

BORNEO INTERNATIONAL MARITIME WEEK 2025



Gearing towards a Sustainable Maritime Logistics Hub for BIMP-EAGA

Next Generation of Ports: Smart and Green

Jeffery Bao

NIZE Intelligent Technology Co., Ltd



JEFFERY BAO

DIRECTOR OF
GLOBAL MARKETS

- **Expertise:** Strategic implementation of cutting-edge technology.
- **Goal:** Globally transform ports to maximize efficiency and build advanced maritime hubs.



NIZE TECH

LEADING SMART PORT
SOLUTIONS PROVIDER

- **Global Focus:** Leveraging expertise from flagship projects like **YANGSHANG PHASE IV**.
- **Core Strength:** Dedicated R&D team of **300+ Engineers** driving innovation.
- **International Reach:** Delivering advanced solutions to **60+ Global Port Terminal Clients**.



上港集團

SHANGHAI PORT

GLOBAL INDUSTRY GIANT

- **SCALE & CAPACITY:** Handling over **51.5 Million TEUs** annually.
- **INNOVATION HUB:** Pioneer and operator of the world's largest automated terminal (**YANGSHAN PHASE IV**).
- **STRATEGIC VISION:** Driving international expansion and smart port technology integration.

Global Smart Port Transformation Trends



Environmental and low-carbon requirements

Addressing climate change

A decade of action to cut GHG emissions from shipping



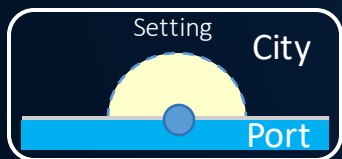
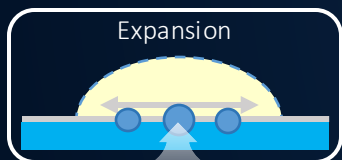
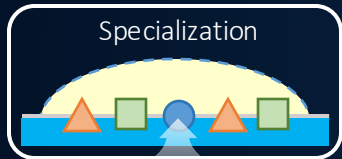
ASEAN Smart & Green Port Potential



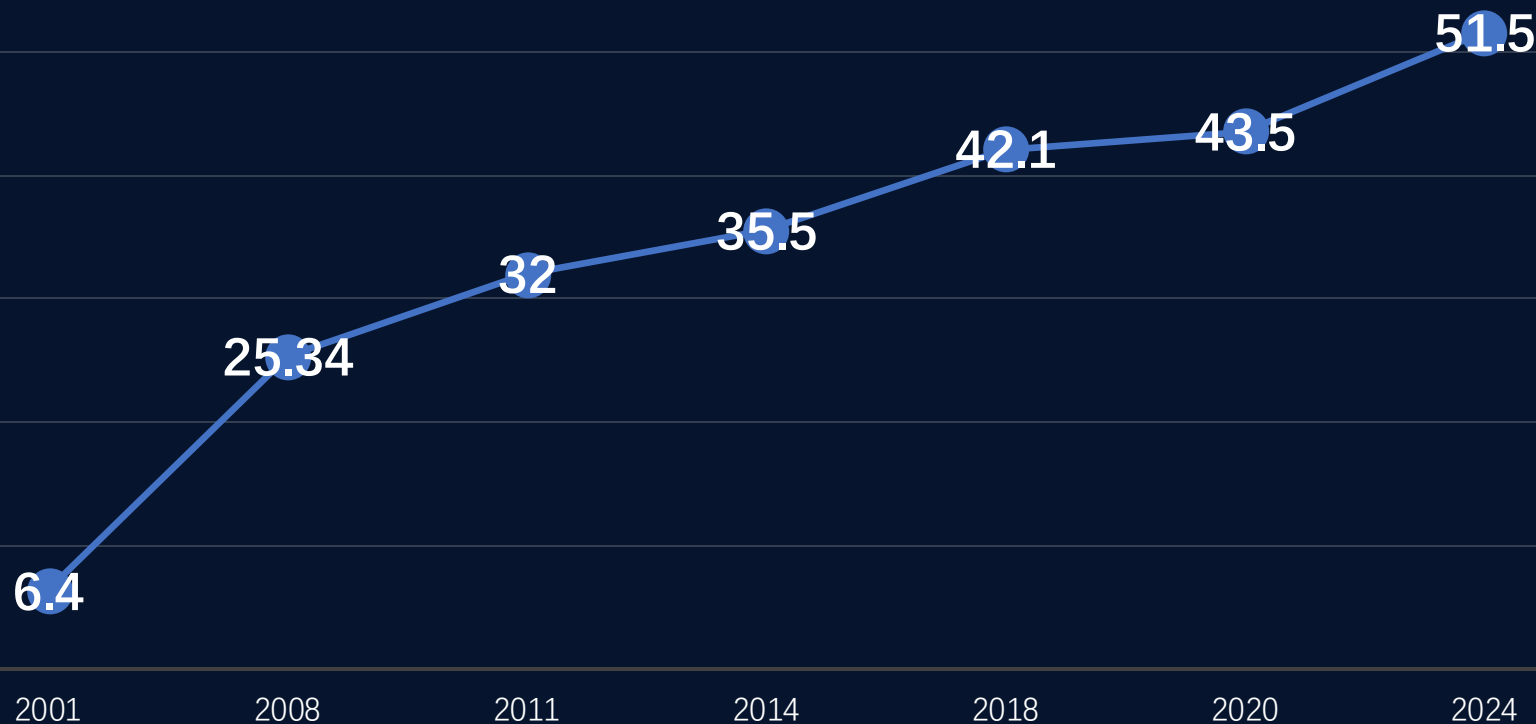
- “Over **400 million** internet users across ASEAN; digital economy projected to exceed **USD 300 billion** by 2025.”
- “ASEAN ports benefit from regional infrastructure push via the ‘ASEAN Connectivity’ initiative, **spurring smart-green port investments**.”
- “Manufacturing and high-tech enterprise relocation to Southeast Asia is driving demand for **new port infrastructure** and **logistics services**.”
- “Smart & green port transformation represents a major growth frontier — positioning ASEAN as a **key node of sustainable maritime trade**.”

General Roadmap of Port digital Transformation

Business Capability



SIPG Container Throughput (in Million)



Throughput

Basic TOS

Robust Business System

Standardization

Automatization & Collaboration

Diversified digital Services

Digitalization Capability

What is smart Port Digitalization? (5 Layers)



Smart & Auto Operation Full Solution

I Smart Tally Solution

- Smart Tally
 - ◆ Container Number
 - ◆ Container Type
 - ◆ Cntr. Position in Ship
 - ◆ Dangerous Good Mark
 - ◆ Damage/ Seal

Tally

Ship Unloading

II Smart Yard Solution

- RTG Automation (13 Sub-systems)
 - ◆ Anti-Collision
 - ◆ Positioning
 - ◆ Auto-Stacking

CY Receiving

CY Sorting

- Mobile Equipment
 - ◆ 360° Safety
 - ◆ Driver Behavior

- RTG Automation (13 Sub-systems)
 - ◆ Anti-Collision
 - ◆ Auto-Stacking

- Truck enter CY
- Truck Arrival Detection

Truck into Yard

III Smart Gate Solution

- Smart Gate
 - ◆ Truck Number
 - ◆ Cntr. Number
 - ◆ Weighbridge Detection

Truck into Gate

Successful Case: Yangshan Phase IV, Shanghai (2017)

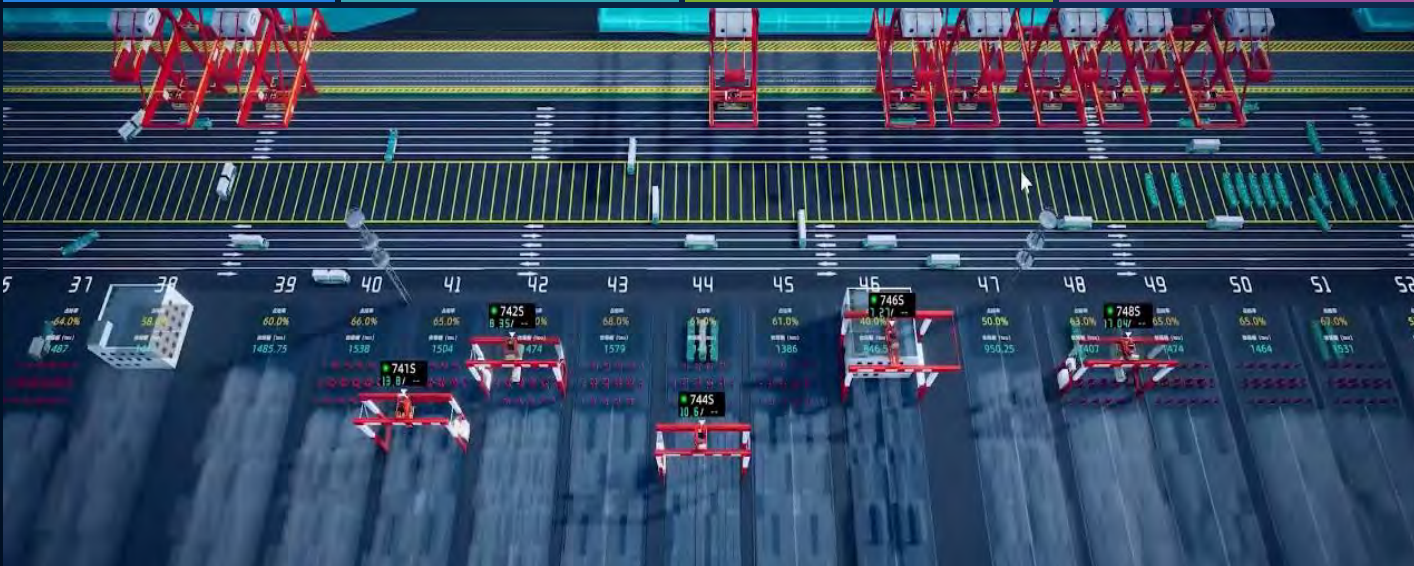


Semi-automated ship loading and unloading

Automated horizontal transportation

Automated storage, loading and unloading

Fully automatic loading and unloading of ET



Terminal Overview

- Berth: 7
- Annual Throughput: over 7million TEU (Design Capacity 6.3 million)
- **Auto-Equipment: 293**

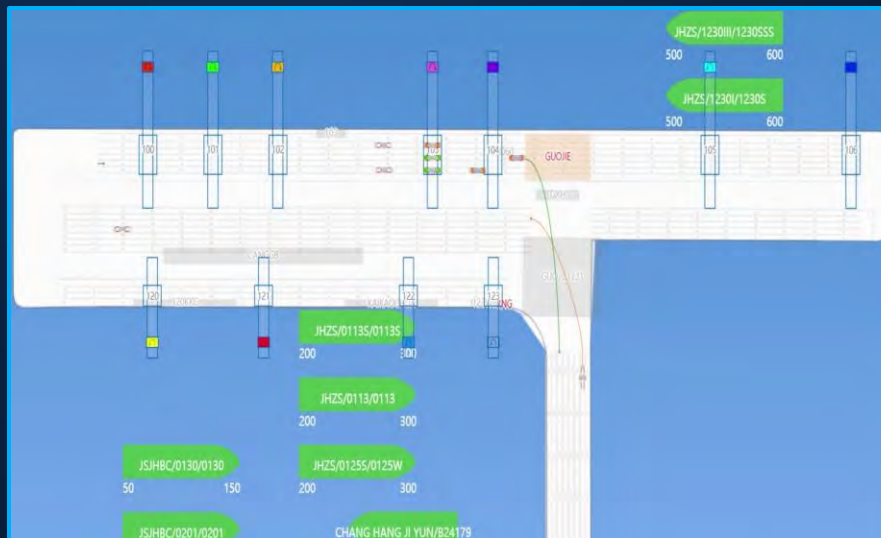
Applied Tech

- NIZE-ITOS
- **Auto-Equipment integrated**
- **Eqpt. Scheduling ASC+STS+AGV**
- Initial F5G ultra remote Control
- Hardware Full Solution
(Network/Computer Room/Security /Monitor)

Break World Record

- 🏆 28 STS of Terminal
- Average STS 1000TEU/day
- 🏆 Every 100m Quay: 300 k/year

Successful Case: LuoDong-Terminal, Shanghai (2024)



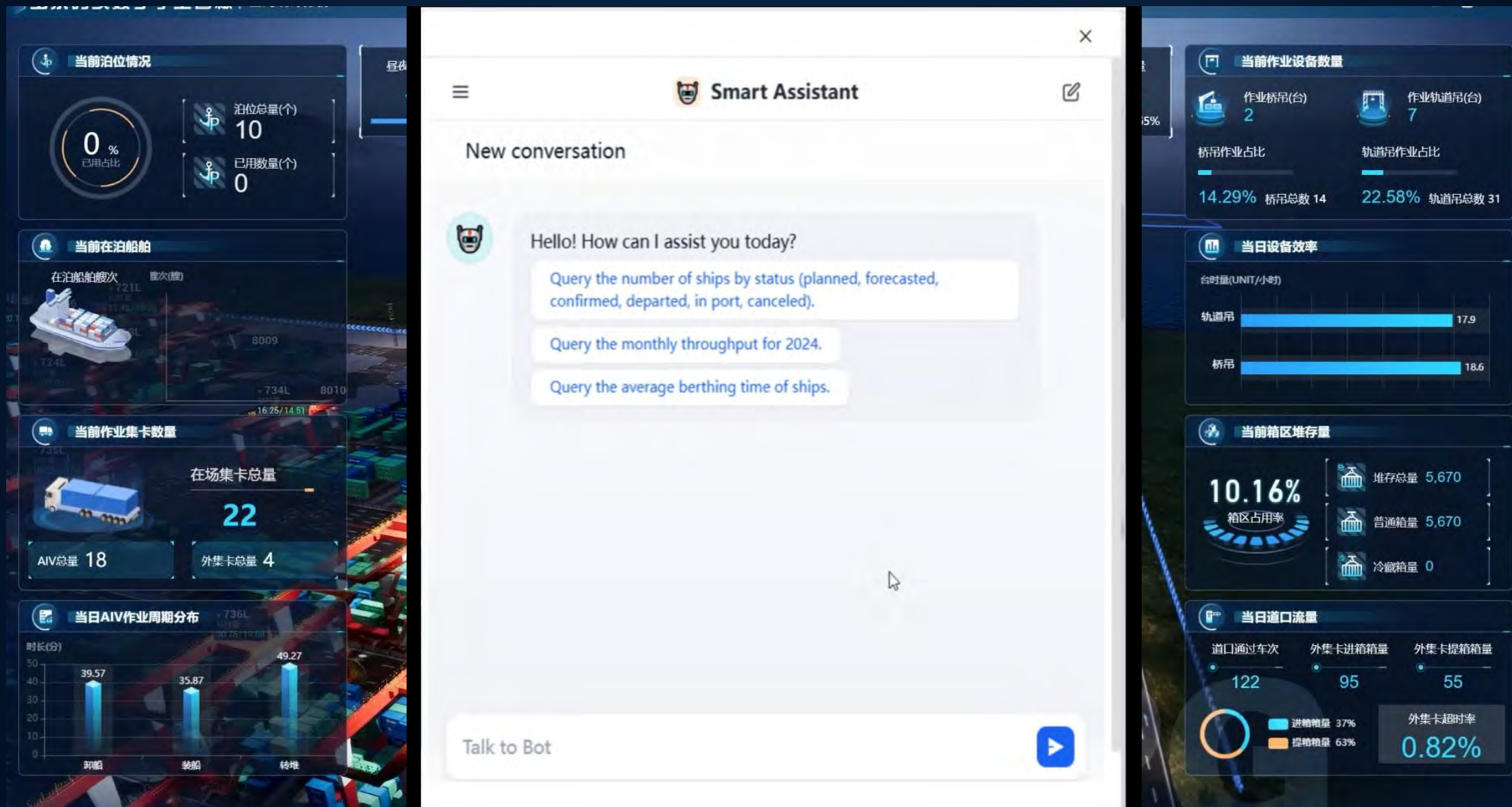
Intelligent Guided Vehicle

93 Unit

Automated Equipment

45 Unit

AI Driven Port Management



Equipment Optimization - Remote Control / Automation



Manpower(1:7 Ratio)



85%

IDLE time



20% - 30%

Efficiency

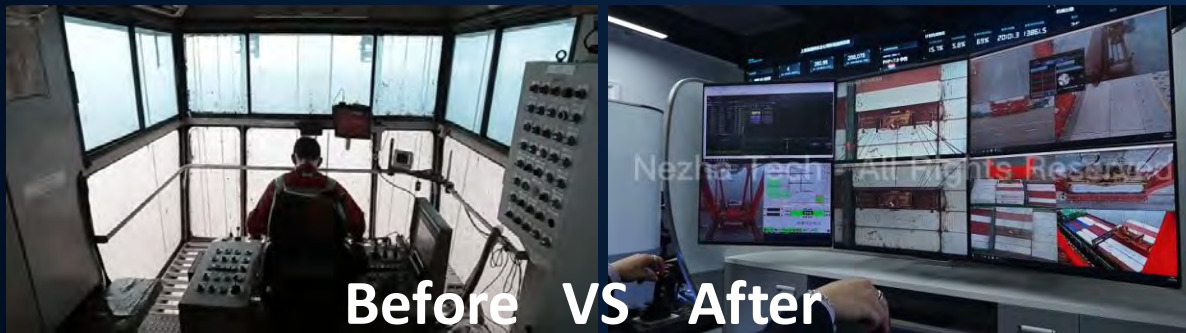


35%

Fuel consumption



25% - 30%



Before VS After

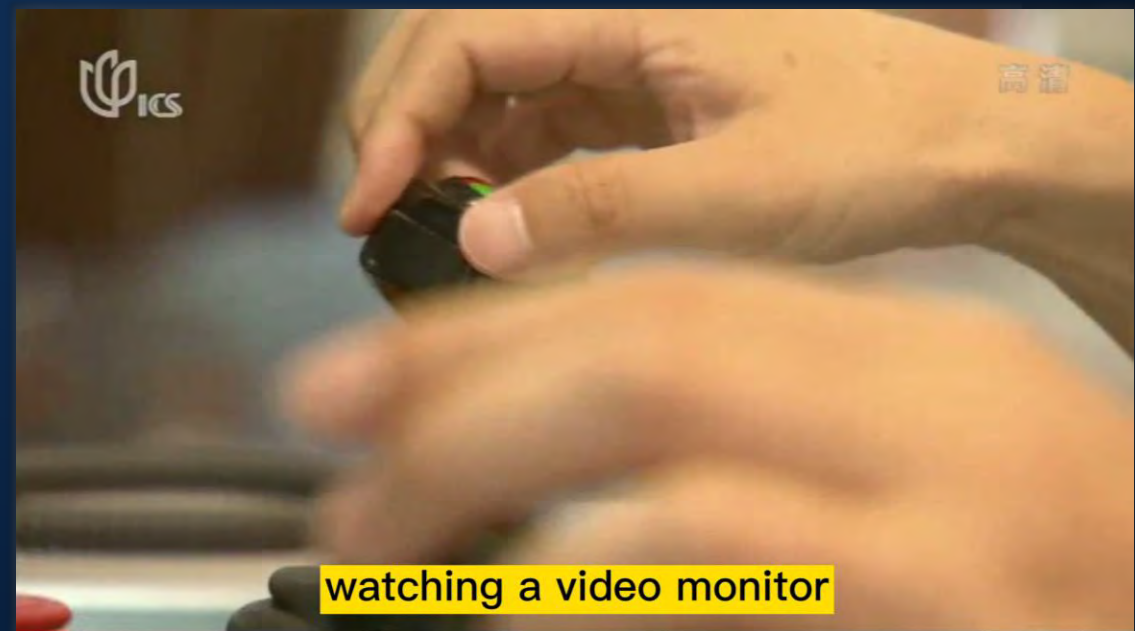
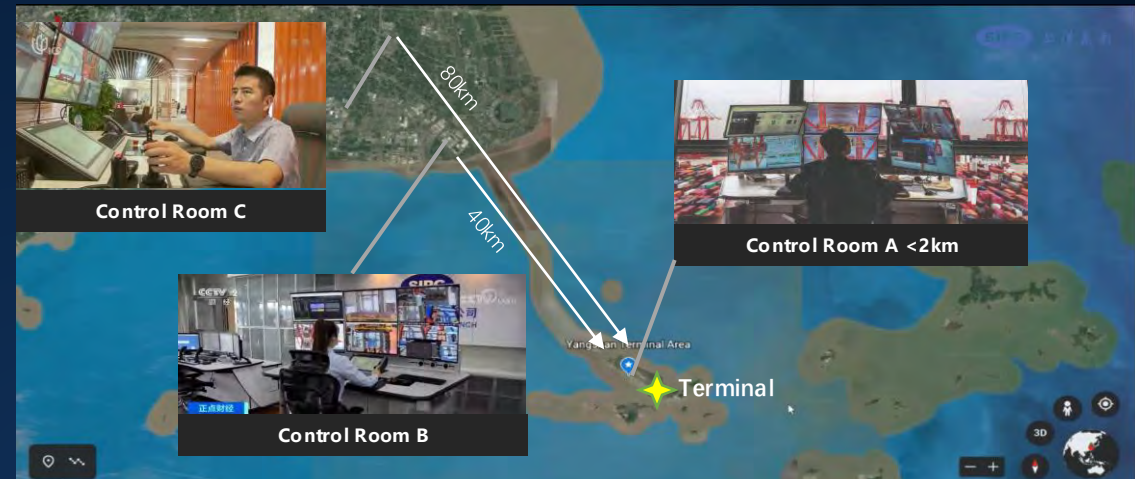
Equipment Optimization - Remote Control / Automation

F5G ULTRA-LONG-DISTANCE CONTROL

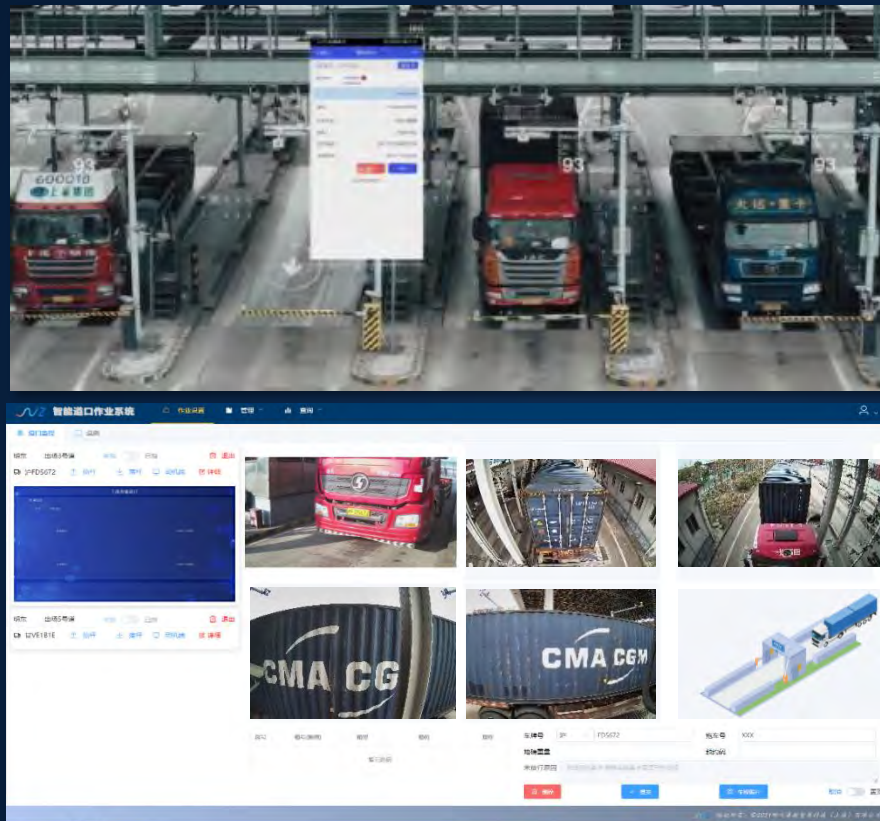


Based on this new infrastructure, the application of full-scene awareness, all-scenario interconnection, and all-scenario intelligence of port intelligent will be greatly enriched.

- **Simple architecture, easy operation & maintenance**
 - 2-layer architecture, simple deployment; Multi-network integration, unified O&M
- **Large bandwidth & low latency**
 - 10,000 Gigabit bandwidth; Microsecond deterministic low latency
- **High reliability and wide coverage**
 - Type C full-link protection; Class D Super Long Drama Coverage



Smart Gate Solution



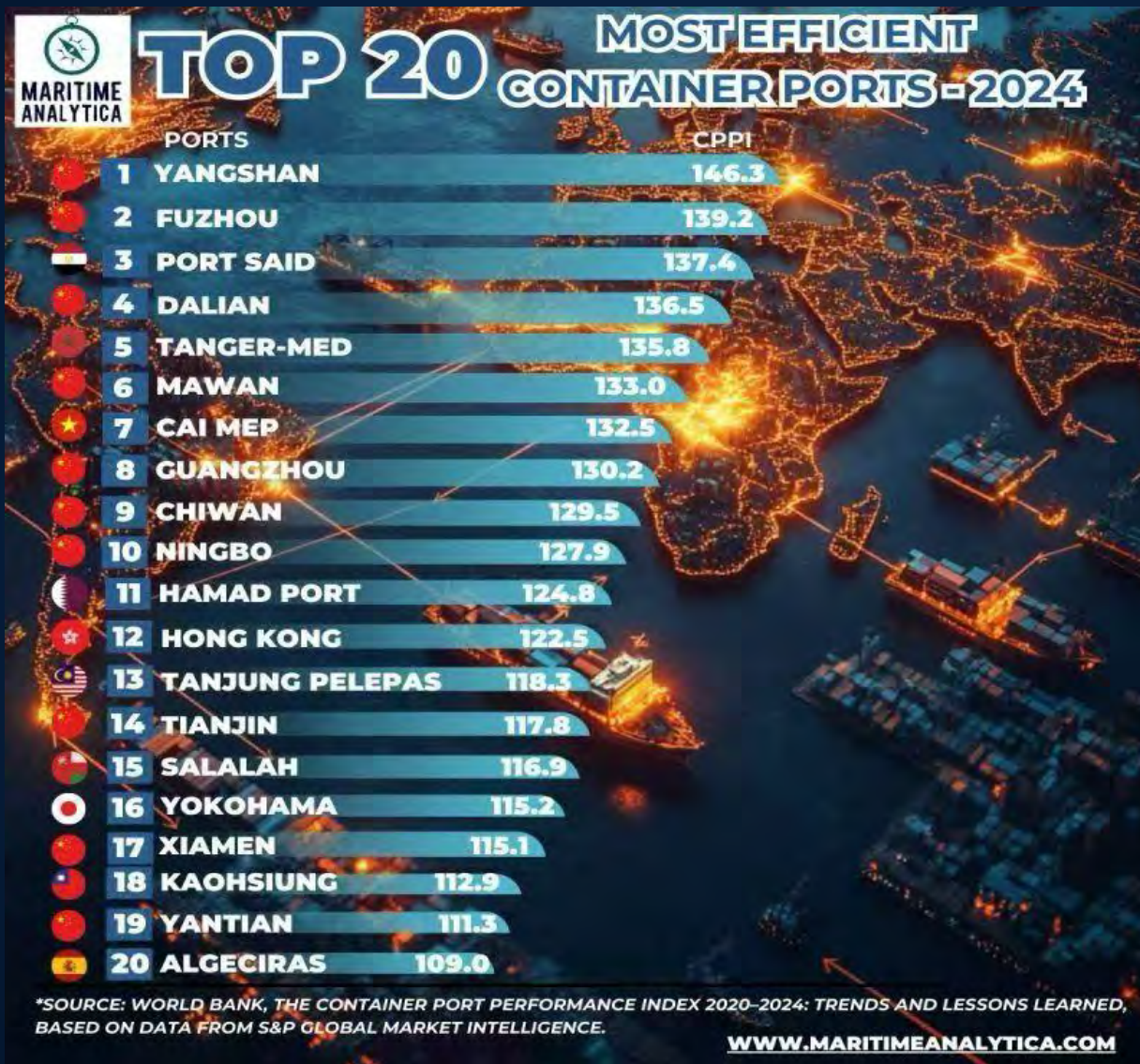
Qualitative and quantitative analysis of traditional and intelligent gate

	Traditional	NIZE	Performance indicator 
Average time for one truck crossing	2min	18s	
Error in profile information	always	seldom	
Truck driver experience	bad	good	
Number of gates controlled per staff	1	10	
Personnel costs	high	low	
Working environment	gate	control room	

- Identify container number, truck number, damage, dangerous mark, etc
- Successfully applied to more than **200 lanes**
- Intelligent recognition technology based on NZ-AI, massive learning samples, recognition rate as high as **98.7%**

Terminal Efficiency Ranking

Terminal Efficiency Rank



| Regional Cooperation and Shared Vision

- **Building Smart Connectivity and Systems Across ASEAN Ports**



Establishing data interconnection platform and promoting smart connectivity among ASEAN ports



Continuous technical exchange with ports across ASEAN nations on automation, AI integration, and digital solutions



Collaboration with port authorities and maritime administrations to explore concrete projects



THANK YOU ! Terima Kasih !

Website: www.nuzarsurf.com; Email: baoss@nuzarsurf.com

Adresse: Room 801-808, Tower 1, No.387 Huimin Road, Yangpu, Shanghai PR.China

NIZE TECH. Global Top Intelligent Full Solution
Provider for Ports and Shipping.
Copyright © 2025 NEZHA TECH. All rights reserved.