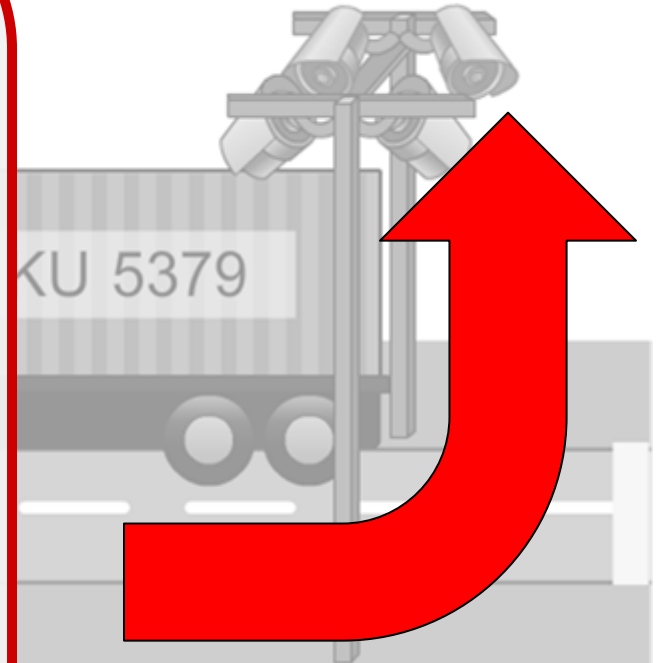


Equipments at the automatic gate

**Status Light
showing readiness for service**



Entering traffic light for each lane

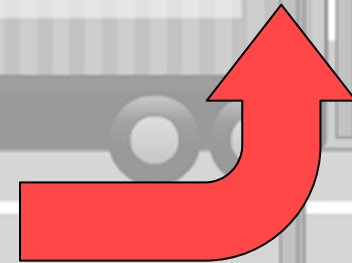
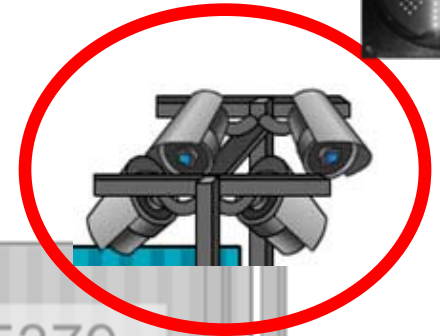


Camera Systems & OCR

Closed Circuit TV Cameras

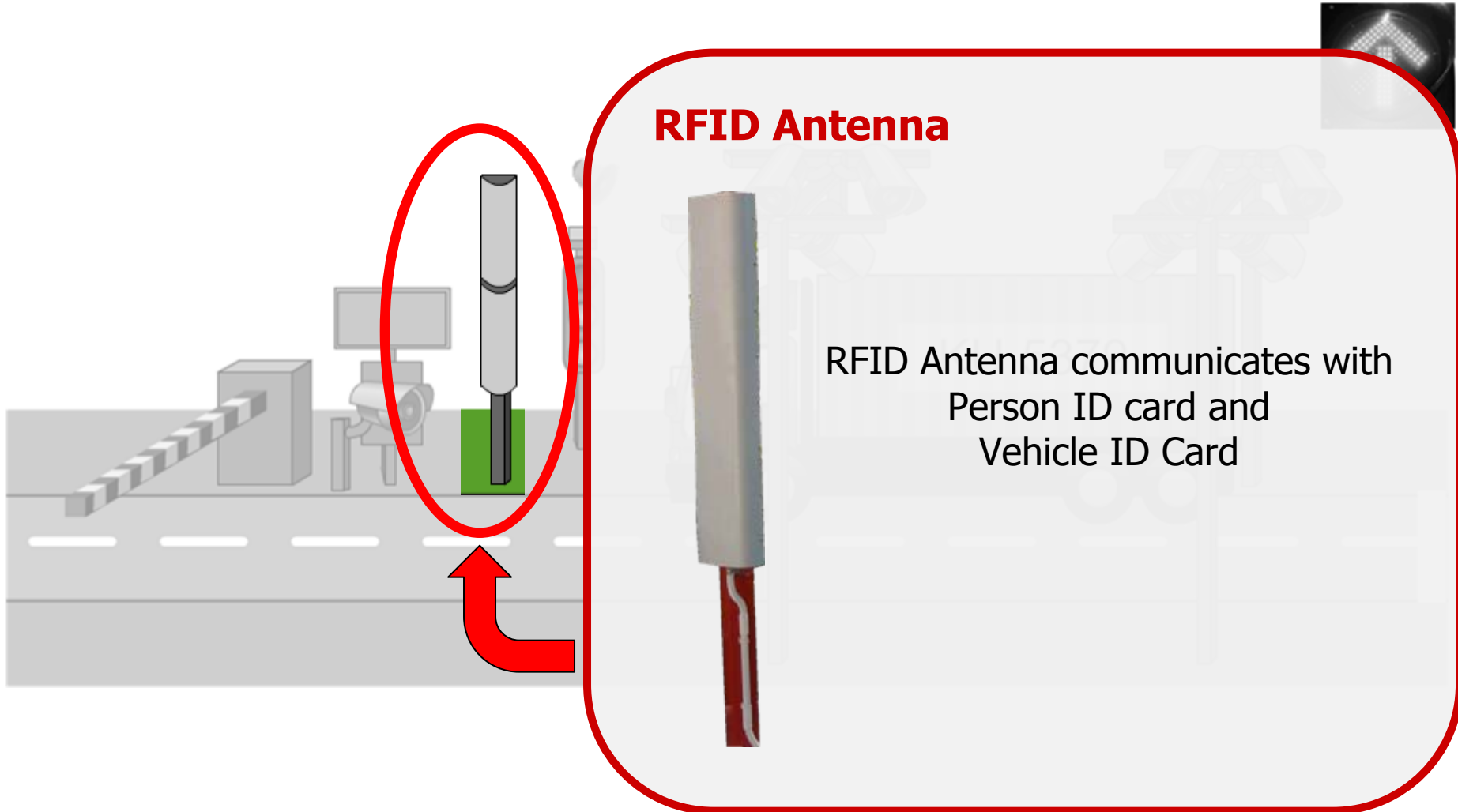


For capturing images of containers, analyze and recognize the Container ID number automatically, and also for capturing images of drivers, vehicle plate numbers for security

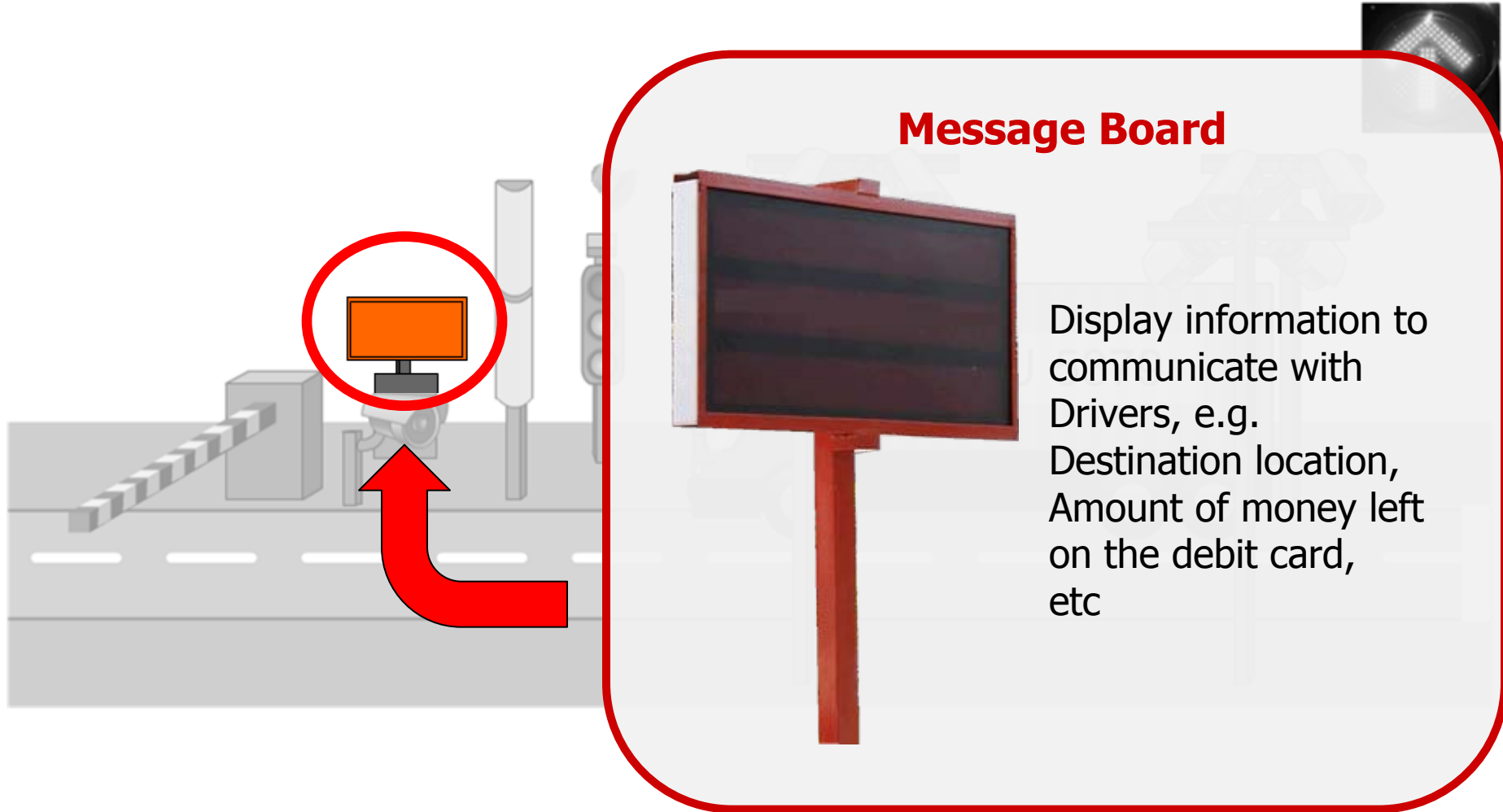


KU 5379

RFID Reader (Antenna)



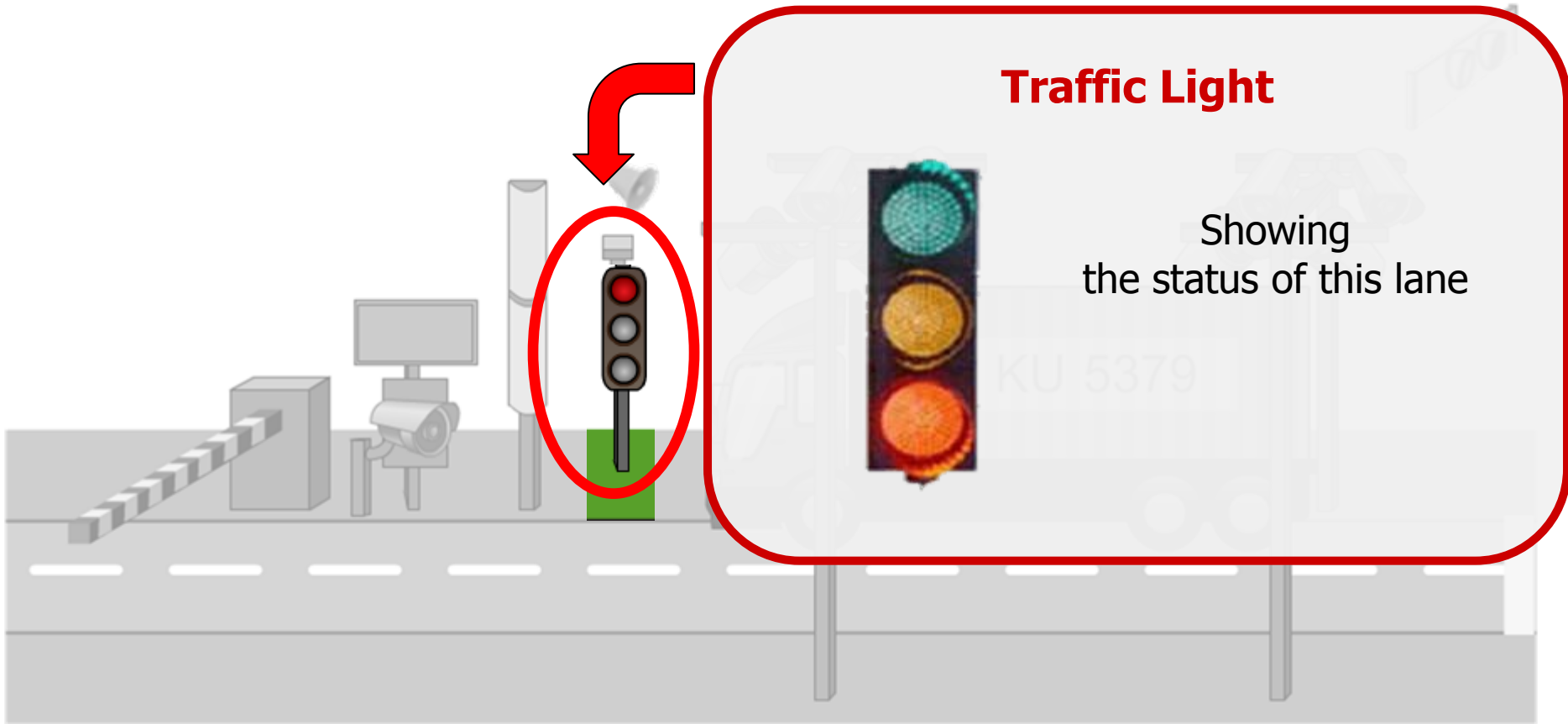
Message Board



Message Board

Display information to communicate with Drivers, e.g.
Destination location,
Amount of money left on the debit card,
etc

Traffic Light

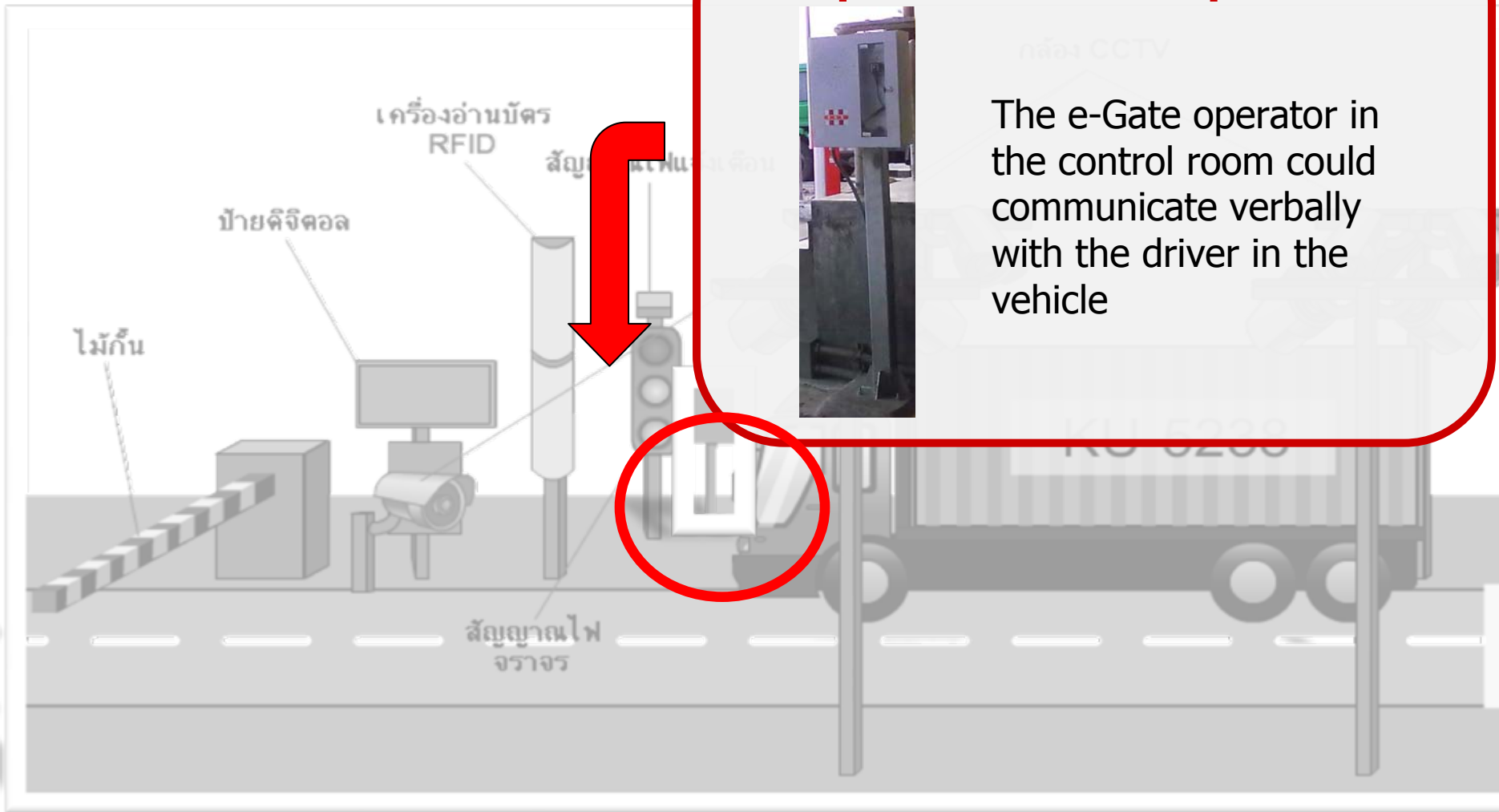


Communication Channel

Speaker and Microphone



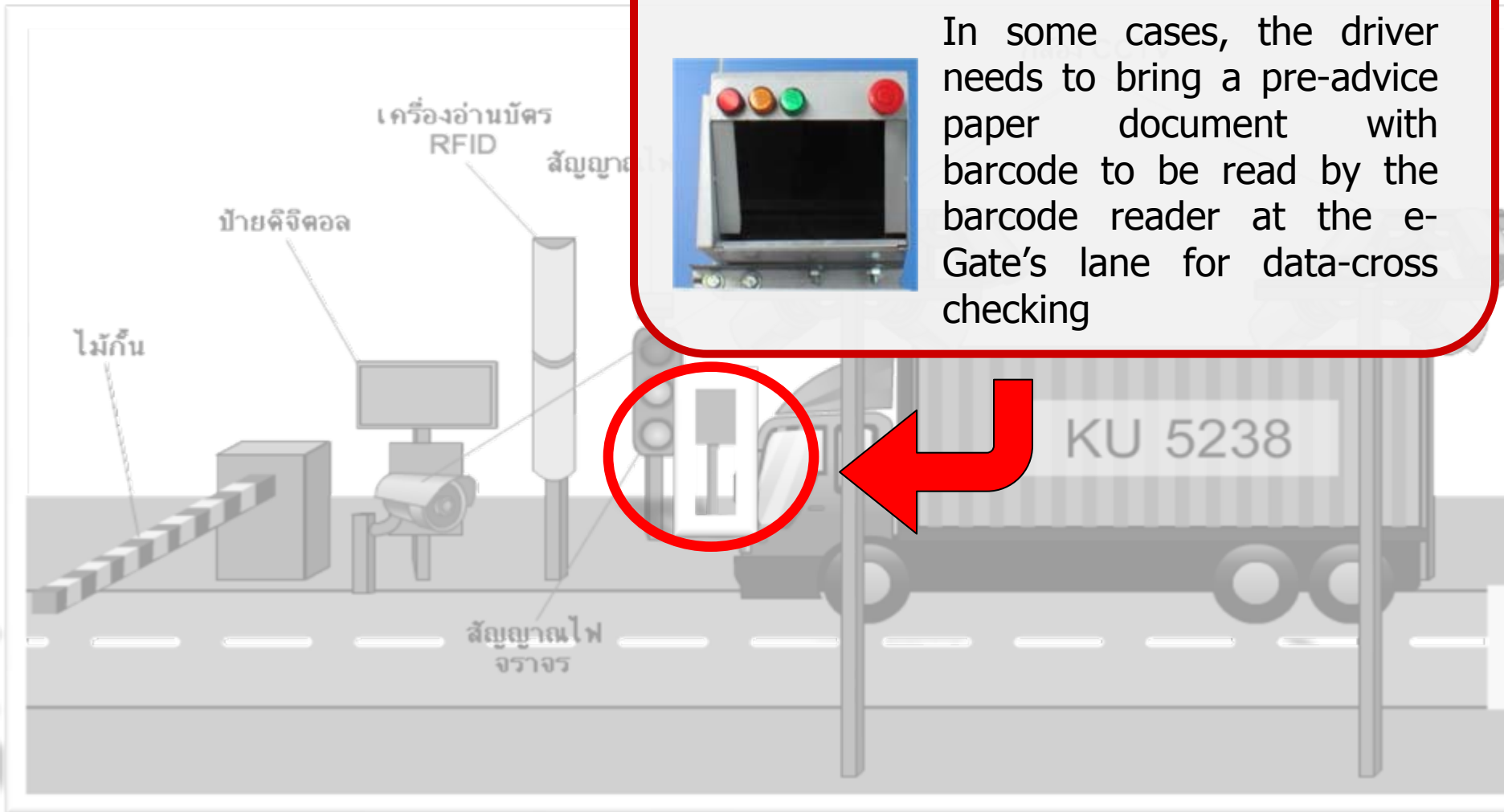
The e-Gate operator in the control room could communicate verbally with the driver in the vehicle



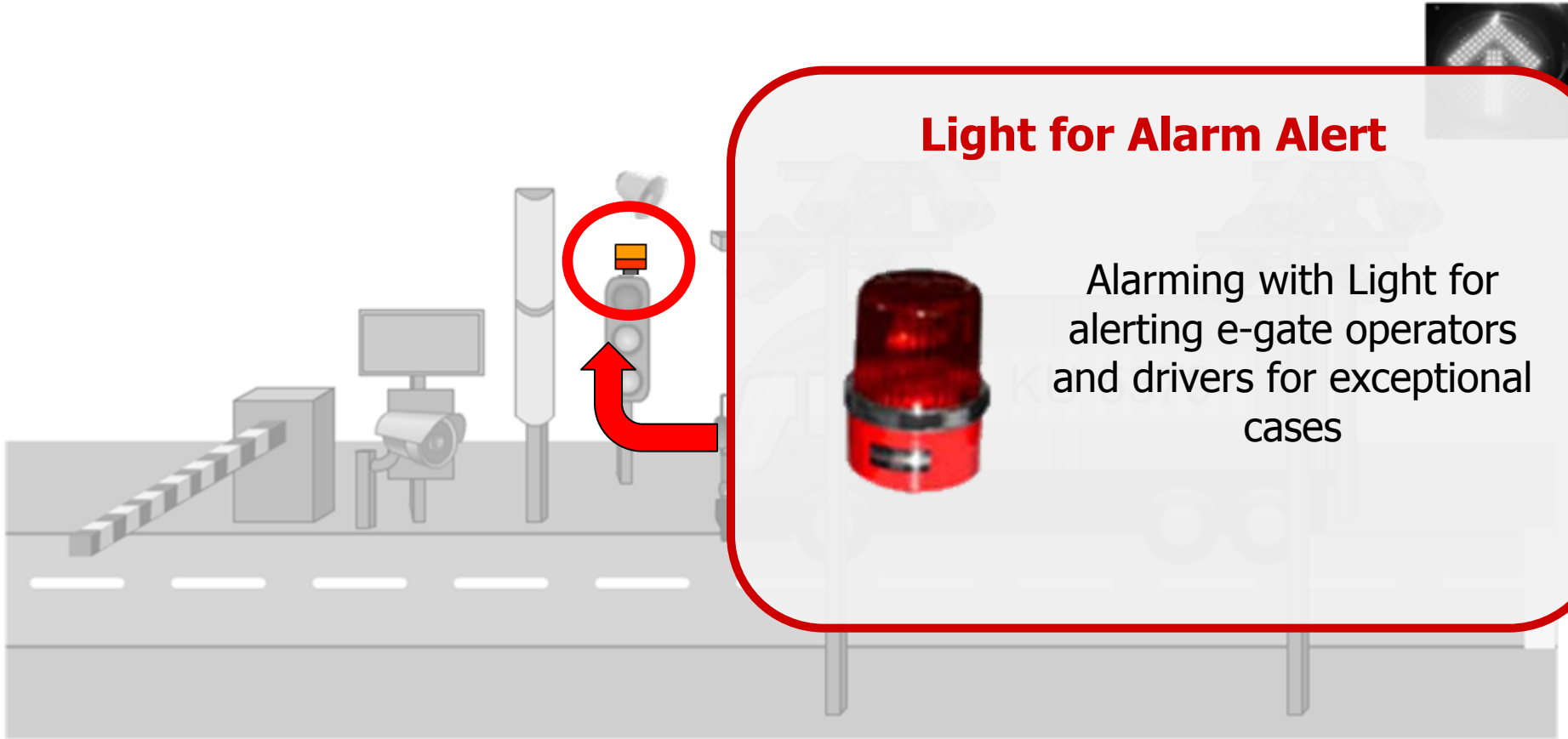
Bar Code Reader

Barcode Reader

In some cases, the driver needs to bring a pre-advice paper document with barcode to be read by the barcode reader at the e-Gate's lane for data-cross checking



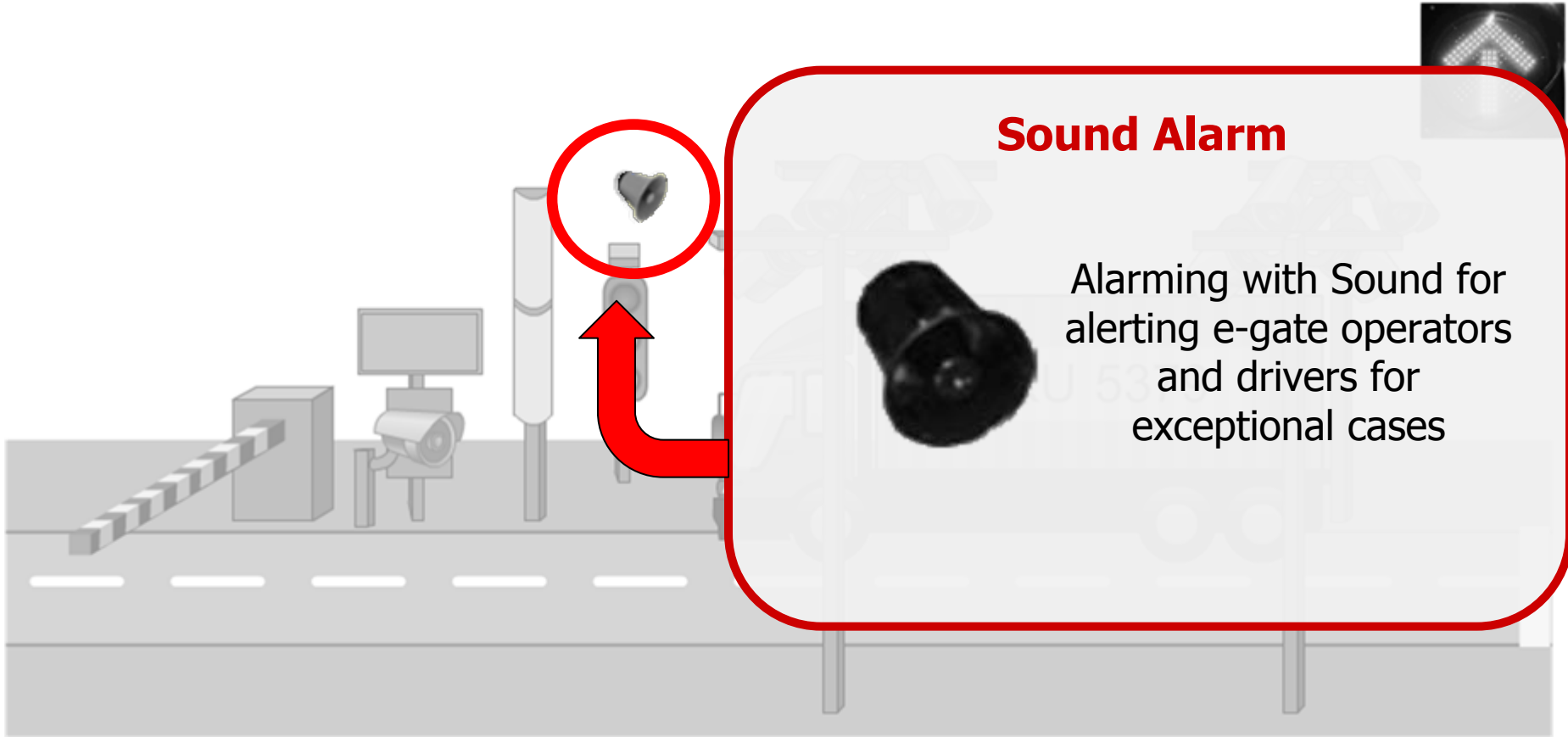
Light for exceptional handling cases



Light for Alarm Alert

Alarming with Light for alerting e-gate operators and drivers for exceptional cases

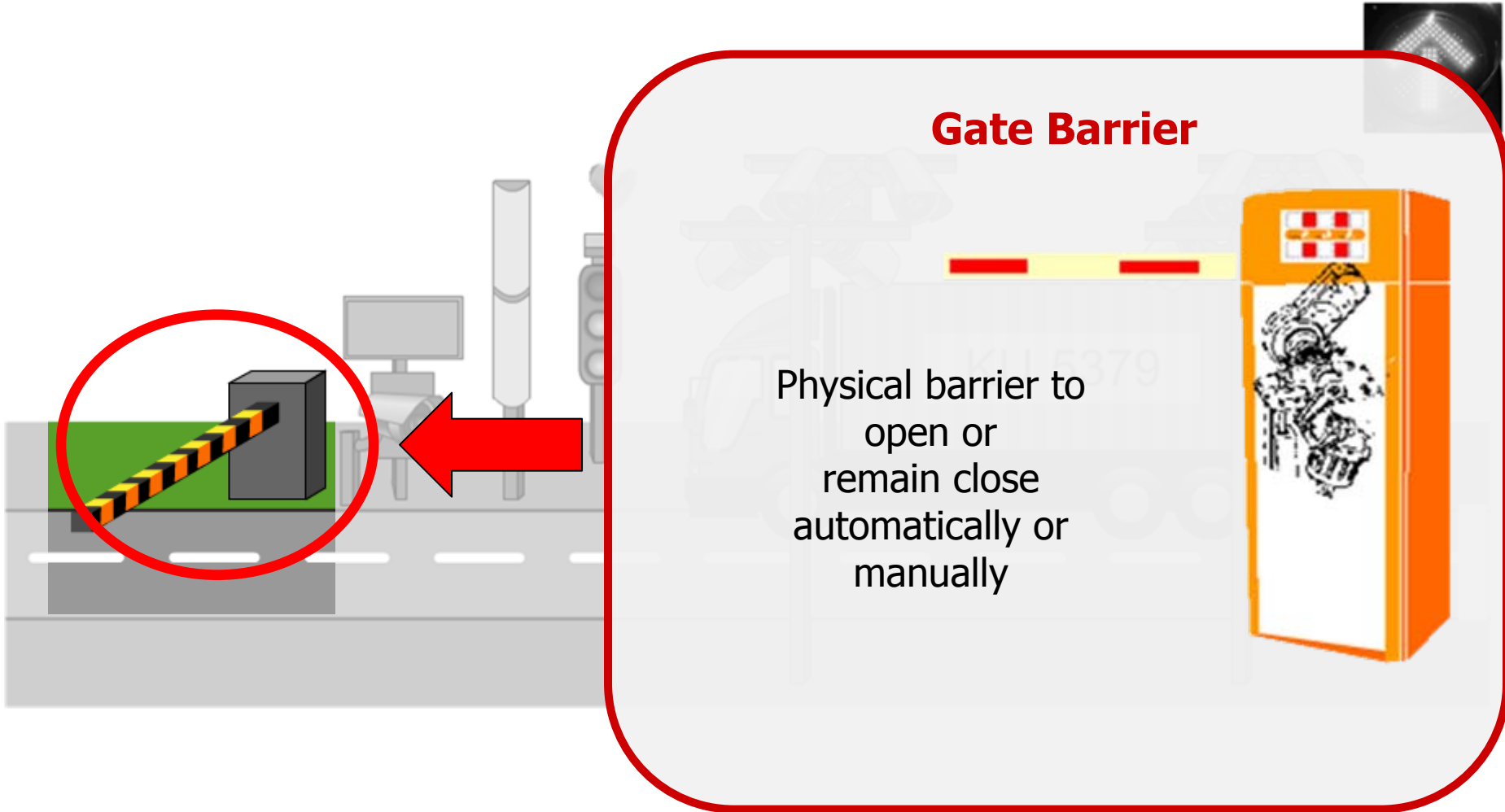
Sound Alarm Signal



Sound Alarm

Alarming with Sound for alerting e-gate operators and drivers for exceptional cases

Gate Barrier





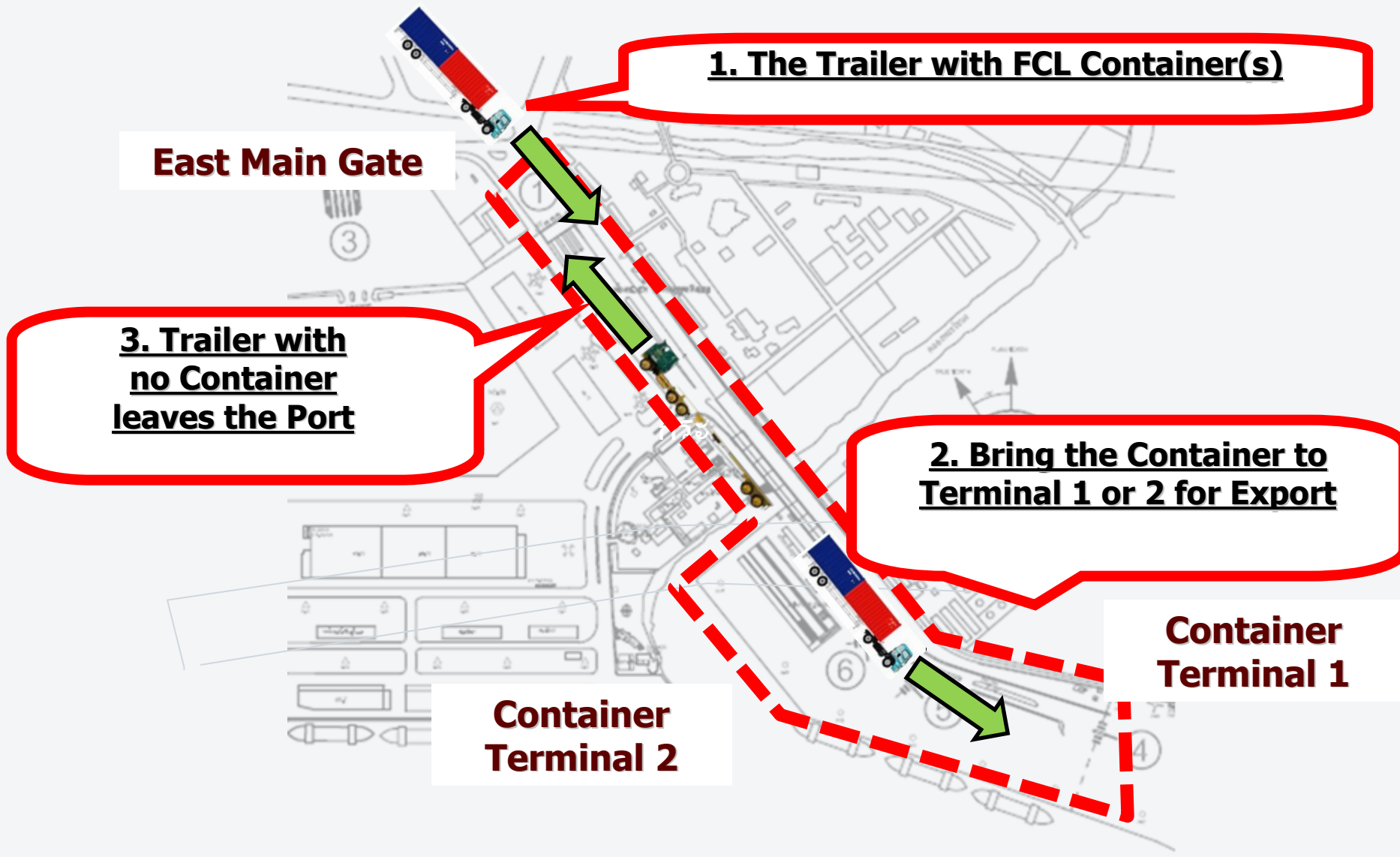
Business Process Example

concerning e-Gate and
its related e-Port Sub-Systems

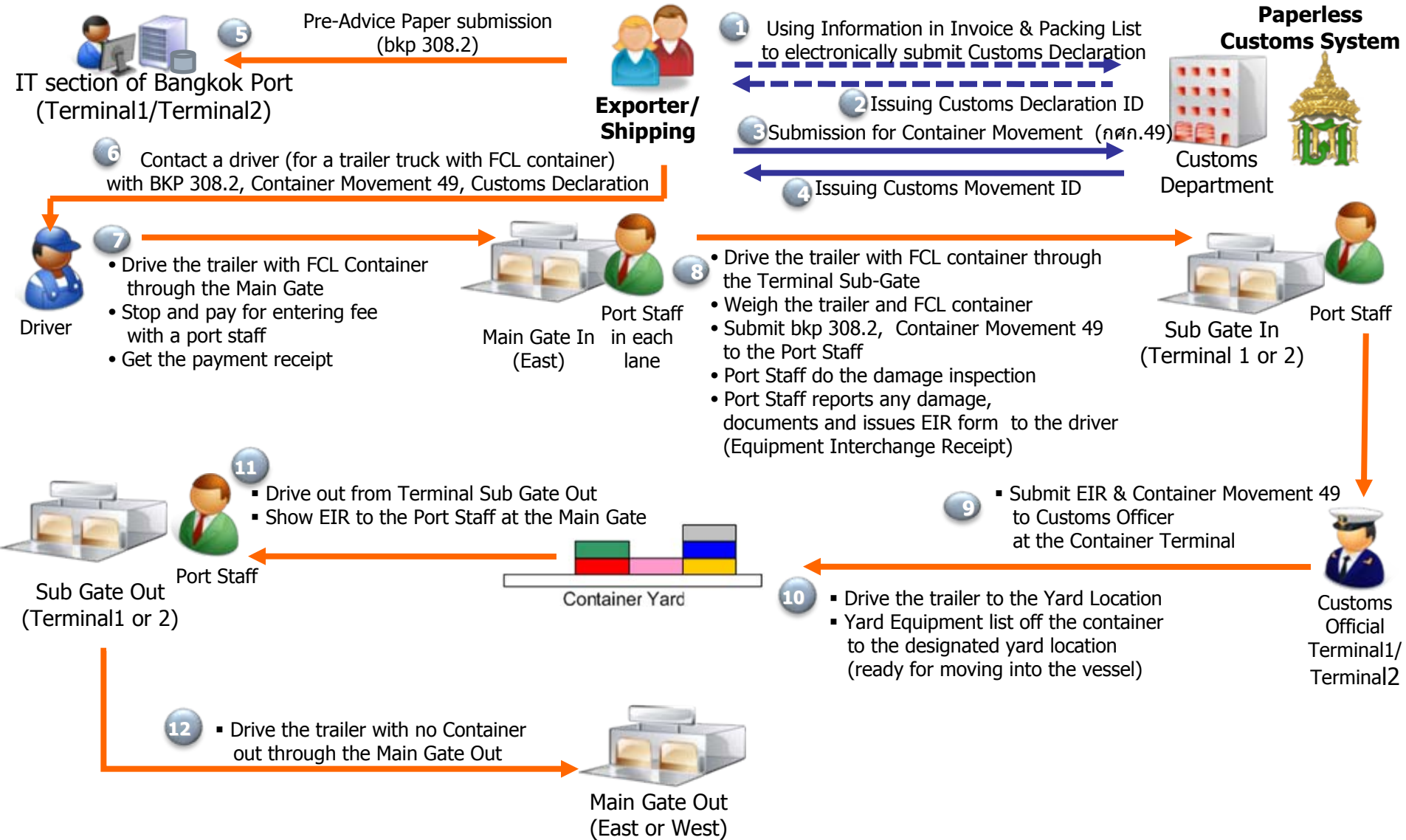
FCL Container Movement for Export

FCL = Full Container Loading

A Trailer with FCL Container(s) from outside, then moving into the Bangkok Port for Export



As-Is Process – Export FCL Container moving from outside, entering through a Main Gate, then to a Container Terminal in Bangkok Port



Electronic documents exchange or electronic submission
 Paper documents and/or physical movement

To-be Process – Export FCL Container moving from outside, entering through a Main Gate, then to a Container Terminal in Bangkok Port

e-Port System (CTMS) electronically cross-checks Customs Declaration ID & Container Movement ID with e-Customs System

Paperless Customs



e-Port System



5 Submit 308.2-Pre-Advice through CTMS-Web, data cross checking with Customs Declaration ID & Container Movement ID. User submits ID of Debit Card ready for Entering Fee Payment

Exporter/ Shipping



1 Using Information in Invoice & Packing List to electronically submit Customs Declaration

2 Issuing Customs Declaration ID

3 Submission for Container Movement (กศน.49)

4 Issuing Container Movement ID

6 Contact a driver (a trailer & FCL container) (no paper needed)



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- Drive the trailer with the FCL Container through the Main Gate
- e-Gate automatically reads Driver ID & Trailer ID
- e-Gate recognizes the Container ID Number with OCR Image Processing Technique
- Data cross checking with 308.2 Pre-Advice e-Document within the CTMS system
- e-Gate calculates the Entering Fee and cashes it through the earlier informed ID of the Debit Card
- Message Board displays the Container's Destination Location, with the amount of entering fee charge
- The gate barrier is open.



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- Drive the trailer with FCL Container through the Sub Gate in
- Weigh the trailer and FCL container
- e-Gate calculates the weight of Goods in the Container, send the weight to e-Customs System for risk management and Customs Clearance Decision (Green, Red, X-Ray, Block)
- e-Gate analyzes the possible Container Damage
- e-Gate checks for the permit from CTMS and with EIR Inspection.
- e-Gate prints out the EIR receipt at the gate.
- Message board displays the yard location for the driver.
- The barrier is open.



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- Drive to the informed yard location.
- Yard Equipment lifts off the container.

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- Drive the trailer out through the Main Gate Out
- e-Gate electronically checks Driver ID and Trailer ID
- e-Gate automatically checks the permission from CTMS.
- The barrier is open.



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- Trailer with no container leaves the Terminal Sub Gate Out.
- e-Gate electronically checks Driver ID and Trailer ID
- e-Gate automatically checks the permission from CTMS.
- The barrier is open.



---> Electronic documents exchange or electronic submission
 ---> Paper documents and/or physical movement

Conclusion

Critical Success Factors for Realizing the Vision of e-Port



Some Suggestions for UNESCAP

- Stocking taking and promotion of best practices (case examples) of Business Processes in various scenarios,
 - e.g. cargo stuffing for export, importing process at the sea port and air port, and free-zone operations
- Develop Guidelines for Change Management (including Stakeholder Management) (people issues in trade and transport facilitation improvement)

Thank You

