



INCREASING SUPPLY CHAIN FLUIDITY WITH REAL-TIME VISIBILITY AND AUTOMATION



KEVIN POIRIER

APRIL 2023



Confidential
Do not distribute

A background image showing two workers in safety gear. One worker, wearing a yellow hard hat and a high-visibility vest, is pointing at a laptop held by another worker. The second worker is wearing a white hard hat, safety glasses, and an orange high-visibility vest. They are standing on a metal platform or scaffolding at a construction or industrial site. A teal text box is overlaid on the right side of the image.

Disruptive events such as the recent pandemic, current geopolitical context and labour shortages exposed the fragility of the global supply chain.



97%

of supply chains have
experienced a disruptive event
in the last two years

52%

of these supply chains have
experienced disruptions as
high-impact events

Our mission is to help companies automate complex tasks, increase their operational efficiency and financial performance.

We use artificial intelligence to transform and improve organizational processes with innovative solutions that integrate with existing management systems offering :

- Greater visibility and collection of real-time indicators
- Better communication and information exchange
- Advanced Analytics, reliable automated and performance data
- Increased operational and financial efficiency

HQ Montreal, Canada

40+ employees, R&D and data specialist

Applied
Artificial Intelligence



THE VISIBILITY GAP

Yards remain notoriously inefficient as companies waste time and resources searching for trailers and inventory poorly located in the yard. Lack of timely location of assets can lead to misaligned inbound processes, incomplete assembly, missed deliveries and spoiled goods.

— Gartner, Yard Management Technology Trends and Selection Considerations, Simon Tunstall & Bart De Mynck, 6 November 2020.



The background image shows a person from the chest up, wearing a yellow high-visibility safety vest over a blue and orange plaid shirt. They are holding a laptop and looking at the screen. Overlaid on the image are various data visualization elements. In the upper right, there's a row of circular gauges and a world map. In the lower right, there's a detailed financial data table and a line chart. The text is centered in a teal banner across the middle of the image.

ORGANIZATION MUST INCREASE OPERATIONAL PERFORMANCE THROUGH
REAL-TIME VISIBILITY AND AUTOMATION



OUR SAAS OFFERING IN TRANSPORTATION & LOGISTICS

HOW THE
PLATFORM
WORKS



LUKE™ SaaS



LIEA AI Edge

LUKE™ AI for Supply Chain & Logistics (SCL) – Visibility, Fluidity & Resilience

ADDRESSING THE REAL-TIME VISIBILITY PROBLEM

ADDRESSING THE
CONNECTIVITY & REAL-TIME
VISIBILITY PROBLEM



Computer Vision



Natural Language
Processing



Data Analytics & Prediction

MULTI-MODAL
TRANSPORTATION &
LOGISTICS



Road



Ports

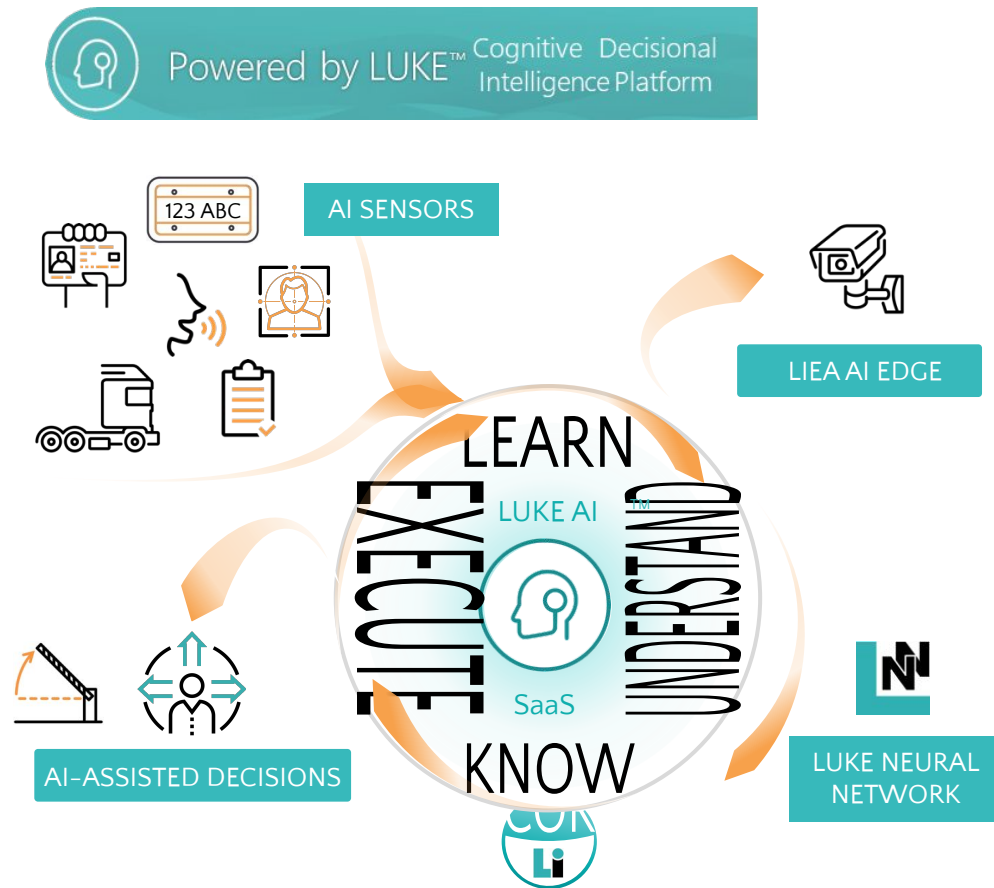


Rails

LUKE™ AI for Manufacture & Distribution Center (MDC)

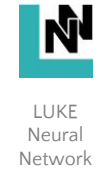


OUR PRODUCTS ARE POWERED BY OUR LUKE AI PLATFORM



LEARN

Acquires license plate and vehicle images, drivers name, face, voice, driver's license, company and PO# for visit.



UNDERSTAN

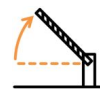
Creates or validates profile; recognizes face, voice, records language preference and associates with driver's license information. Trains multi-factor AI model for future identification of individual at first visit.

Verifies if PO#, date and time, driver, company, cab and trailer match valid combination in business rules engine database.



KNO

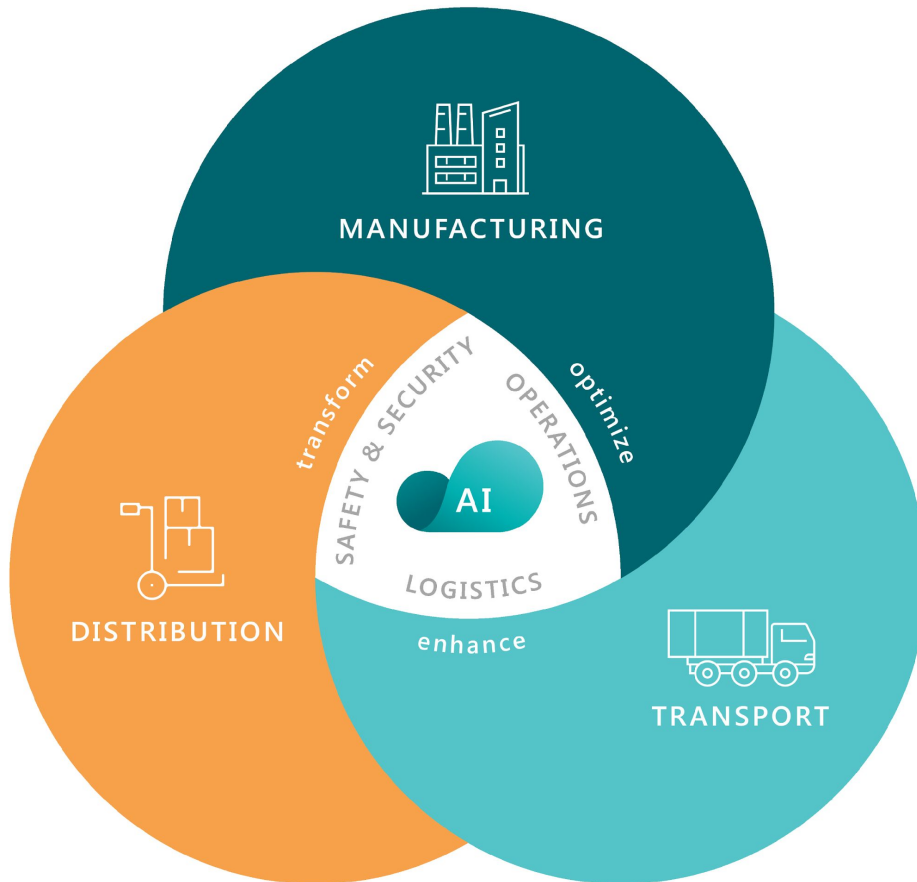
LUKE™ Neural Network assesses validity of all variables taken together and determines if driver should be given access using a comprehensive confidence score.



EXECUT

Access and dock number provided, or security personnel alerted to intervene.

▶▶ NUVOOLA LUKE-AI



Key Highlights

- Removes operational blind spots from your yard and DC's and see information that you couldn't see before
- Simultaneously connects to multiple systems (security, logistics, scheduling, gate assignments, etc.)
- Digitalizes dark data into insights in real-time then transcends the data to the eco-systems
- Augments human capabilities – better, faster decisions.
- Automates high-transactional volume tasks – removes human constraints, and human error.

FOR ROAD TRANSPORT

1 UNDERSTAND

WHAT'S HAPPENING
Information & Event Intake



2 KNOW

THE CURRENT STATE
Recognize & Classify In Context

LEARN CONTINUOUSLY FROM
OUTCOMES, OBSERVATION &
HUMAN-IN-THE-LOOP



TRAINING

HISTORICAL DATA & HUMAN
INSTRUCTION



COGNITIVE
AI DECISIONAL
FRAMEWORK



PROCESSES
& BUSINESS RULES



3 EXECUTE

TO OPTIMIZE OUTCOMES
Orchestrate Action & Results



IT SYSTEM
INTEGRATION



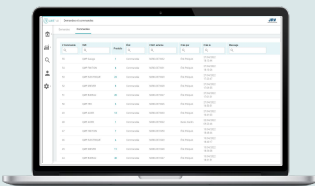
SENSOR
INPUTS



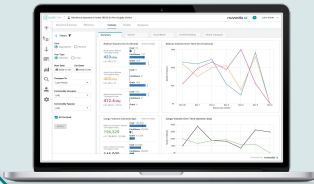
INTERACTION
WITH EMPLOYEES
AND DRIVERS

FOR ROAD TRANSPORT

Managing B2B orders digitally
(ERP 2 ERP)



Entry and exit management with asset inventory



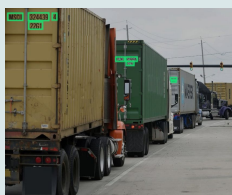
Inventory management and tracking



Interactive Self-Serve Kiosks for drivers to check-in and to automate gate operations



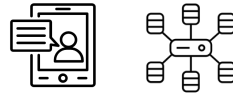
Real-time visibility on entries and exits



TRANSFORMING YARD OPERATIONS FOR TRANSPORT AND DISTRIBUTION CENTERS

Operation Planning

- Interaction with external systems & IoT integration
- Reservation System for carriers
- User applications and dashboards
- Inventory & Asset tracking



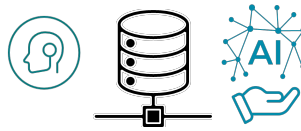
Gate Operations

- Intelligent recognition of shipment, trucks and trailer identification
- Touchless self-serve kiosk to transport companies to perform identification and registration tasks on their own.
- Verbal Interaction in French and English



Actionable Intelligence

- Centralized data in real time with detailed logs
- Intelligent dashboards with KPIs and insights
- Predictive analytics and personalization
- Inventory reconciliation



CONTROL ACCESS WITH AN INTELLIGENT SELF-SERVE KIOSK FOR DRIVERS



Adjusts heights and automates driver check-in while capturing load information



Have detailed entry and exit logs accessible anywhere, anytime



Easy communication with drivers to tell them where to go

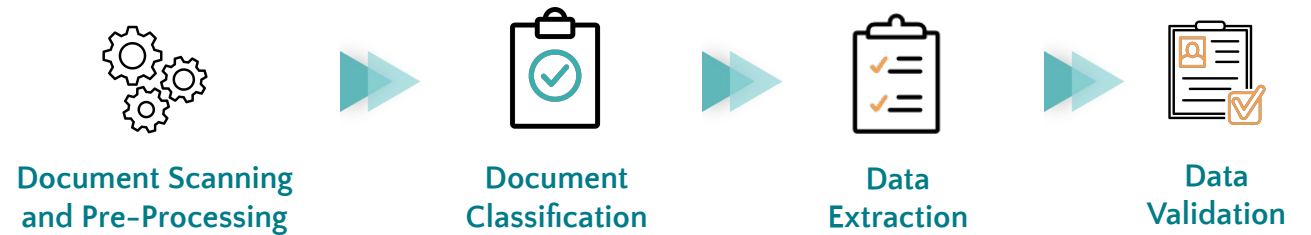


Reinforce security, optimize your operations and increase visibility at the gate



INTELLIGENT DOCUMENT PROCESSING – MACHINE LEARNING POWERED AUTOMATION

LUKE AI for **IDP AI, ML, OCR, Computer Vision, and Intelligent Character Recognition (ICR)** to recognize and process different types of documents in order ensure the most accurate classification and data validation.



Cut Manual Work - Automate up to 95% of document processing, reducing repetitive, low-value tasks and the associated overhead costs



Process more, faster Increase throughput by up to 5x, resulting in faster response times, better customer service and increased revenue.



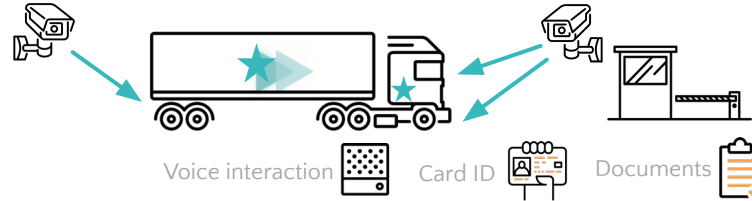
Minimize Mistakes - Extract handwritten, cursive and printed text with higher accuracy than ever before, mitigating the risks associated with poor data.

YARD FLOW

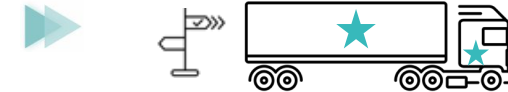
1 Carrier makes a reservation



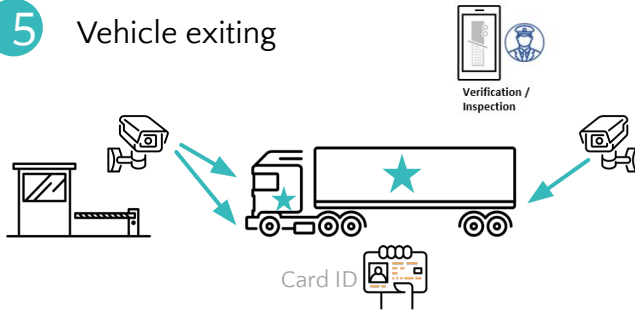
2 Vehicle entering / verification



3 Vehicle assigned to dock / parking zone



5 Vehicle exiting



4 Vehicle gets loaded or takes an empty trailer



REDUCE & ELIMINATE

- Operational "blind spots"
- Queuing delays
- Risk & human error
- Dwell time
- Damaging, costly incidents



SYSTEM-GENERATED
AUTHORIZATION FOR
ACCESS / EXIT



ALERTS & ALARMS
FOR SECURITY
EXCEPTIONS



REAL-TIME
LOGGING AND
REPORTING

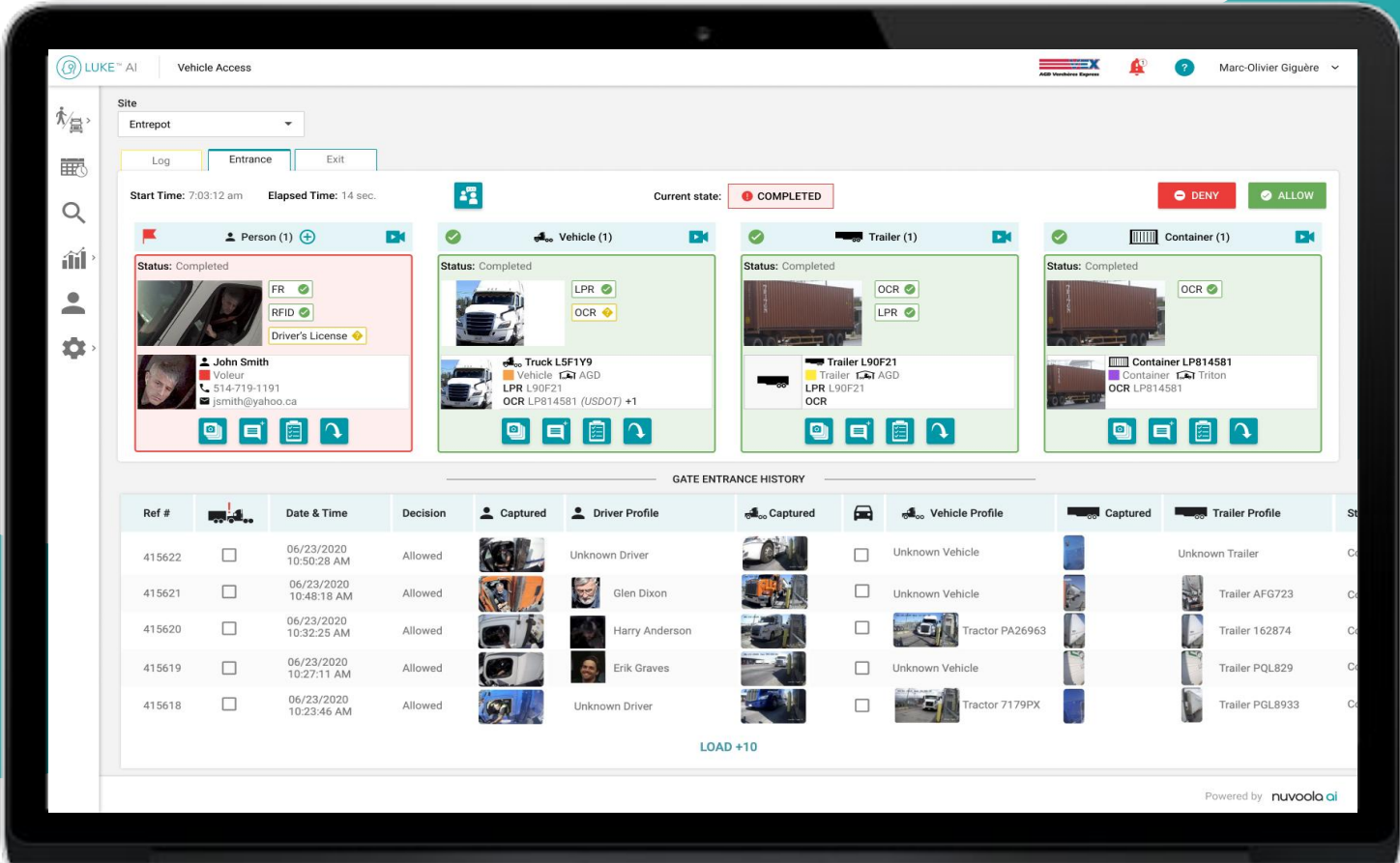


YARD ASSET
TRACKING



MARCHANDISE
VERIFICATION

DETAILED ENTRY AND EXIT LOGS AND UP TO DATE INVENTORY



LUKE™ AI Vehicle Access

Site: Entrepot

Log Entrance Exit

Start Time: 7:03:12 am Elapsed Time: 14 sec. Current state: **COMPLETED** **DENY** **ALLOW**

Person (1)

Status: Completed

FR ✓
RFID ✓
Driver's License ✓

John Smith
Voleur
514-719-1191
jsmith@yahoo.ca

Vehicle (1)

Status: Completed

LPR ✓
OCR ✓

Truck L5F1Y9
Vehicle AGD
LPR L90F21
OCR LP814581 (USDOT) +1

Trailer (1)

Status: Completed

OCR ✓
LPR ✓

Trailer L90F21
Trailer AGD
LPR L90F21
OCR

Container (1)

Status: Completed

OCR ✓

Container LP814581
Container Triton
OCR LP814581

GATE ENTRANCE HISTORY

Ref #		Date & Time	Decision	Captured	Driver Profile	Captured	Vehicle Profile	Captured	Trailer Profile	
415622	<input type="checkbox"/>	06/23/2020 10:50:28 AM	Allowed		Unknown Driver		<input type="checkbox"/>	Unknown Vehicle		Unknown Trailer
415621	<input type="checkbox"/>	06/23/2020 10:48:18 AM	Allowed		Glen Dixon		<input type="checkbox"/>	Unknown Vehicle		Trailer AFG723
415620	<input type="checkbox"/>	06/23/2020 10:32:25 AM	Allowed		Harry Anderson		<input type="checkbox"/>	Tractor PA26963		Trailer 162874
415619	<input type="checkbox"/>	06/23/2020 10:27:11 AM	Allowed		Erik Graves		<input type="checkbox"/>	Unknown Vehicle		Trailer PQL829
415618	<input type="checkbox"/>	06/23/2020 10:23:46 AM	Allowed		Unknown Driver		<input type="checkbox"/>	Tractor 7179PX		Trailer PGL8933

LOAD +10

Powered by **nuvooola.ai**

BRINGING IMPACTFUL BENEFITS

Using AI in the Transportation and Logistic sector helps streamline operations thanks to:

- ✓ Full visibility in real-time and enhanced data visualization
- ✓ Digitized and centralized information in real-time
- ✓ Automated gate operations that fast-track your trucks
- ✓ Instant notification and alerts if something happens
- ✓ Integration with existing systems and infrastructure



LEADING TO INCREASING PRESSURES FOR BUSINESSES



NUVOOLA AI –
Enable Supply chains to be
more resilient

27.8%



of organizations reported more than 20 supply chain disruptions during 2020

42%



of one year's EBITDA is expected to be loss every decade because of supply chain disruption.

\$4.4 trillion

 in global trade flows through the five most exposed value chains

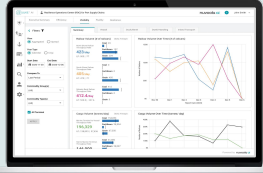
80%



of global merchandise trade by volume goes through maritime transport

FOR MARITIME PORTS

Operational
Performance Center
Visibility – Fluidity – Resilience



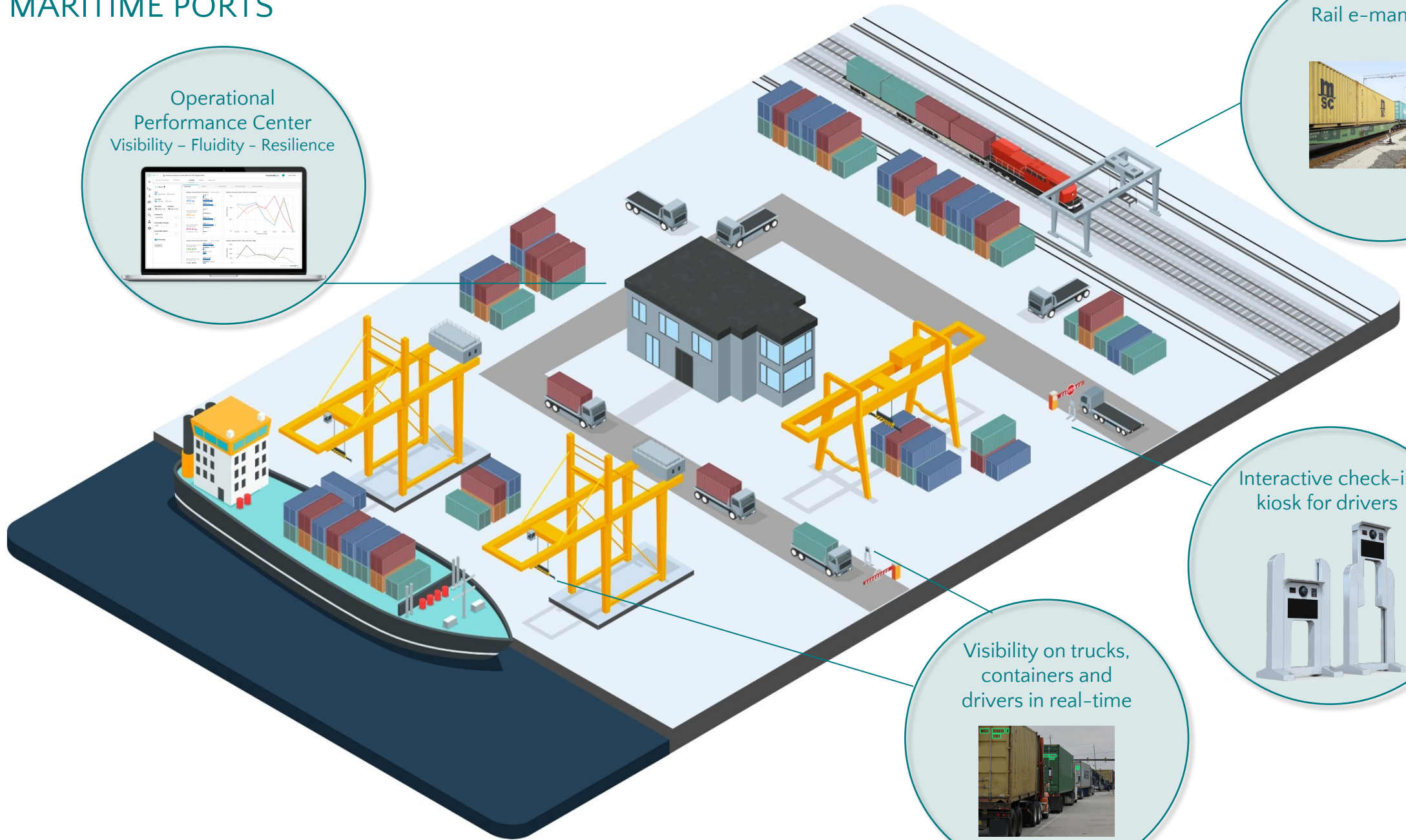
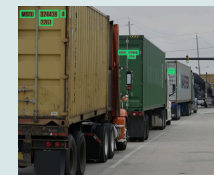
Rail e-manifest



Interactive check-in
kiosk for drivers



Visibility on trucks,
containers and
drivers in real-time



RAIL SHIPMENT VISIBILITY

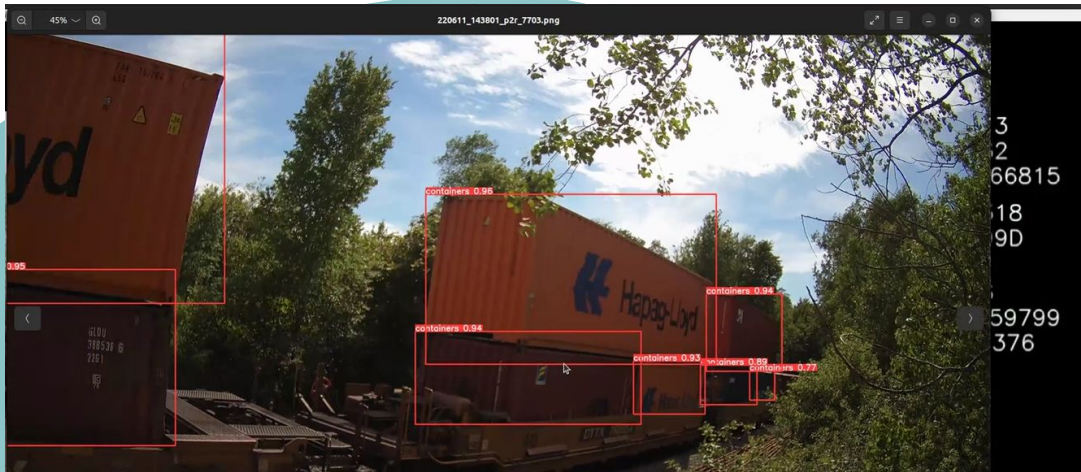
Rail e-manifest Operations



We use computer vision to:

- Recognize the types of wagons and locomotives
- Count the wagons
- Read and document wagon IDs

Allows companies to validate rail manifest and validate what is actually entering and leaving the port.



LUKE AI SCL - Train

Site: Factory

Log Main

Start Time: 11:03:12 Elapsed: 3:02 min Event: Entrance

Current state: TRAIN DETECTED

Train ID: 15682 Direction: North

35= Locomotive 2 Container 15 Tanker 8 Closed Hooper 3 Opened Hooper 1 Well car 3 Unknown 3

Train Layout

RCR 002541 RCR 004672 DOWN 001415 UTLX 141515 ACFX 0014162 DTTX 015181 DTTX 014911 DTTX 71815 DTTX 014571 DTTX 563821

DTTX 751157 DTTX 751022 DTTX 167821 DTTX 516161 DTTX 715811 DTTX 921561 DTTX 921561 DOWN 001415 DTTX 751678 DTTX 156611

ACTIVITY HISTORY

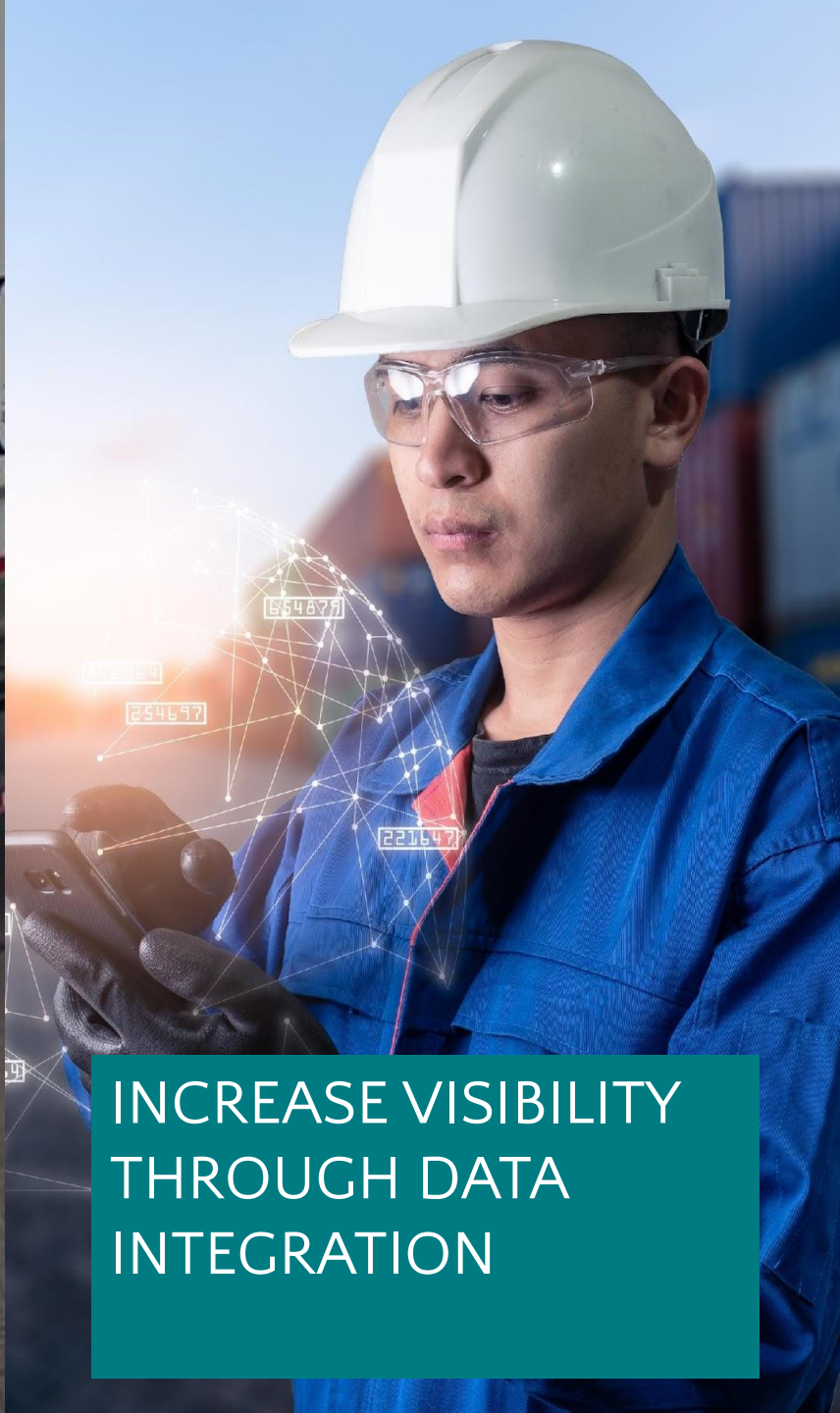
Ref #	Date and Time	Train ID	Direction	# Wagons
61855485	02/06/2022 10:15:45	81451	North	37
61855246	02/06/2022 8:03:21	91410	South	43
61855114	02/06/2022 6:17:11	20511	North	28
61855005	02/06/2022 5:34:18	67278	North	23

LOAD + 10

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LEVERAGE EXISTING
SYSTEMS TO
GENERATE DATA



INCREASE VISIBILITY
THROUGH DATA
INTEGRATION



BUILD INTELLIGENT
AND RESILIENT
SUPPLY CHAINS



We help you use
real-time data to
create efficient,
secure and resilient
supply chains.

Kevin Poirier, Product Manager

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