



DP WORLD

PUERTOS INTELIGENTES

REGION AMERICAS

NUESTRA RED GLOBAL



430+

UNIDADES DE NEGOCIO



75+

PAISES



113,000+

EMPLEADOS



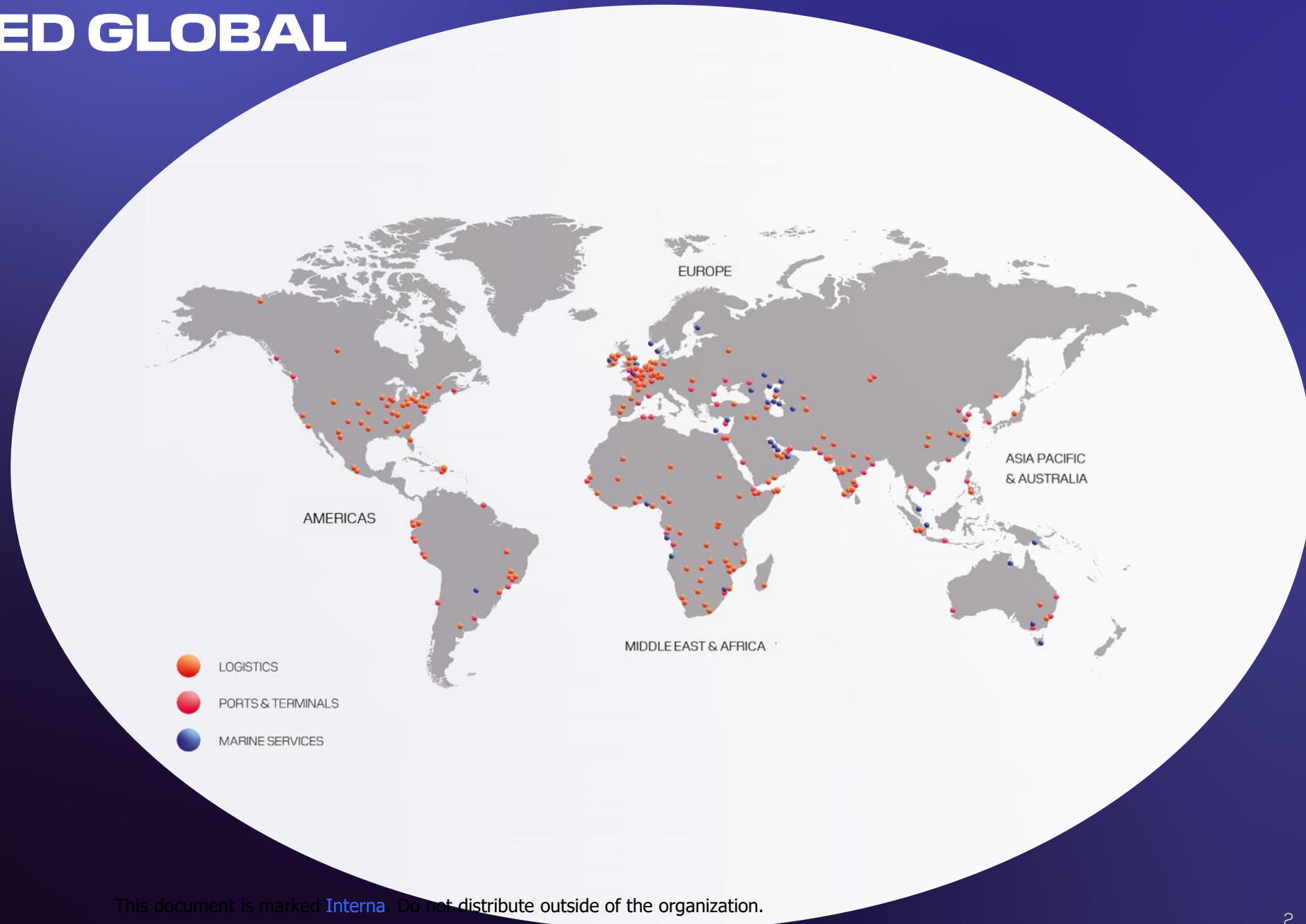
95M TEU

CAPACIDAD GLOBAL
GESTIONAMOS EL 9,2% DEL
TRAFICO DE CONTENEDORES
EN LOS PUERTOS A NIVEL
MUNDIAL



\$37BN

CAPITAL EMPLEADO





DP WORLD UAE : IMPACT ON DUBAI'S ECONOMY

38%

Contribution to Dubai GDP

34%

Contribution to Dubai's FDI

80 MN SQM

Combined area of economic zones

11,800+

Free zone & Mainland Companies

160K+

Jobs Created

\$169 BN +

Trade value generated JAFZA

15.5 MN TEU'S

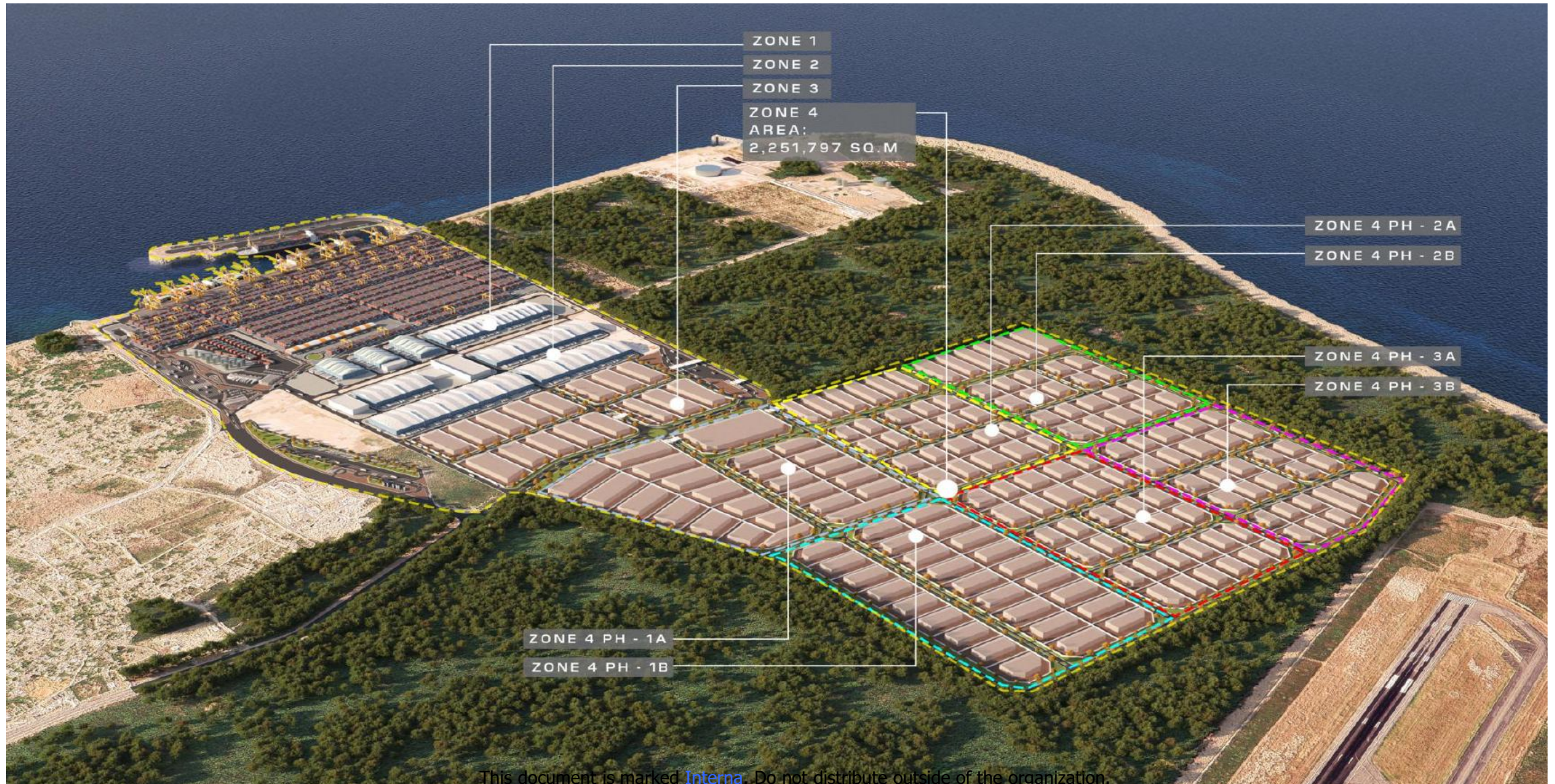
Handled in Jebel Ali Port in 2024

11%

Annual Growth in trade value from JAFZA

CAUCEDO – REPUBLICA DOMINICANA

El complejo Caucedo de República Dominicana como uno de los principales centros logísticos portuarios de las Américas



SUCCESSFUL STORIES

Electrical Terminal Tractor



DPW Callao : 20 +12
DPW Caucedo : 12
DPW Constanta : 10
DPW Jebel Ali : 10 + 85

Automated Rubber Tired Gantry Crane



DPW Jeddah : 17 +17

Moor Master



DPW San Antonio : 18

Electric Shuttle Carrier



DPW LGW : 8

Autonomous Terminal Tractor



Einride : 10 Electric Trucks

Pedestrian Detection



RS & ECH

Electric ECH



BoxCare : 3 ECH

Electric Reach Stacker



DPW Constanta : 5



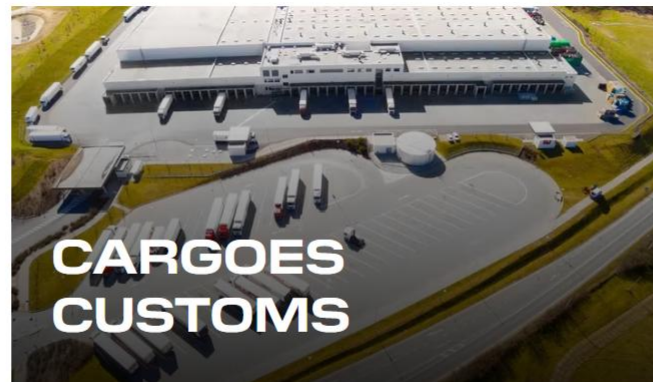
BOXBAY HIGH BAY STORE (HBS) - 11 STORIES HIGH

CARGOES
by DP WORLD

CARGOES IOT+ (INTERNET OF THINGS)

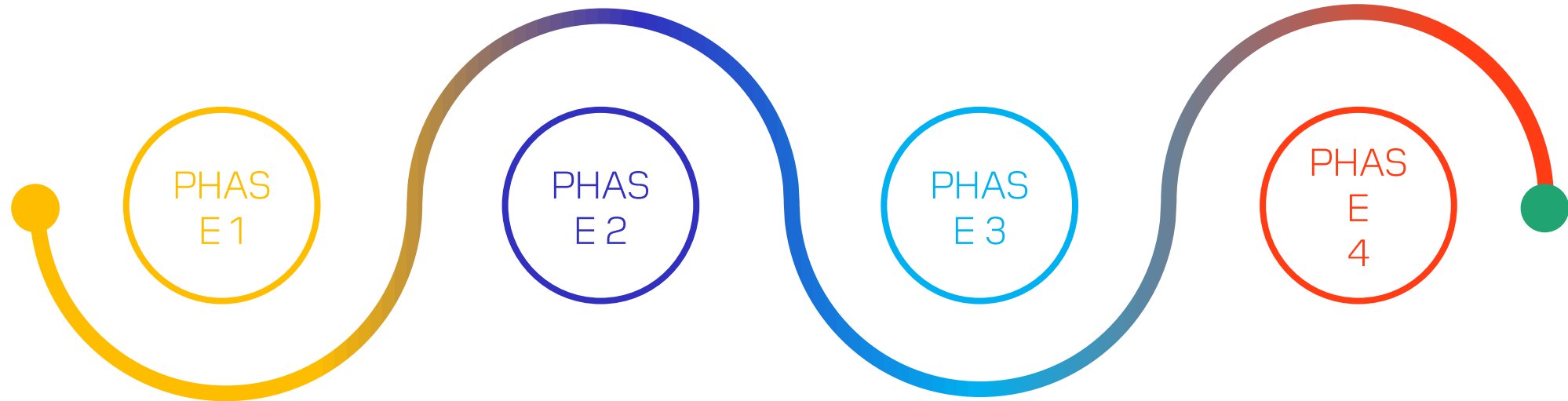
CARGOES TOS+
(OPS 7)

ZODIAC



TIMELINE

IN PROGRESS



PHAS
E1

PHAS
E2

PHAS
E3

PHAS
E
4

MILESTONE

PDS

MILESTONE

IOT+

MILESTONE

TOS+

MILESTONE

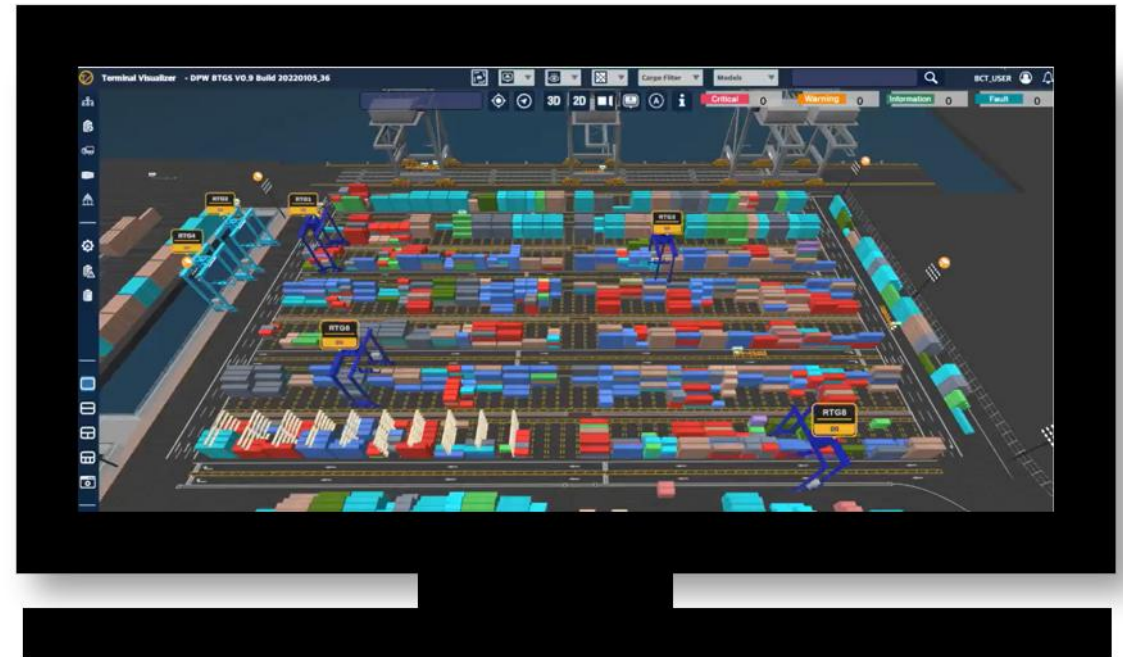
IOT+ & TOS+
INTEGRATION

TIMELINE 18 MONTHS

PHASES

- System Driven Operation Control
- Realization Of Higher Productivity And Efficiency In Operations
- Full-fledged Information On Digital Twin
<https://www.youtube.com/watch?v=iVS-AuSjp0Q>
- Advanced Operation Analytics
- Enhanced Security By Controlling Unauthorized Container Movement / Physical Container & Hand Off Validation
- Real time graphical user interface-based
- Operation monitoring with terminal visualizer

CARGOES IOT+ (INTERNET OF



Operations

Security

Safety

Technical

CARGOES TOS+ (OPS 7)

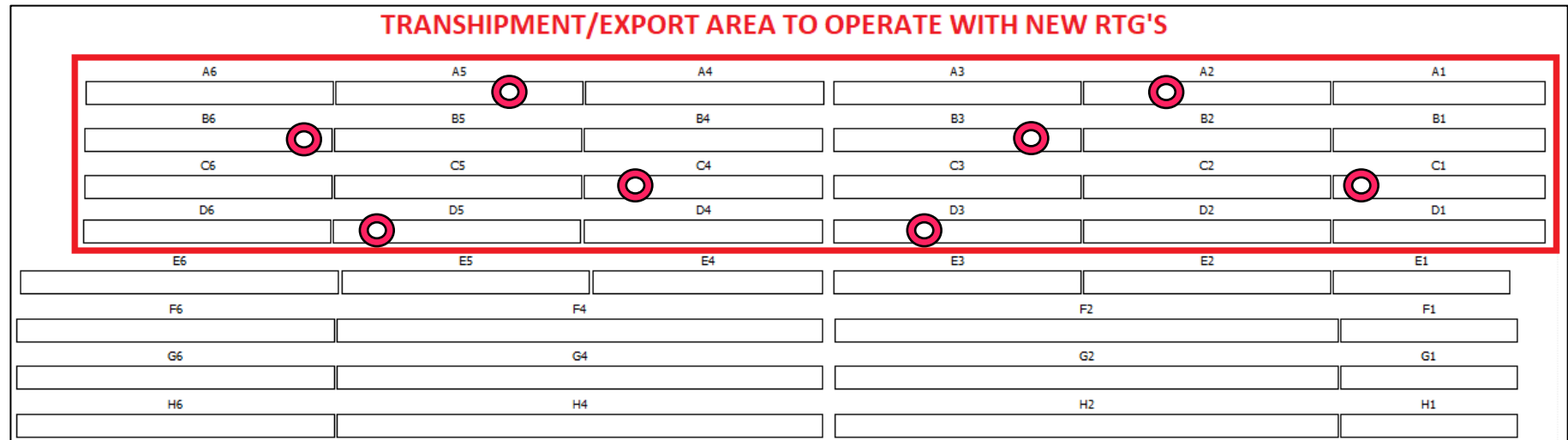
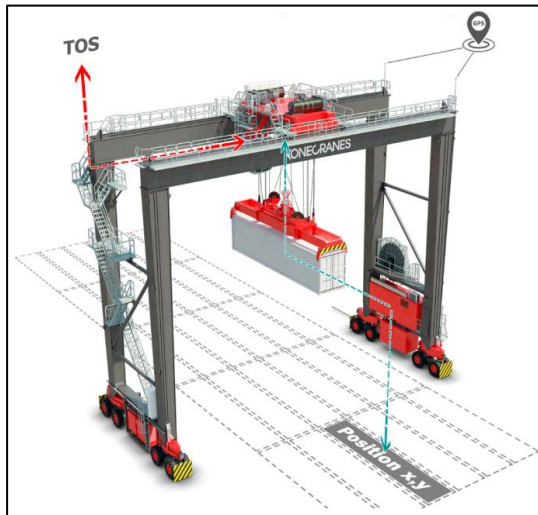
PHASE I - DGPS

OBJECTIVE Maintain/control main yard cargo integrity.

SCOPE

Using PDS Technology from new generation RTGs, the objective of phase I is to partially implement IOT+ concept, deploying within a defined area of main yard and strategy to support it.

This phase will provide input and information prior to further implementation phases for CARGOES technology.

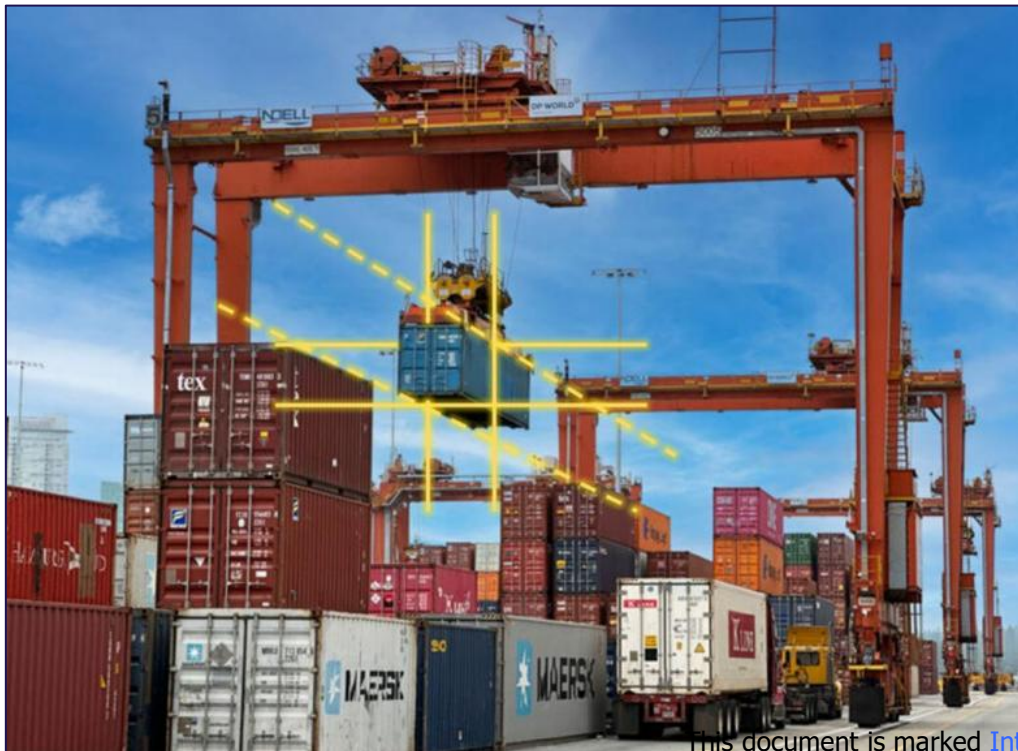


RTG PDS OPERATION

PDS (*Position Detection System*) es el nuevo sistema de Zodiac que se integra con la pantalla del RTG para validar el comportamiento del RTG, garantizando que los contenedores se muevan según las instrucciones de la orden de trabajo.

Nuevas funciones disponibles cuando se usa el PDS:

- Validación automatizada de trabajos.
- Validación de carretillas basada en IA.
- Gestión de excepciones.



Job	Tw	MP	Type	From	To	Container	DM	Shf	F/A	Len	!!!	Wt	LN	Door	Wait
1			YARD	T062	A537051	CNTR0630214	N		A	2	Ⓢ	3	LS		40

Bay : 37 Cell : 05 Tier : 1

Twist Lock : Locked
Landed : Y(A537)
OCR TK : T066
Lift-off: T062

New Position 1: A537051 [Change]

[Cancel]

L:TRUCK, Working on the move of the grounding job. System is waiting for the container set down

User Zone: A6,A5,C5 Dynamic Zone:

[Confirm] [Skip Shifting] [AUTO] [Others] [Cancel]

TERMINAL INFORMATION

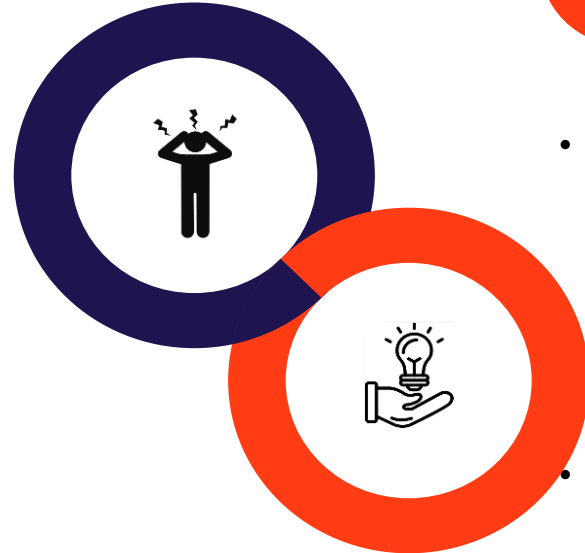
1. Real-Time Location

Pain Point



Difficulty in tracking the real-time location of equipment

- Terminal operations, managers do not know the actual location of equipment. This makes it difficult to properly operate the equipment and lowers work productivity

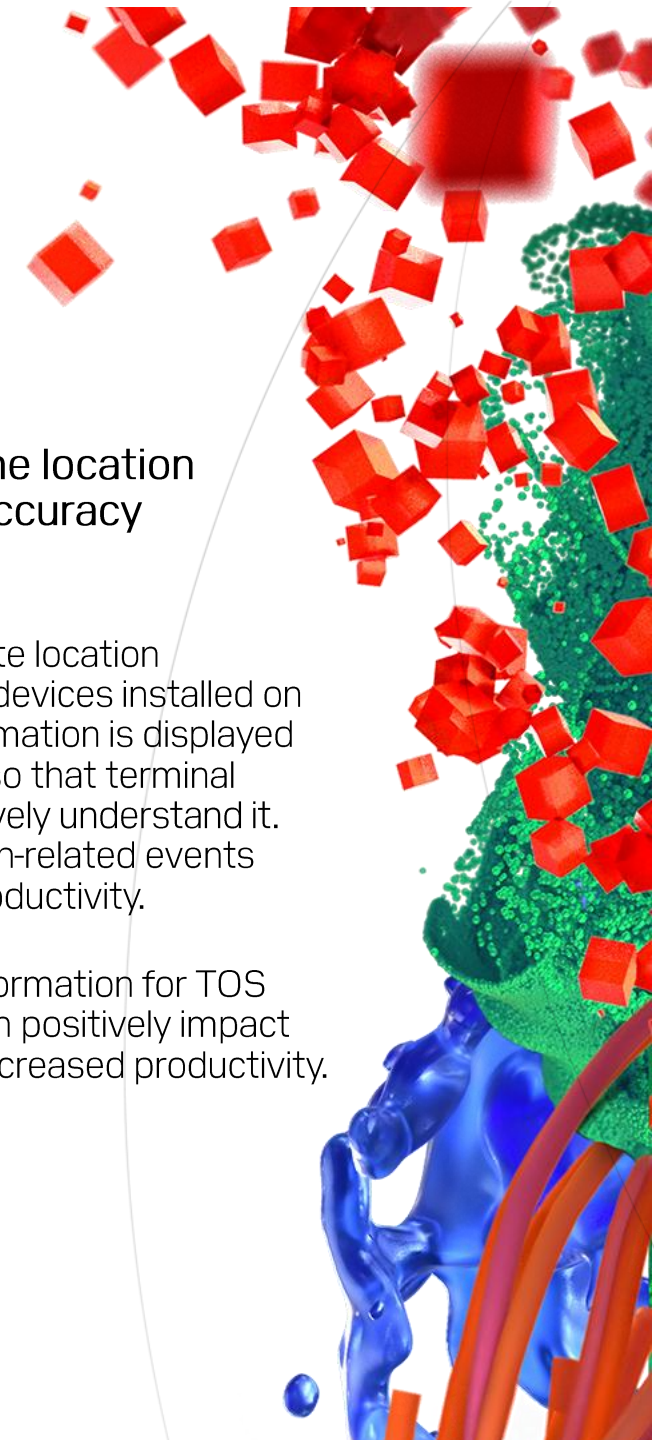


Solution



Provide real-time location by using high accuracy GPS

- IOT system receive accurate location information from the GPS devices installed on each equipment. This information is displayed on the Terminal Visualizer so that terminal users can easily and intuitively understand it. Additionally, various location-related events contribute to improving productivity.
- Using real-time location information for TOS scheduling optimization can positively impact job promotion, leading to increased productivity.

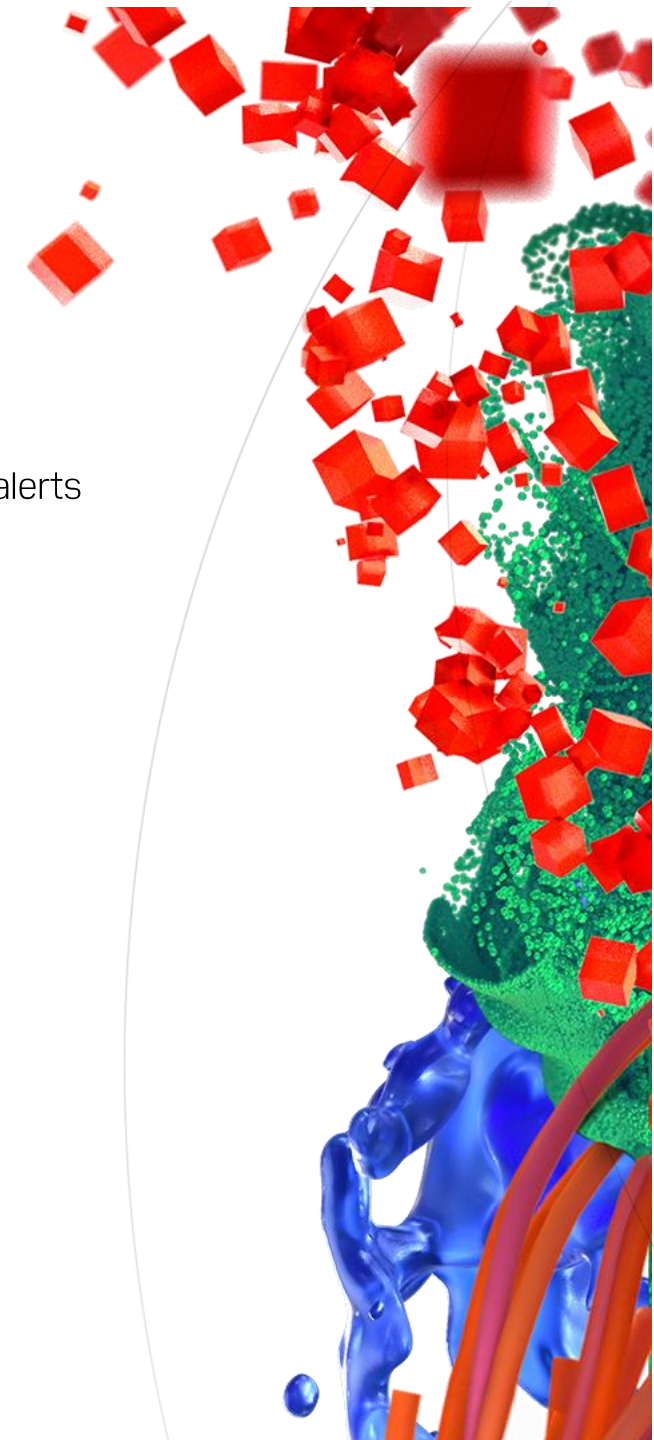


TERMINAL INFORMATION

1. Real-Time Location

CARGOS IOT+ SOLUTION

- Display Realtime Location
 - By observing the actual equipment location, job status, it is possible to quickly detect issues through alerts and take immediate action, thereby improving productivity.

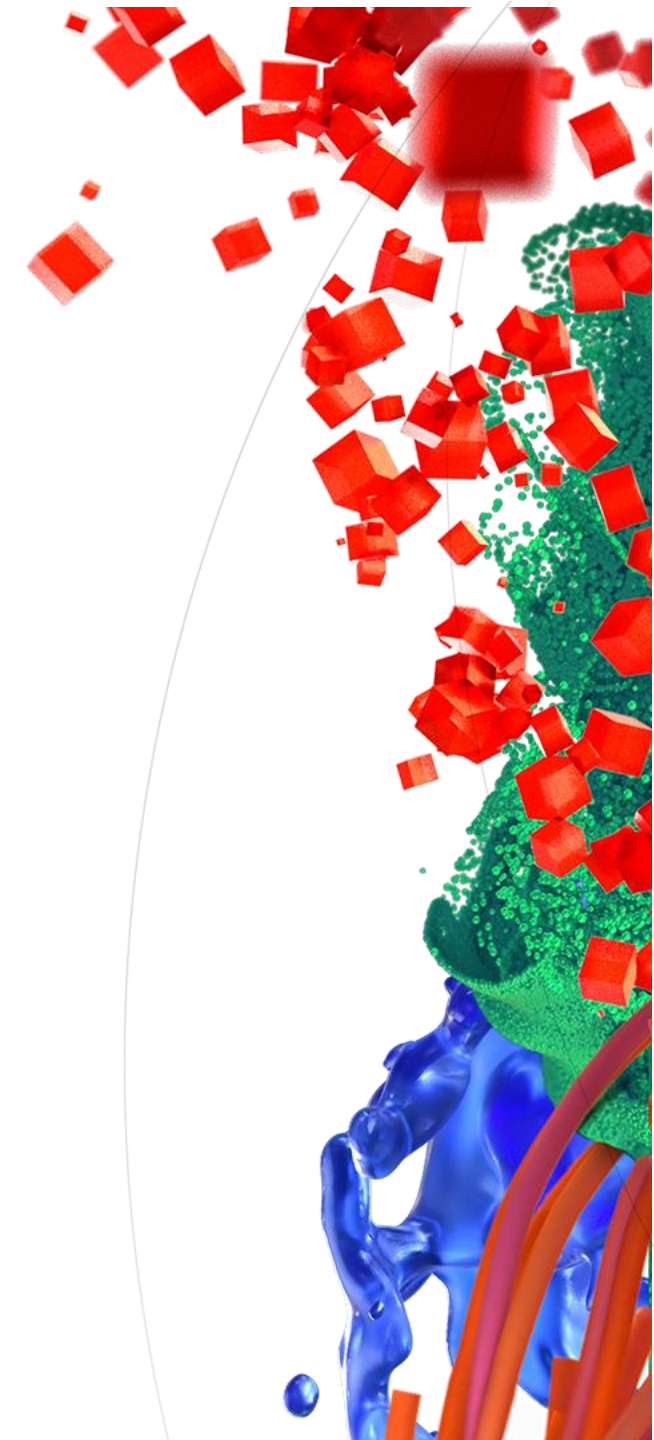
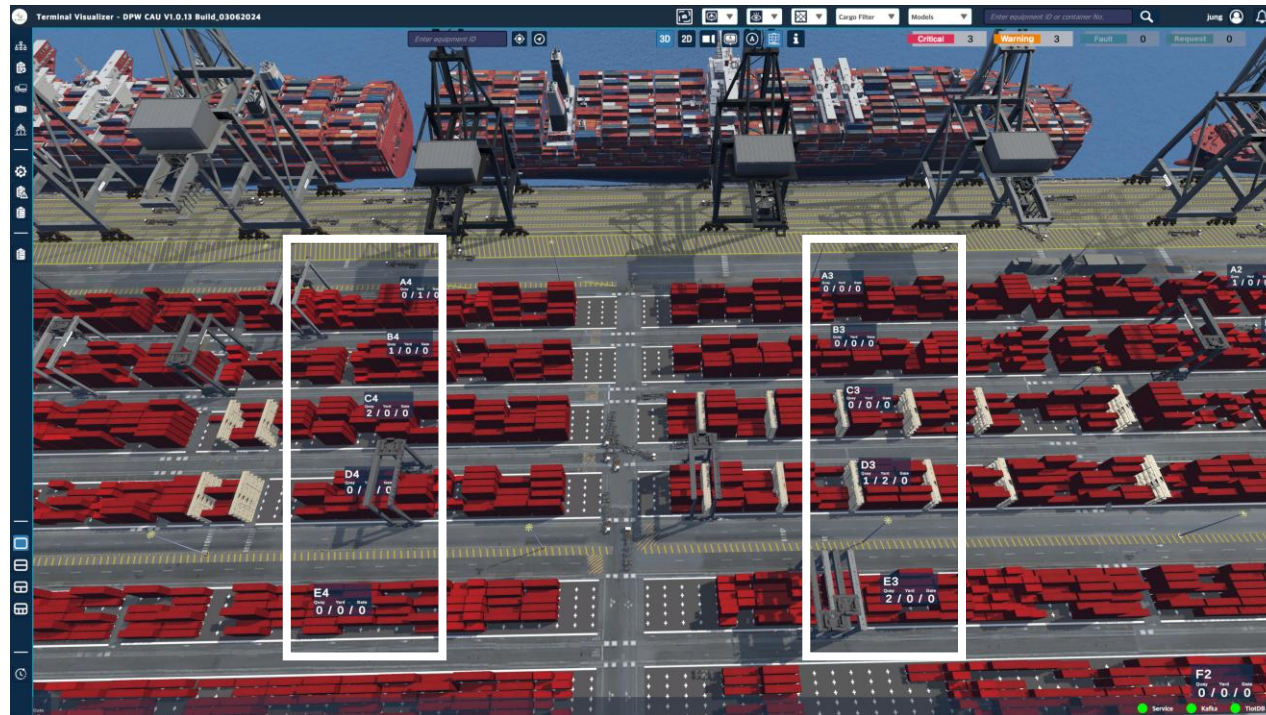


TERMINAL INFORMATION

2. Display Terminal information

CARGOS IOT+ SOLUTION

- Block Workload
 - Check the job workload of blocks in real-time



TERMINAL VISUALIZER

The screenshot displays the 'Terminal Visualizer' software interface. At the top, the title bar reads 'Caucedo Terminal Visualizer'. Below it, the main header includes 'Terminal Visualizer - DPW CAU V1.0.19.03 Build_17102024' on the left, and navigation controls (3D, 2D, etc.) and a status bar on the right. The status bar shows 'Critical 21', 'Warning 6', 'Information 7', and 'Request 0'. The main view is a 3D aerial perspective of a port terminal. Numerous yellow RTG (Rubber Tyred Gantry) cranes are positioned across the terminal, each labeled with an ID (e.g., RTG001, RTG002). In the foreground, several gantry cranes are shown with labels like 'C03 M 0', 'C04 M 0', 'C05 M 0', 'C06 M 0', 'C01 M 0', 'C07 M 0', 'C08 M 0', and 'C09 M 0'. The terminal is filled with stacks of colorful containers (red, blue, green, yellow). At the bottom, a time display shows 'Start Time : 29/10/2024 09:01:11' and 'Current Time : 29/10/2024 10:22:06'. On the far right, there are three green status indicators for 'Service', 'Kafka', and 'TiotDB'.

This document is marked [Internal](#). Do not distribute outside of the organization.

TERMINAL OPERATION

5. PDS system

CARGOS IOT+ SOLUTION

- PDS system
- When RTG operator performs an incorrect operation, the system control the spreader to prevent wrong operation.

The image displays two screenshots from the CARGOS IOT+ system. The left screenshot shows the 'PDS Admin' management interface, and the right screenshot shows the 'CAUPROD RTG01 (A106) GGG' operator interface.

Management Interface (Left):

Equipment	Driver	Admin Start Time	Admin Transaction ID
RTG17		3/5/2024, 12:51:00 AM	0000004225649
RTG32		3/5/2024, 12:51:14 AM	0000004225673
RTG14		3/5/2024, 4:07:45 AM	0000004251186
RTG02		3/5/2024, 12:51:17 AM	0000004225682
RTG03		3/5/2024, 12:51:19 AM	0000004225683
RTG04		3/5/2024, 12:51:20 AM	0000004225686
RTG05		3/5/2024, 4:06:18 AM	0000004250907
RTG06		3/5/2024, 12:51:23 AM	0000004225697
RTG07		4/11/2024, 4:46:36 AM	0000012129074
RTG08		3/8/2024, 6:00:22 AM	0000004859762

CAUPROD RTG01 (A106) GGG Interface (Right):

Search: [] LOAD DSCH YARD RECV DLVR RIDS ROLD

Job	Tw	MP	Type	From	To	Container	DM	Shf	F/A	Len	!!!	Wt	LN	Door	Wait
1			YARD	T001	A106032	MSDU6339265	N		A	2H		24	L1		6

Bay : 06 Cell : 03 Tier : 2

Twist Lock : Unlocked New Position 1: A106032 [Change]

Landed : N

OCR TK : T002

Lift-off : T001

[Cancel]

MSDU 6339265

User Zone: A2,A1 Dynamic Zone: [AUTO] [Others] [Cancel]

[Confirm] [Skip Shifting] [AUTO] [Others] [Cancel]

Annotations: 1 points to the Job header, 2 points to the grid, 3 points to the User Zone, 4 points to the Confirm button, 5 points to the Dynamic Zone buttons.

TERMINAL SAFETY

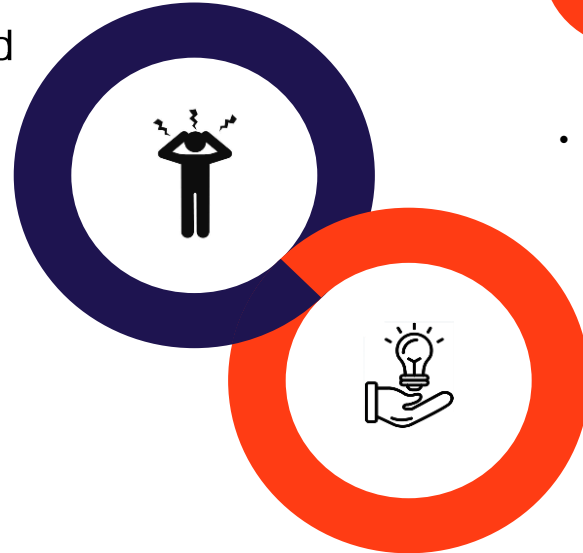
1. Detect abnormal movement

Pain Point



The operator consistently cannot detect situations where the equipment could cause accidents

- The constant monitoring of abnormal movements in the equipment is not maintained, leading to a failure to recognize issues before they arise and prevent accidents.

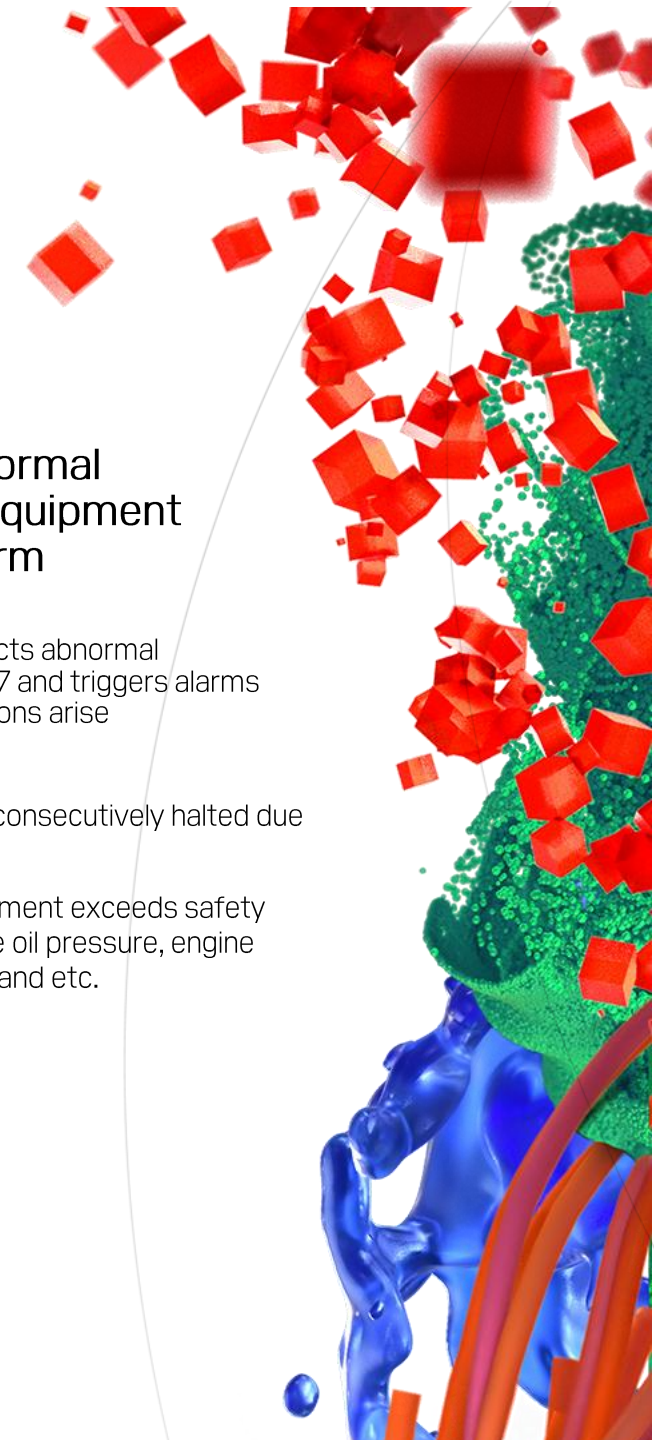


Solution



IOT detect abnormal movement of equipment and make a alarm

- The IoT system continuously detects abnormal movements in the equipment 24/7 and triggers alarms when potentially hazardous situations arise
 - ITV Overspeed
 - When adjacent RTGs are consecutively halted due to a working lane.
 - The key value of the equipment exceeds safety thresholds (such as engine oil pressure, engine temperature, safety belts and etc.

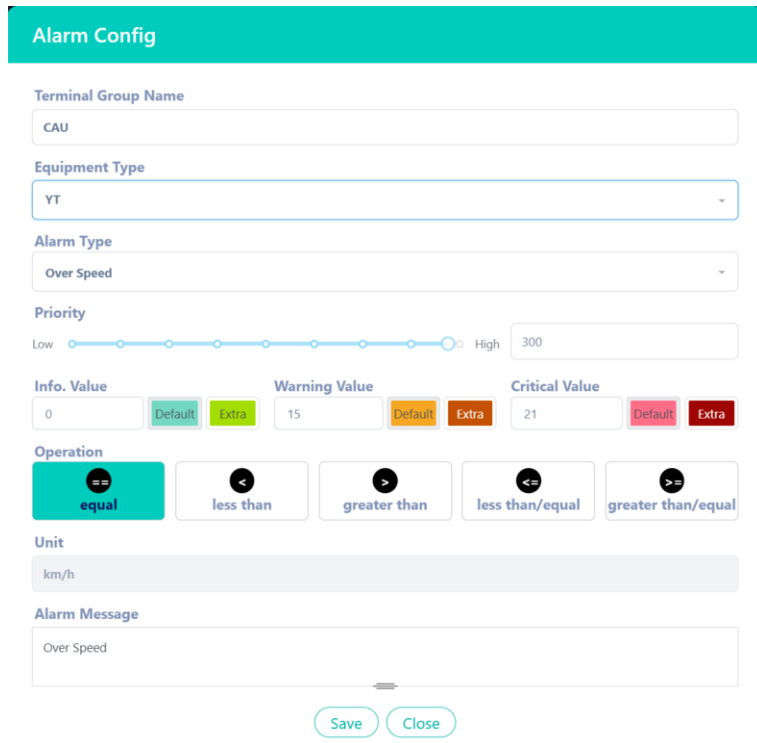


TERMINAL SAFETY

1. Detect abnormal movement

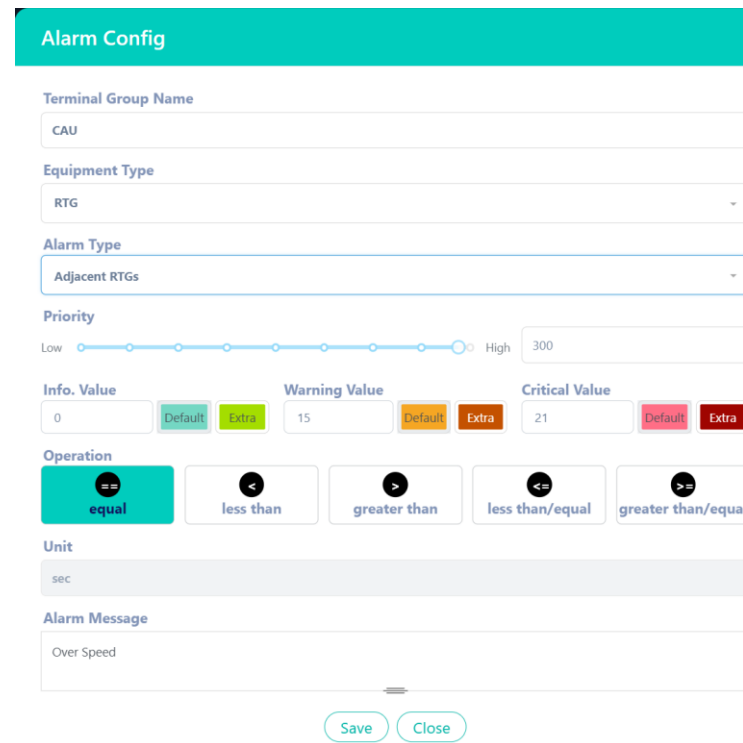
CARGOS IOT+ SOLUTION

- Alarm for overspeed of equipment
 - Each type of equipment has its own set speed limit. When this limit is exceeded, warning and critical alarms are triggered.

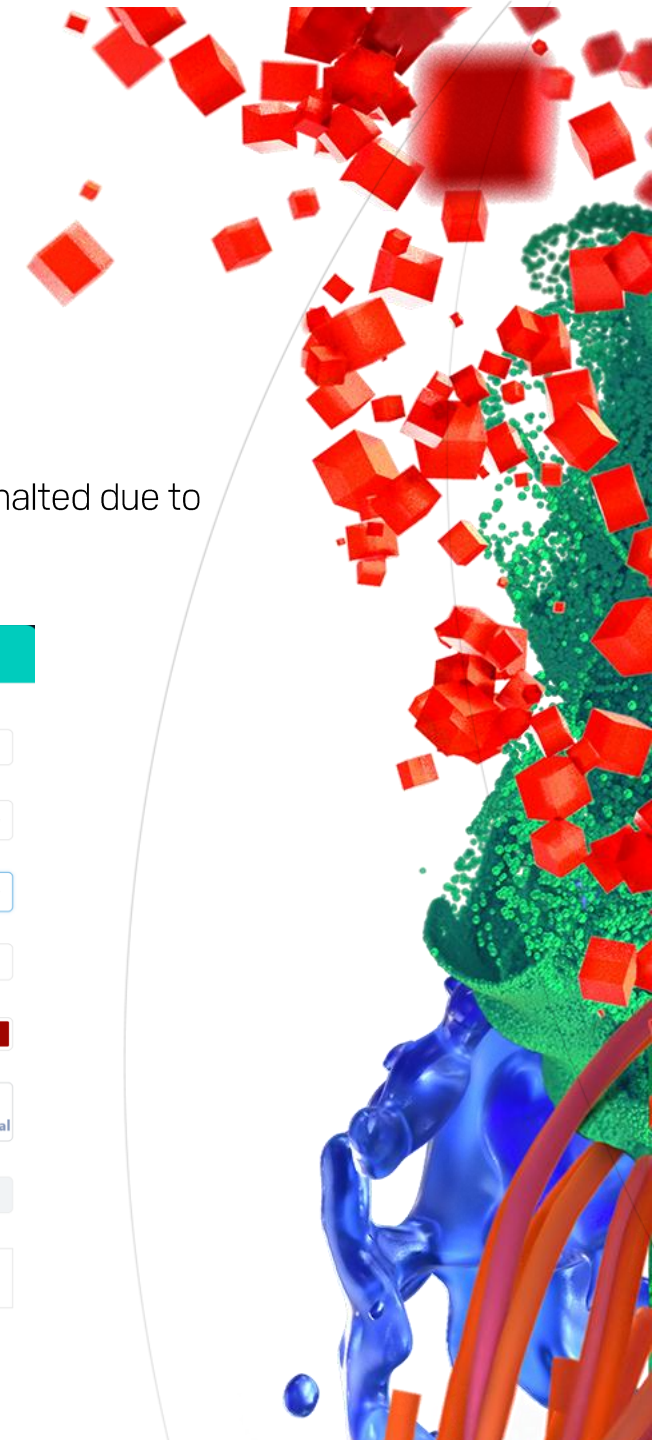


The screenshot shows the 'Alarm Config' interface for an 'Over Speed' alarm. The 'Terminal Group Name' is 'CAU' and the 'Equipment Type' is 'YT'. The 'Alarm Type' is 'Over Speed' and the 'Priority' is set to 'High' with a value of 300. The 'Info. Value' is 0, 'Warning Value' is 15, and 'Critical Value' is 21. The 'Operation' is set to 'equal'. The 'Unit' is 'km/h' and the 'Alarm Message' is 'Over Speed'. There are 'Save' and 'Close' buttons at the bottom.

- Alarm for RTGs stop in parallel
 - Adjacent RTGs are consecutively halted due to a working lane.



The screenshot shows the 'Alarm Config' interface for an 'Adjacent RTGs' alarm. The 'Terminal Group Name' is 'CAU' and the 'Equipment Type' is 'RTG'. The 'Alarm Type' is 'Adjacent RTGs' and the 'Priority' is set to 'High' with a value of 300. The 'Info. Value' is 0, 'Warning Value' is 15, and 'Critical Value' is 21. The 'Operation' is set to 'equal'. The 'Unit' is 'sec' and the 'Alarm Message' is 'Over Speed'. There are 'Save' and 'Close' buttons at the bottom.



TERMINAL OPERATION

1. Detect abnormal movement

CARGOS IOT+ SOLUTION

- Alarm for ITV U-turn
 - An alarm will be triggered if an ITV makes a U-turn in a no U-turn zone within the yard.

Alarm Config

Terminal Group Name
ITV U-turn

Equipment Type
YT

Alarm Type
U-Turn

Priority
Low High 9999

Alarm Message

- Alarm for ITV Wrong Driving
 - An alarm will be triggered if an ITV drives in the opposite direction of the road.

Alarm Config

Terminal Group Name
ITV Wrong Drive

Equipment Type
YT

Alarm Type
Wrong Way Driving

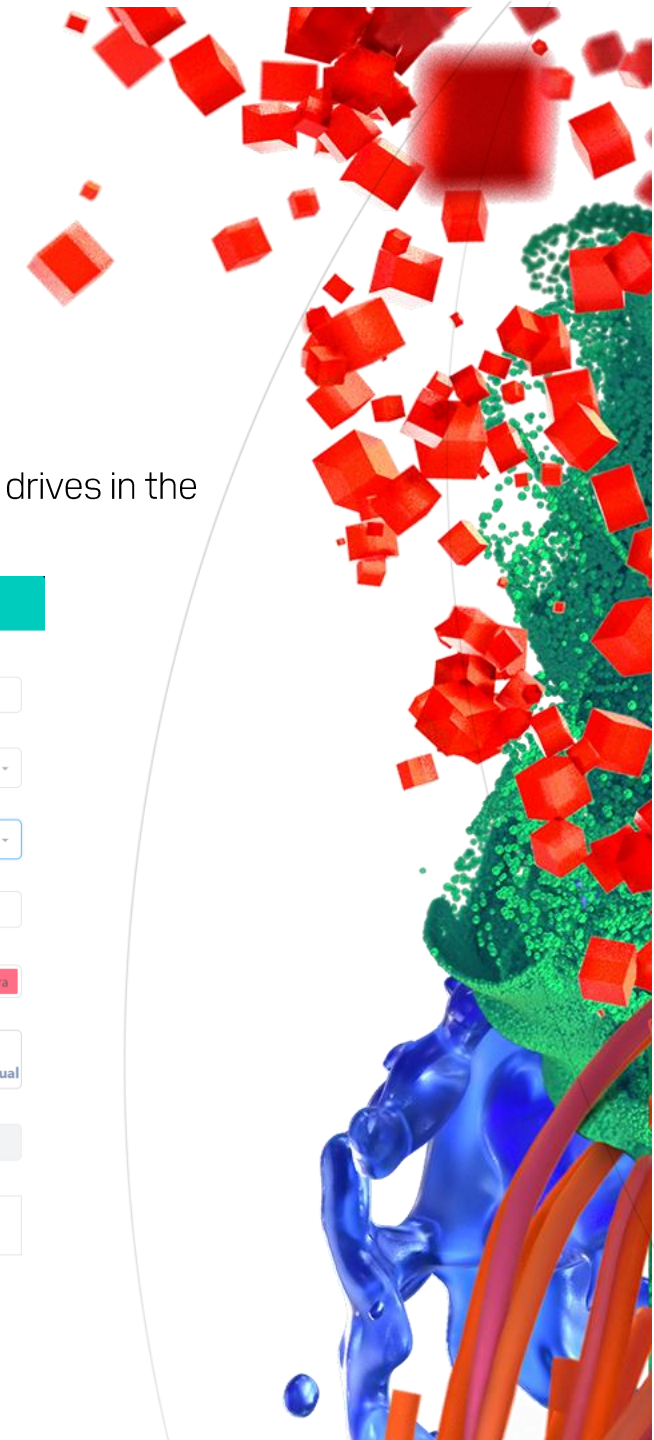
Priority
Low High 9999

Info. Value
Warning Value
Critical Value

Operation

Unit
min

Alarm Message



TERMINAL OPERATION

1. Detect abnormal movement

CARGOS IOT+ SOLUTION

- Alarm when engine temperature is over

Alarm Config

Terminal Group Name
CAU

Equipment Type
YT

Alarm Type
Engine temperature over

Priority
Low High 300

Info. Value Default Extra Warning Value Default Extra Critical Value Default Extra

Operation
 equal less than greater than less than/equal greater than/equal

Unit
°C

Alarm Message
Over Speed

- Alarm when engine oil pressure is over

Alarm Config

Terminal Group Name
CAU

Equipment Type
YT

Alarm Type
Engine oil pressure

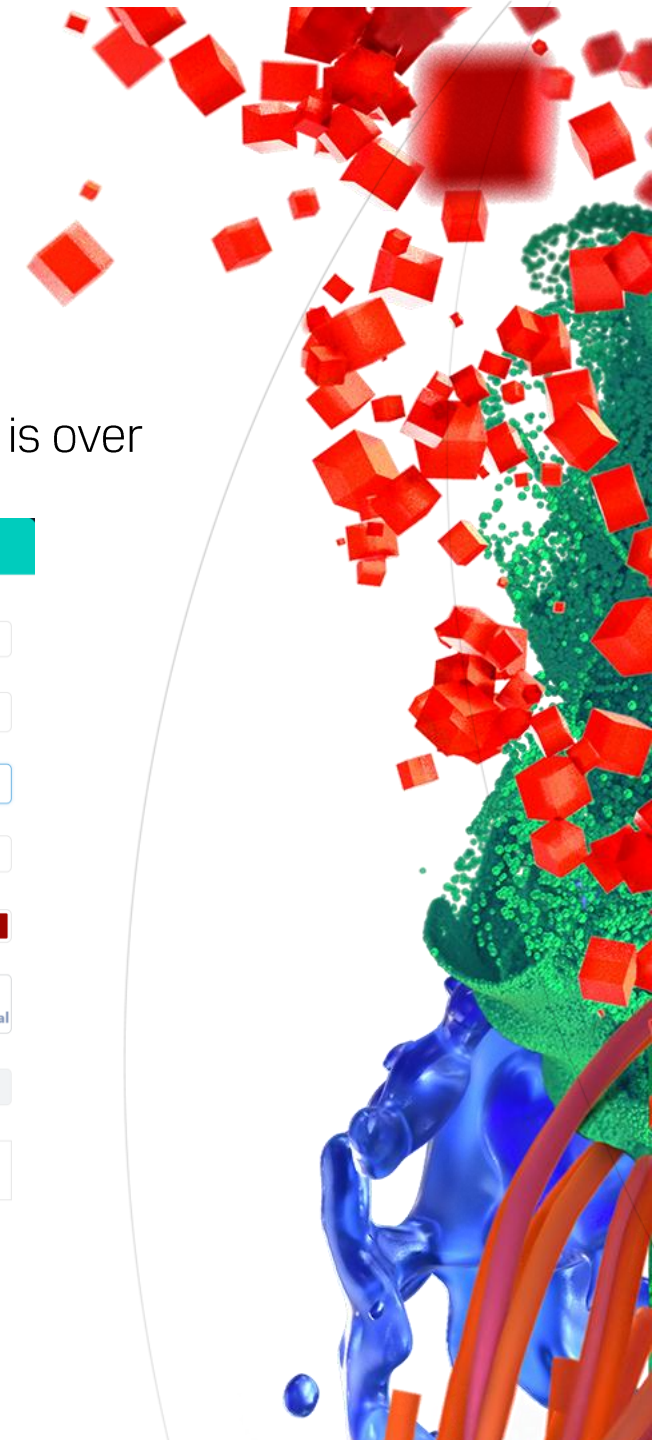
Priority
Low High 300

Info. Value Default Extra Warning Value Default Extra Critical Value Default Extra

Operation
 equal less than greater than less than/equal greater than/equal

Unit
kPa

Alarm Message
Over Speed

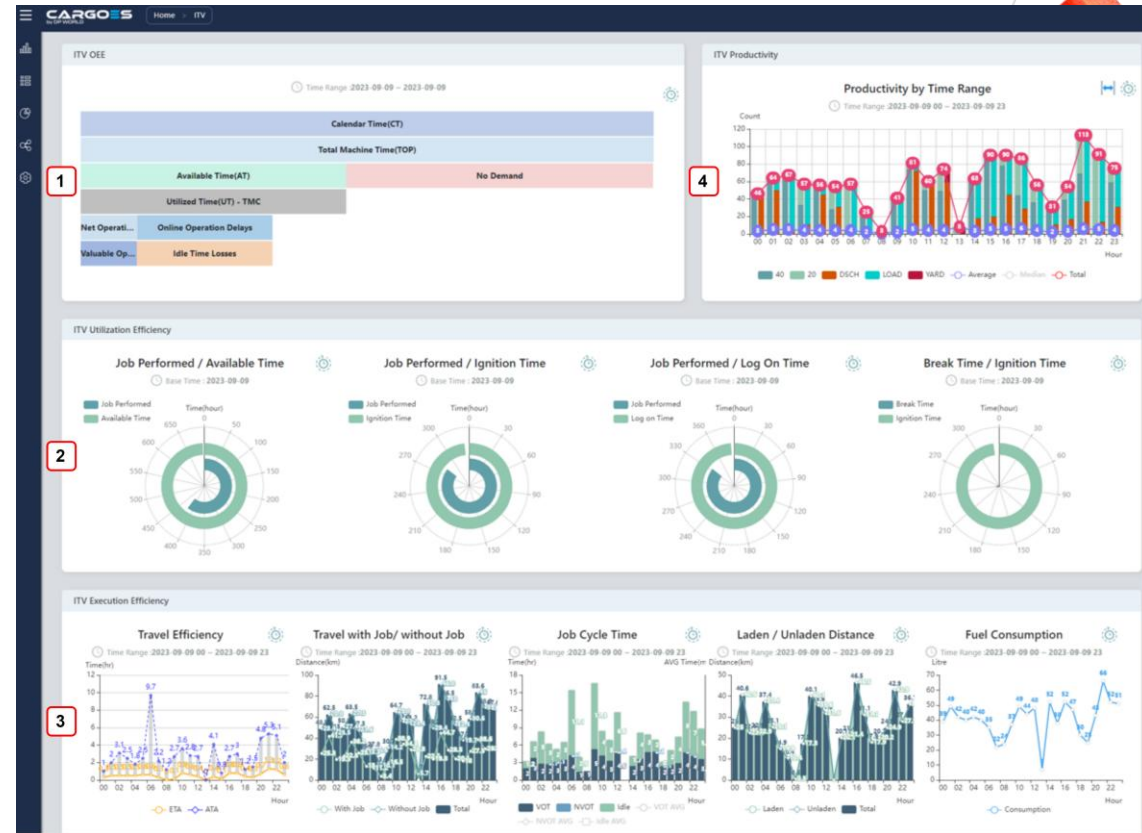


TERMINAL OPERATION

2. Intuitive UI for terminal operation

CARGOS IOT+ SOLUTION

- ITV OEE Model / Utilization / Execution efficiency
 - This module analyzes and displays performance metrics for ITVs such as OEE, equipment productivity, utilization efficiency, and execution efficiency.



SAVINGS

- Fuel consumption.
 - Maximize equipment utilization with system driven operation control / dynamic operation optimization will reduce gallons per marine lifts.
- Reduce on accident.
 - Real time terminal visualizer with all features of prevention will impact positively on accident event.
- Manpower optimization.
 - We can create super dispatchers considering system driven operation control reducing human intervention focus only on exceptions and making decision strategy (see table phases).



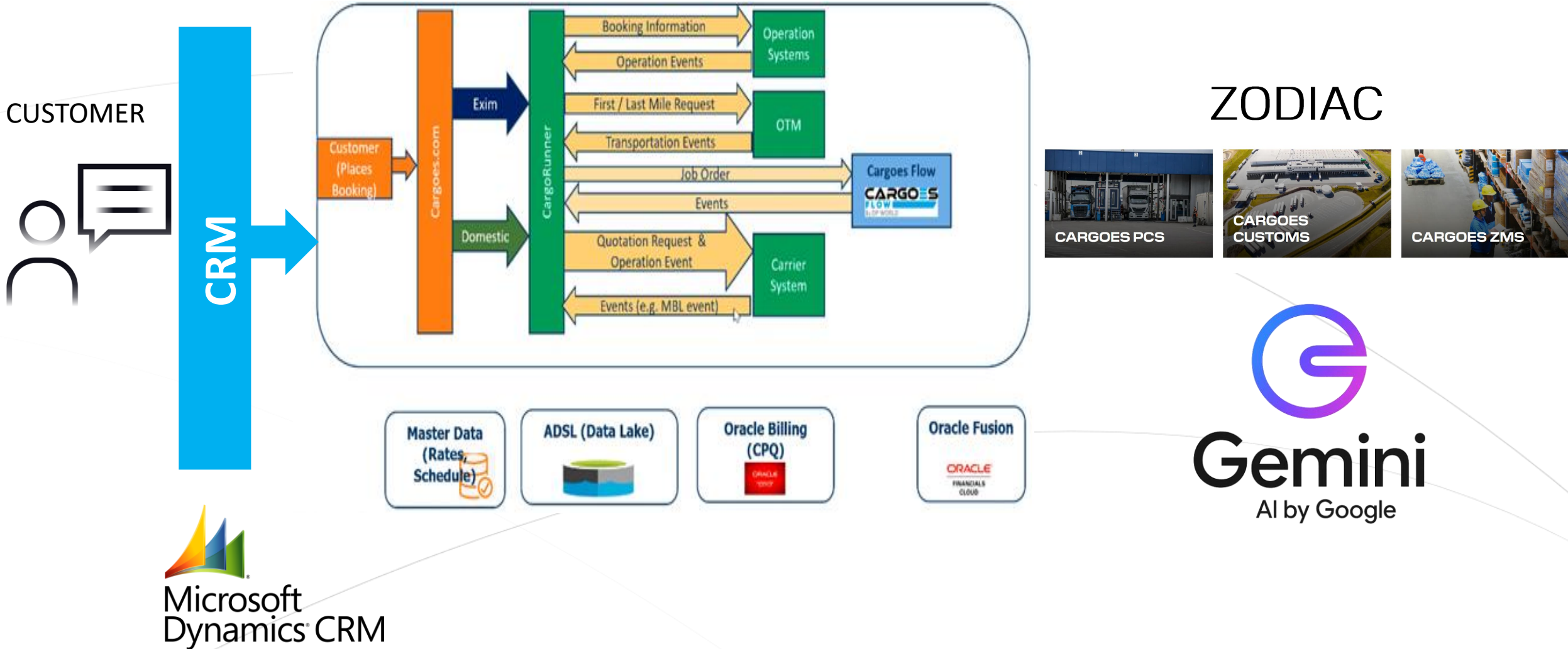
Manpower after final phase

TOTAL

33.33%

SYSTEM INTEGRATION

CARGOES
by DP WORLD





DP WORLD

