WELCOME TO APM TERMINALS MUMBAI (Gateway Terminals India)

APM Terminals Mumbai

Global Trends in Ports & Terminal Management

Avinash Kalse

A.P. Moller Maersk at-a-glance

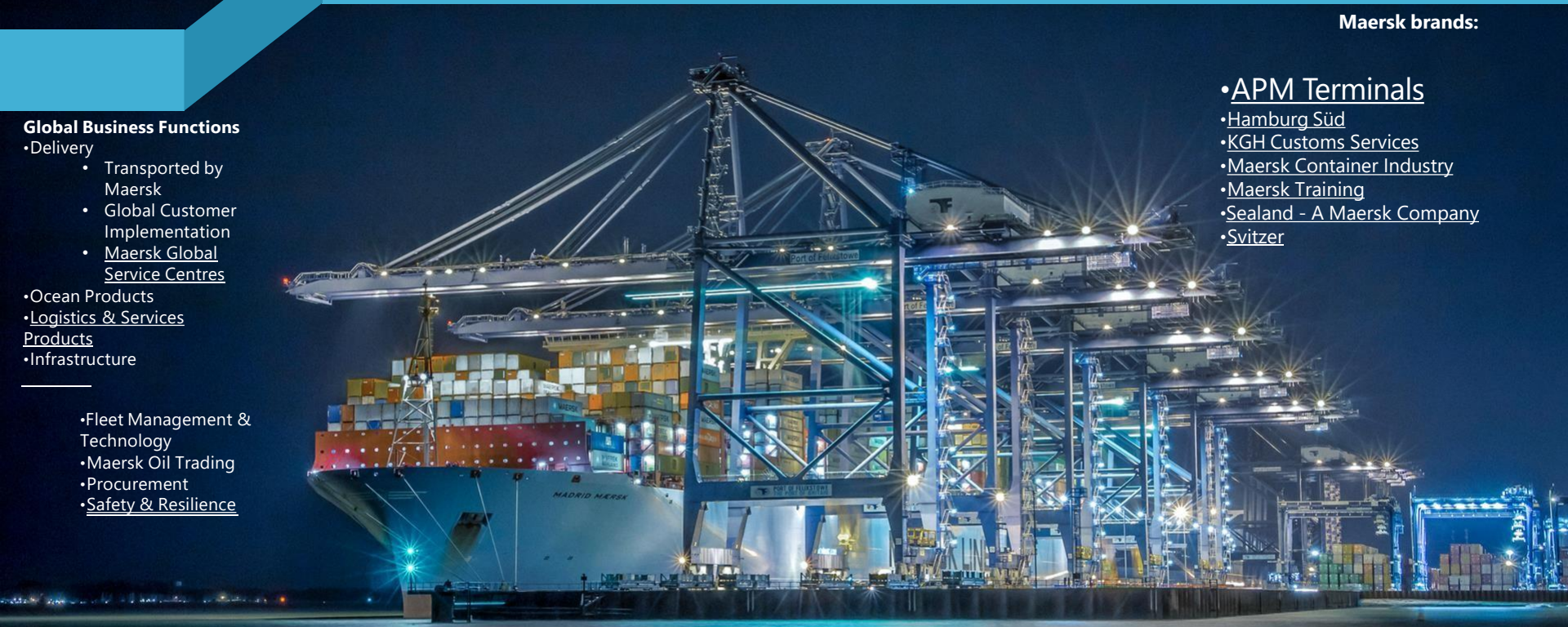
Global Business Functions

- Delivery
  - Transported by Maersk
  - Global Customer Implementation
  - Maersk Global Service Centres
- Ocean Products
- Logistics & Services Products
- Infrastructure

- Fleet Management & Technology
- Maersk Oil Trading
- Procurement
- Safety & Resilience

Maersk brands:

- APM Terminals
- Hamburg Süd
- KGH Customs Services
- Maersk Container Industry
- Maersk Training
- Sealand - A Maersk Company
- Svitzer

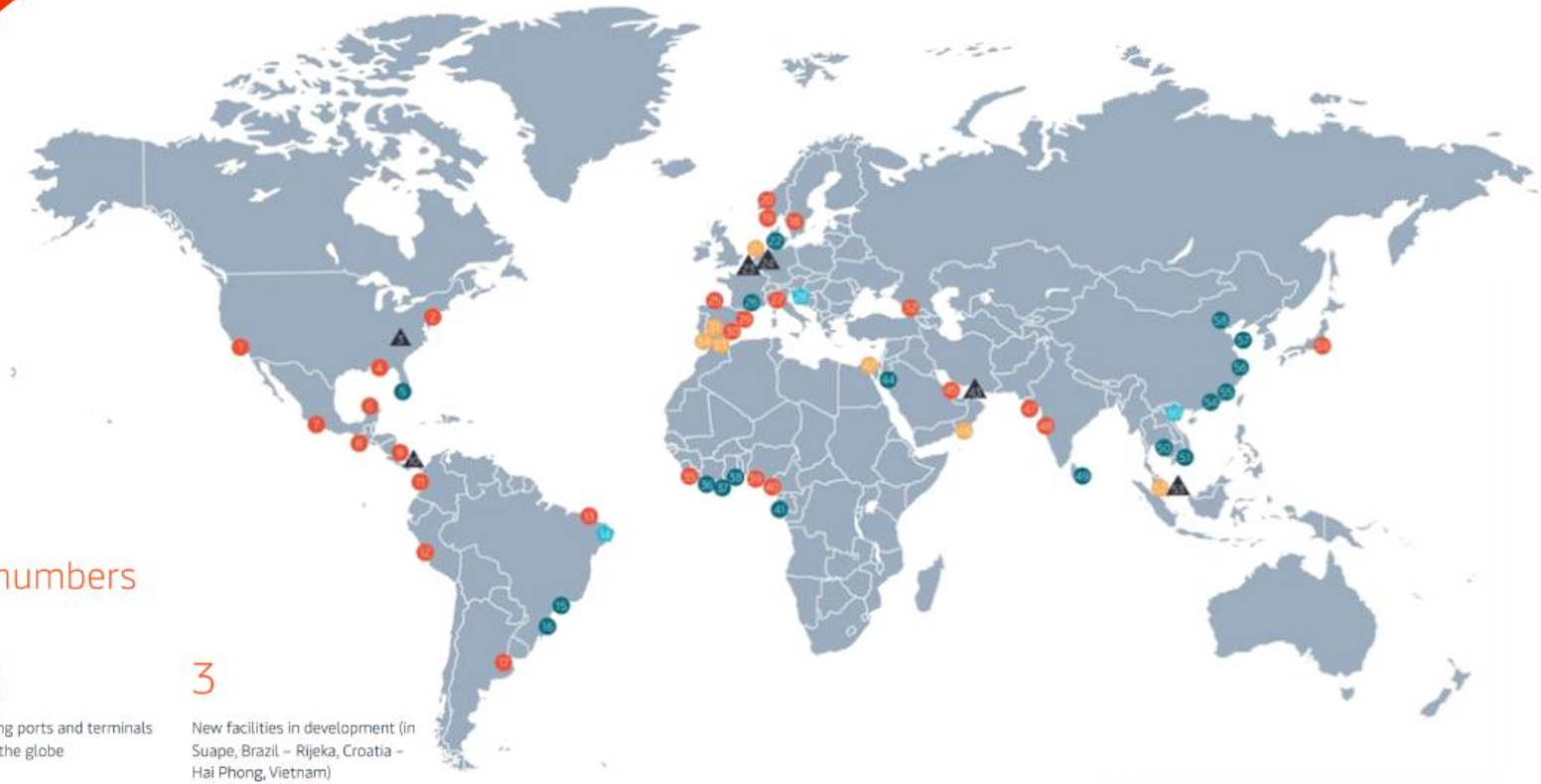


A.P. Moller – Maersk is a globally integrated container logistics company with multiple brands such as Maersk and APM Terminals that work strongly together to connect and simplify its customer's supply chains.

A leader in container shipping and ports, the company operates in 130 countries and employs roughly 80,000 people globally and close to 15,000 people in India

MAERSK

APM Terminals – Global footprint



APM Terminals in numbers

33
Countries where APM Terminals has port or terminal presence

60
Operating ports and terminals around the globe

3
New facilities in development (in Suape, Brazil – Rijeka, Croatia – Hai Phong, Vietnam)

27,000+
Vessel calls in 2023

21.7M
Moves in 2023

22,000
Employees around the globe

- Gateway terminals with majority share
- Gateway terminals with minority share
- Hub terminals
- Terminals in development
- Offices

Gateway Terminals India (GTI)

कॉनकॉर
CONCOR

74%
26%

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Lifting Global Trade

- Joint Venture between APM Terminals & CONCOR
- BOT Project for 30 years under JNPA
- License Agreement Date: 10th August 2004
- Terminal commenced operations: March 2006

'Container Terminal for Best Innovative Initiatives at JNPA in 2024-25'

Safe Workplace Award at POSH Conclave 2025

Terminal of the Year Award at Maritime and Logistics Awards 2025

GTI in 2024

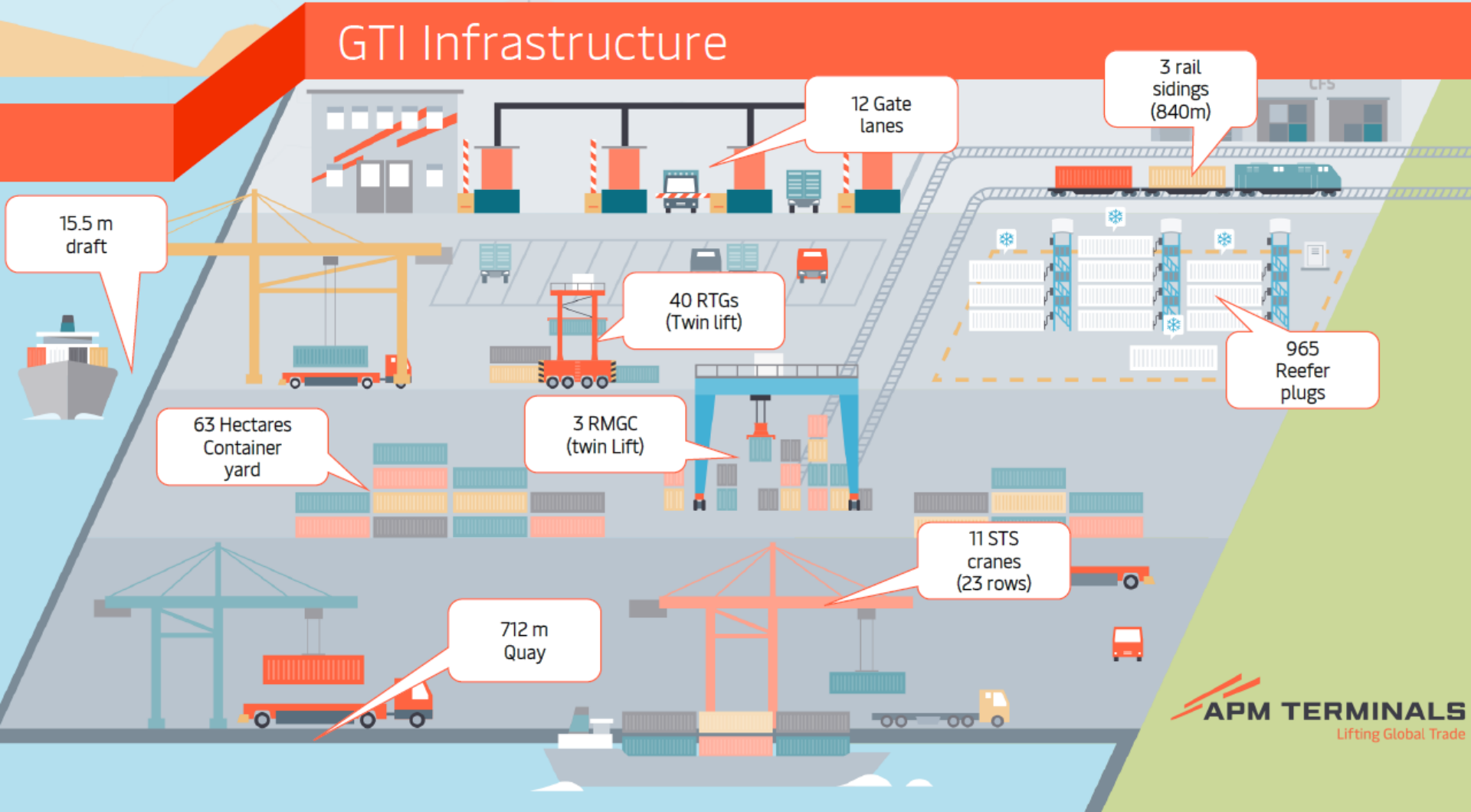
2.03 Million TEUs

1639 Rakes handled

523 Vessel calls

779416 Truck movements

GTI Infrastructure

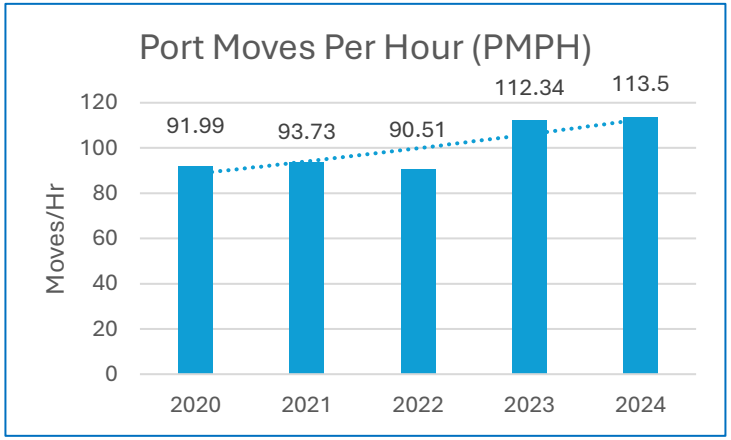


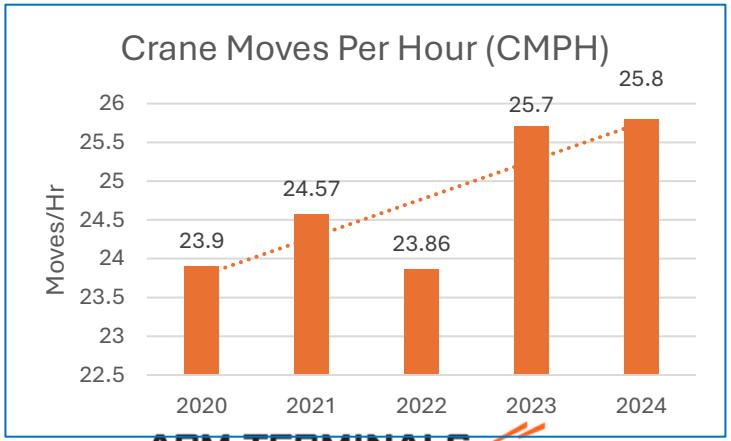
“Best in Class” Performance

- APMT Mumbai has highest crane and berth productivity at JNPA
- APMT Mumbai handles one of the highest volumes per meter Quay length globally

Global Performance Benchmanrks

	TEU per metre Quay	TEU per Quay Crane	TEU per Yard Hectare
Global	1,217	146,108	29,606
APMT Mumbai	2,809	181,818	51,282





APM TERMINALS Lifting Global Trade.

Maritime and India's Economic Outlook

Indian ports handle almost 95% of trade volumes

16th LARGEST

Maritime country in the world

$40 BILLION

Will be invested in the modernisation of ports under the Sagarmala Programme by 2030

26.3m TEU

CONTAINER VOLUMES forecast IN 2025

7%

21.7m TEU

CONTAINER VOLUMES HANDLED IN 2023

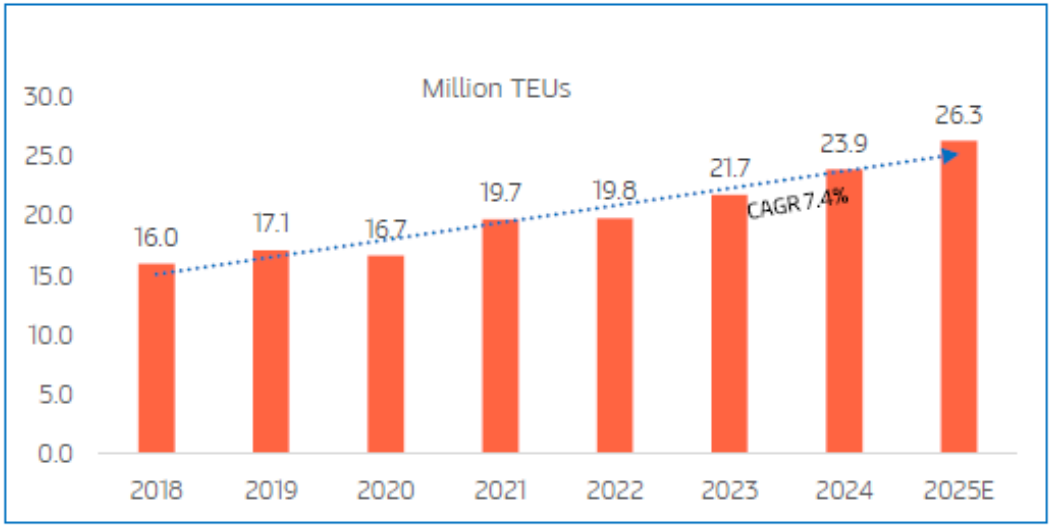
7,515 km of coastline

- India is the Second largest economy in the Asian subcontinent that has the potential to become a strongest economy in the world as a rising superpower
- To unlock this potential India has the ability to spruce up the value chains and manage these well
- Under the Sagarmala Programme, government has envisioned a total of 189 projects for modernization of ports involving an investment of Rs 1.42 trillion (US$ 22 billion) by the year 2035

Source: IBEF: Indian Ports Industry Report, September 2020

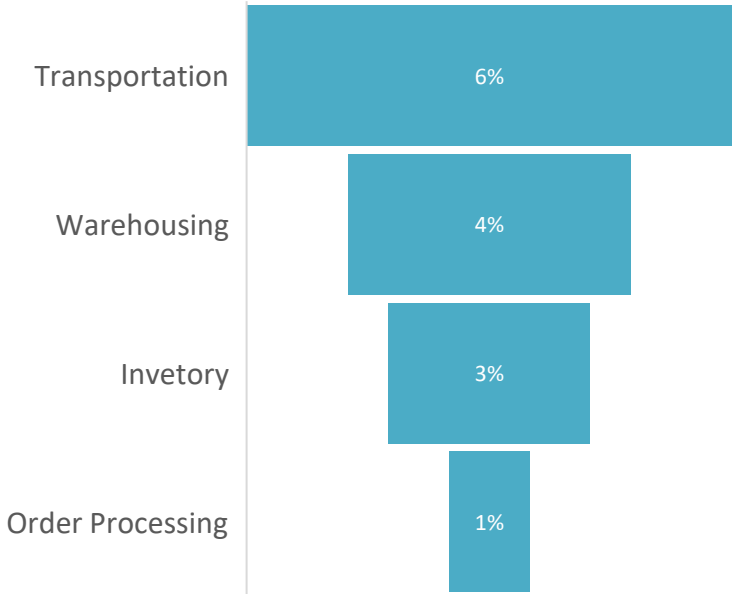
MAERSK

Indian Container EXIM Trend & Logistics Cost



- India's containerized trade growing at 7% in 2024 - 23.9 Mn TEU
- Likely to cross 26 Mn TEU in 2025
- Projected growth for next 5 years is at >7% p.a.

Indian Government aims to reduce Logistics Cost from 13% to 8% of GDP



Seamless Port Logistics is integral part of Supply Chain Management

Seamless Port Logistics

It is the endeavour to minimize the static time used in exchange of cargo from one active mode (e.g. ship) to the next (e.g. rail) by optimizing resources and integrating technology

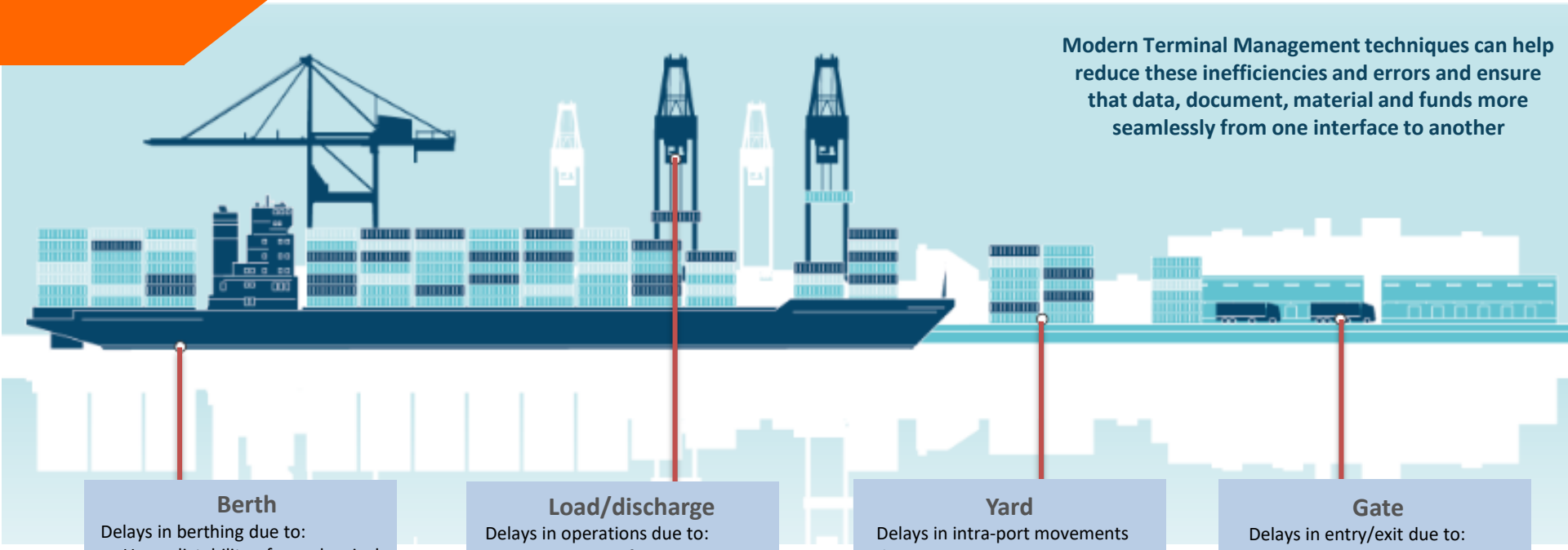
Productive Ports by

- Shorten Lead Time
- Improve Inventory Management
- Minimize waste
- Free up Capital

Expending Global Exposure

For efficient Port & Terminal Management by optimizing resources

Delays in Port: Addressing operational wastes help in unleashing maritime potential



Modern Terminal Management techniques can help reduce these inefficiencies and errors and ensure that data, document, material and funds more seamlessly from one interface to another

Berth

Delays in berthing due to:

- Unpredictability of vessel arrivals
- Documentation
- Multiple vessel movements
- Maintenance of marine equipment

Load/discharge

Delays in operations due to:

- Maintenance of cranes
- Sub-optimal discharge/loading sequence
- Poor Stowage

Yard

Delays in intra-port movements due to:

- Inefficient yard layout
- Longer lead distance
- Maintenance of RTGS

Gate

Delays in entry/exit due to:

- Congestions at gate
- Documentation
- Human intervention

Safety First, always! - Embedded risk management - Consider Fatal 5

When you act - consider Fatal 5:

- Transportation
- Suspended loads and lifting
- Stored Energy
- Working at Heights
- Control of Contractors

Risk Management Cycle to control the Fatal 5

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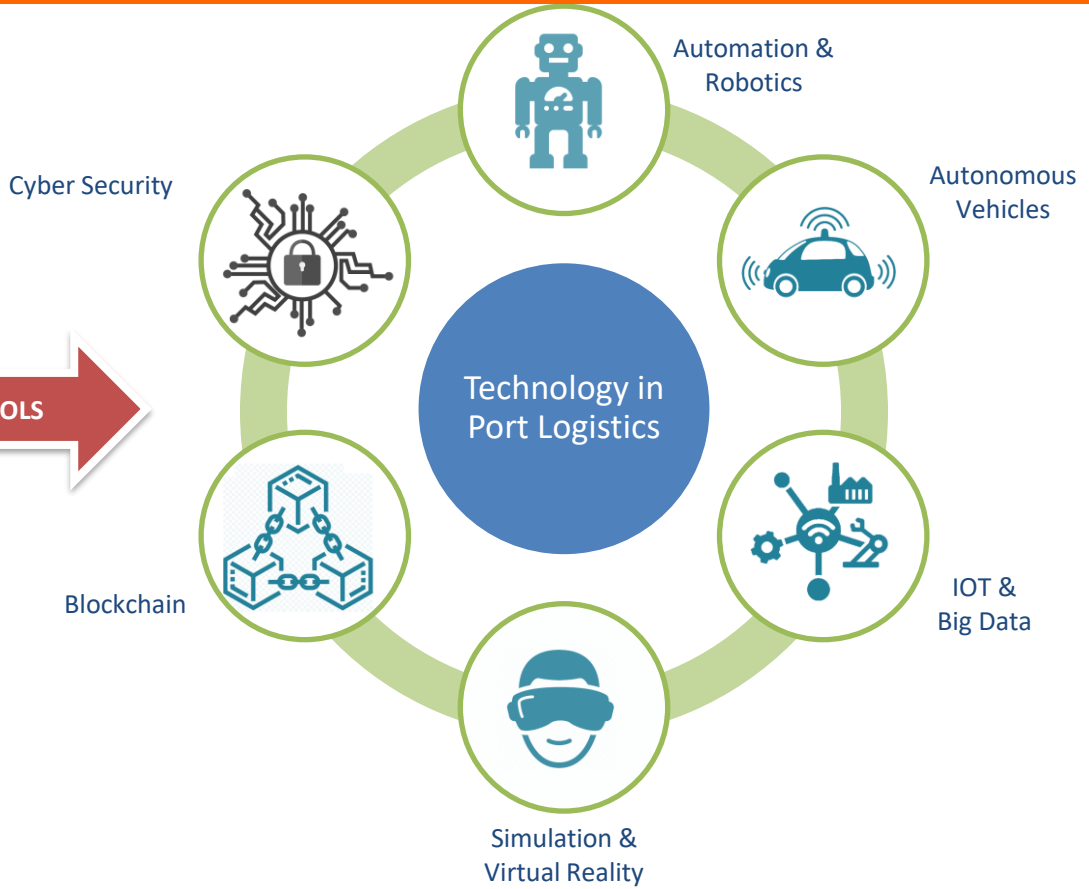
Role of Technology

Technology can help to

- ✓ Collect relevant data
- ✓ Compile and analyse data
- ✓ Prepare plans and schedules based on the data
- ✓ Increase consistency of operations
- ✓ Reduce safety incidents
- ✓ Predict maintenance needs
- ✓ Provide remote assistance
- ✓ Bring transparency in transactions
- ✓ Streamline documentation
- ✓ Learn and adapt
- ✓ *Make port logistics seamless*

TOOLS



‘Lean for All’ – Capability building for frontline employees

“Lean for All” approach - empower Frontline employees to identify and remove waste

1.  Standardized process
2.  Problem solving - Finding the root cause
3.  Data analysis
4.  Safety & Productivity Improvements - Value for our customer

450+
Lean Practitioners

1000+
Kaizens completed

1200+
Standard processes defined

10000+
Man-hours of Lean training

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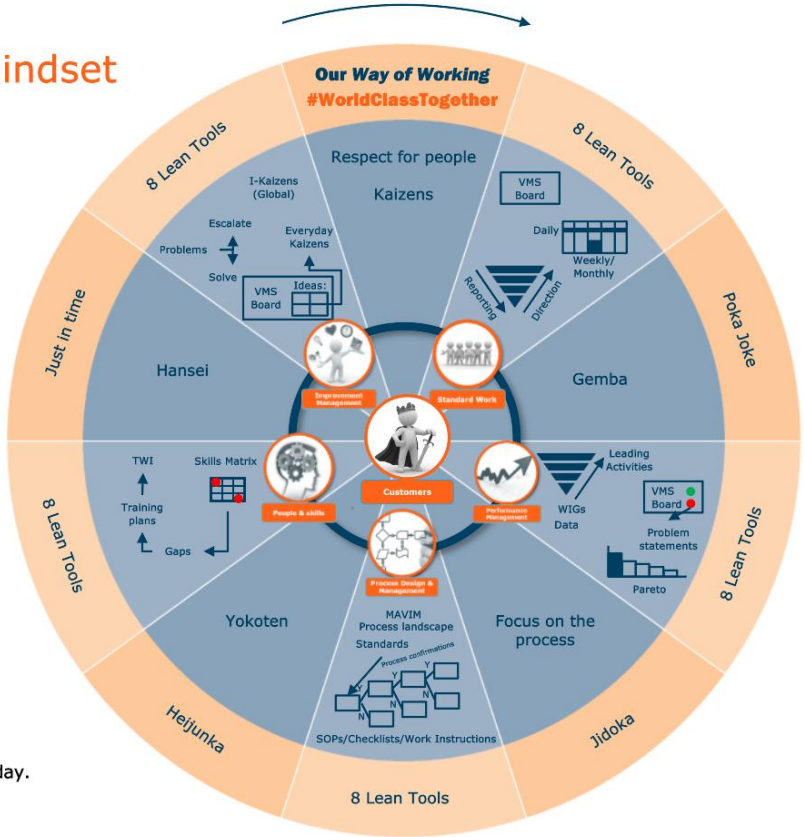
LEAN Operating System

Linking tools, mindset and behaviour



OS Elements, concepts and tools
Lean Leadership behaviour
Lean Academy tools and mindset

1. Standard Work
Every day, week, month we take timely decisions in our core meetings through collaboration.

2. Performance Management
We use one set of numbers to understand if we are winning or losing towards our customer.

3. Process Design & Management
We implement great standardised processes to be able to deliver a consistent world-class service every day.

4. People & Skills
We develop the skills of our people, because we need every brain in the game.

5. Improvement Management
We challenge and improve the way we work, together.

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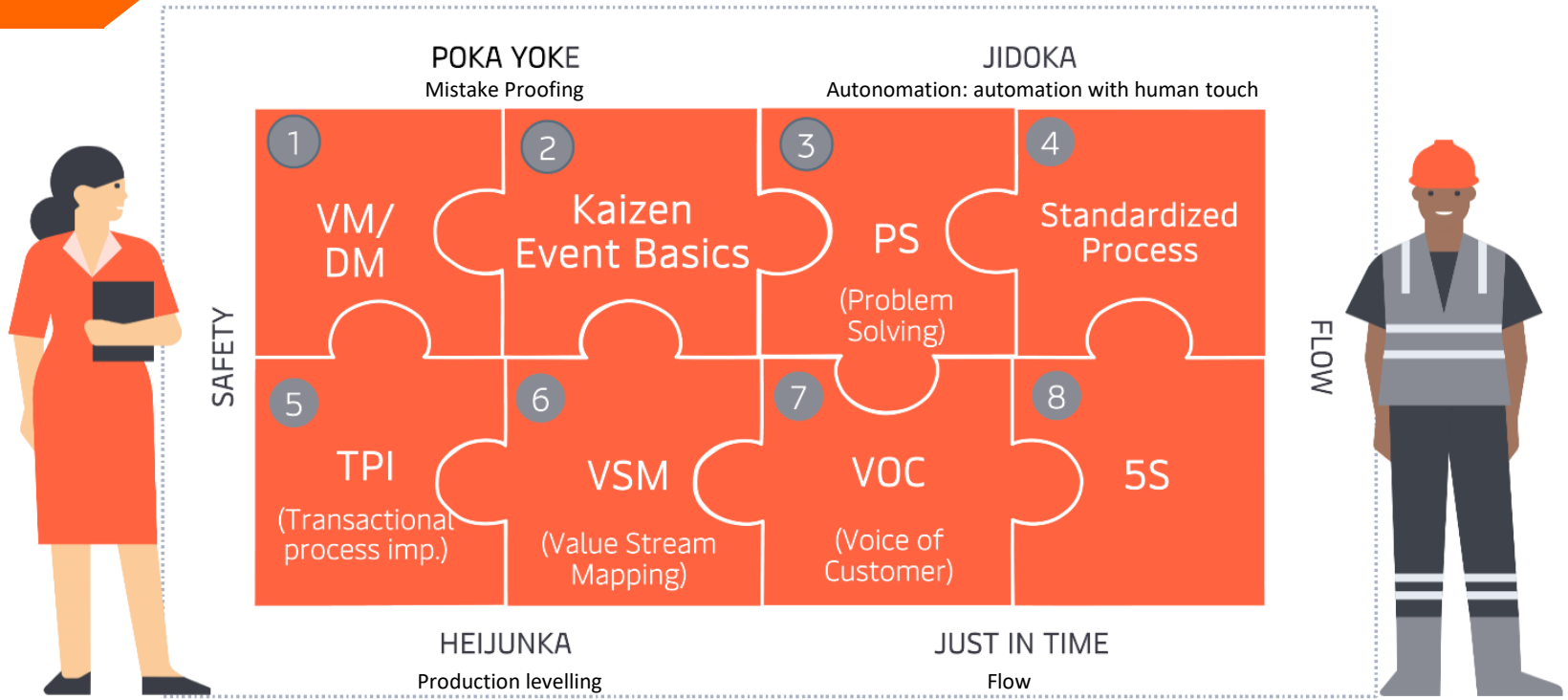
The Way We Work: APMT's 8 Fundamental Lean Tools



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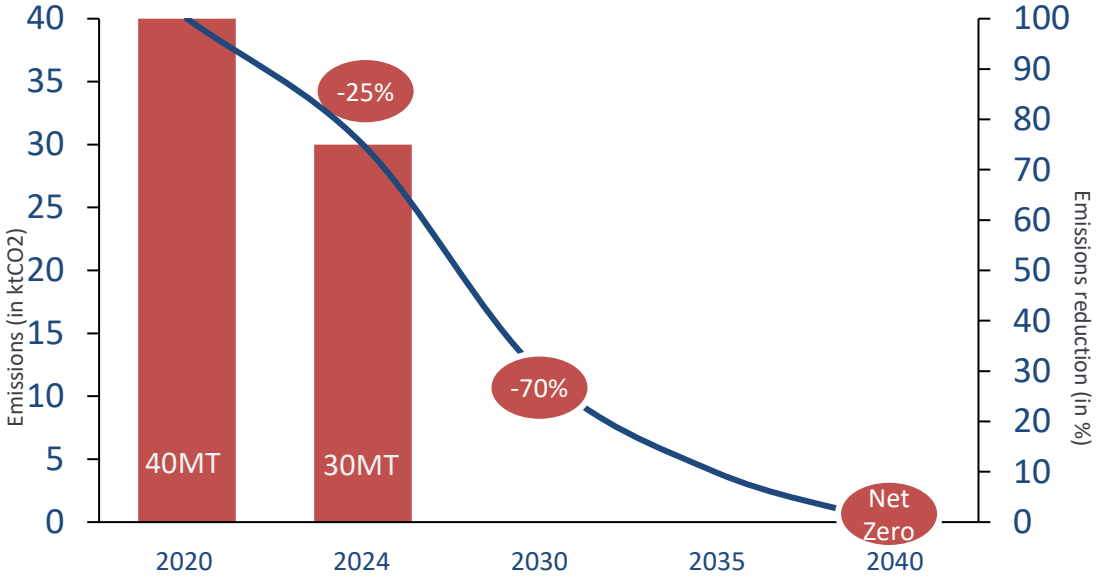
All the Way to ZERO: Maersk to have 19 methanol-powered vessels on the water by 2025

- Powered by green methanol and able to carry +16,000 TEU, ANE MÆRSK is an industry-first.
- The vessel marks the journey towards net zero Green House Gas (GHG) emissions that we embarked on in 2018
- Our target of having 25% of our container volume transported using green fuels by 2030.
- The ALBERT MÆRSK naming ceremony held at APM Terminals Mumbai in February 2025

NetZero ambitions: COP26 - Indian Targets of 30% by 2030 and 70% by 2047, whereas APMT's global ambition to become net zero by 2040

Indian PA and APMT NetZero and interim targets

Total emission (ktCO2) and emission reduction targets (%)



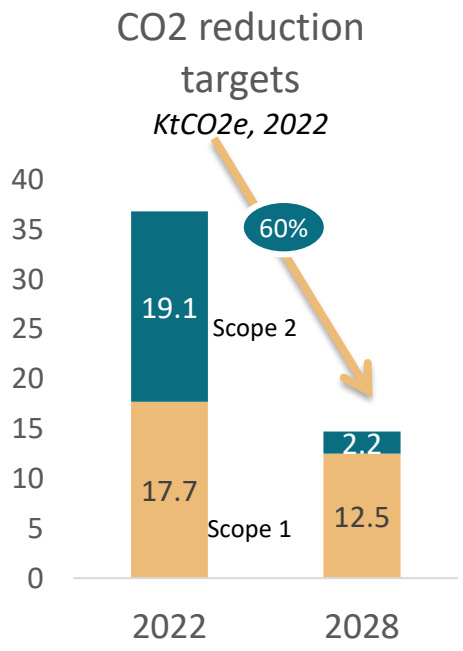
1. **Local Port Authority(JNPA):** 70% Carbon emission reduction by 2030
2. **Harit Sagar Guidelines:**
   a) 30% Carbon Emission reduction by 2030
   b) 50% Electrification of equipment by 2030
   c) 60% Renewable Energy share by 2030
3. **GTI(APMT Targets)**: 70% by 2030, Net zero by 2040

Incentives to decarbonization are available under Harit Sagar

Source: Energy and Climate Change Policy Framework 2021-2030

Harit Sagar 2023 – Green Port Guidelines : https://shipmin.gov.in/sites/default/files/Harit%20Sagar%20-%20Green%20Port%20Guidelines%20.pdf

Sustainability - Decarbonization Roadmap



Reduce

Energy optimization projects

- Reduce asset running hours
- Improve Vessel TAT
- Improve Truck TAT

Replace

Substitute fossil fuels with electricity

- Pilot for E-ITV
- ZET for Inter-terminal trucking
- Shore power supply

Decarbonise

Use of renewable energy

- Captive power plant
- Power Purchase Agreements

Target to reduce Carbon emissions from current levels of 37,000 tons/annum to less than 15,000 tons/annum by 2028

Green Port Initiatives (Scope 3): Shore Power Supply

Shore Based Power Supply

- GTI identified for pilot shore power supply project.
- JNPA to set-up the infrastructure while GTI will carry our Operations
- MoU between JNPA and GTI for supply of power to vessels alongside berth

Shore Power is a measure

(i) to improve air quality in ports and port cities by reducing emissions of air pollutants & noise and

(ii) to a lesser extent, to reduce CO2 through ships @ berth, by replacing onboard generated power from diesel auxiliaries (burning HFO/MDO) engines with electricity supplied from the shore side.

Maritime transport emits about 1 billion tonnes of CO2 annually (UNCTAD) and is responsible for about 2.5% of global green-house gasses (GHG) apart from NOx and SOx emission.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Technological Advancement
- Driving Innovation
APM TERMINALS
CMA CGM
GANGES

Technology adoption – driving innovation

Completed

Asset Digitization

Remote & centralized monitoring of equipment health performance through IOT and GPS

Auto Gate System

Man-less & Paper-less transactions at gate

Wireless Capabilities

5G, LTE capable network for better connectivity within system

Network Refresh Architecture

Strengthening Network security through integration with the Global Secure IT architecture

ERP Upgrade

Improving transaction recording with data support for automation and exception reporting

Truck Appointment System

Trucks gate-in booking slots for smooth movement at gate

Underway

AI Enabled Safety

Integrating technology to predict and prevent safety incidents

Flow Gate System

Seamless movement of trucks within yard and reduced waiting at RTG

Automated mooring systems

Enhanced Safety

Eliminating the need for manual handling of ropes, it reduces the risk including potential injuries from snap-back zones.

Increased Efficiency:

Automated systems can moor and release vessels significantly faster leading to quicker vessel turnaround times

Improved Port Productivity

efficient utilization of berths and reduced congestion in ports.

Environmental Advantages

Minimizes the use of tugboats and vessel engines reducing fuel consumption and emissions

Reduced Vessel Motion:

Dampen vessel surge and sway motions, increasing stability and facilitating loading/unloading operations

SMART Docking System | STS Crane OCR to Optimize Operations

SMART Docking System

- Increased Safety
- Improved Efficiency
- Enhanced Precision
- Data-Driven Insights
- Better Visibility
- Reduced Workload

A smart docking system in a port uses sensors, lasers, and software to provide real-time data and automated guidance to port and vessel operators, enhancing safety, efficiency, and precision during the critical process of berthing large vessels. These systems monitor a ship's distance, velocity, and angle, offering live feedback through displays and alerts to enable precise adjustments and prevent accidents.

STS Crane OCR System

Benefits of Crane OCR include:

Improved Productivity

Centralized Control

Damage Archiving

Safer work environment

LASER based Chassis Lift Prevention System (CLPS)

System Principle

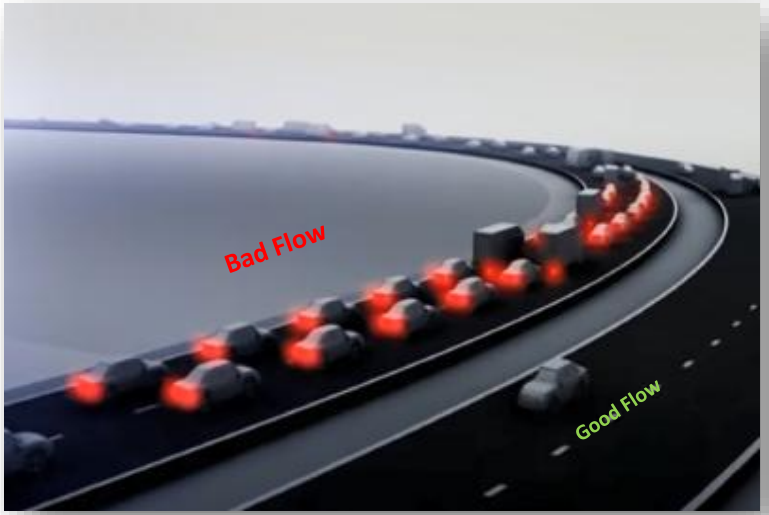
CLPS detects chassis and container loaded on the chassis by laser, real time traces the relative position of container and chassis. When chassis lifting is occurring, CLPS immediately send protection signal to PLC, forbidden spreader hoisting.

Technical Specifications

- Lift prevention distance: ≤40cm (hoist speed less than 20% rated speed)
- A variety of interfaces: Ethernet, ProfiBus , Serial port

Operational Excellence

Flow | Applies just-in-time principles using pull system instead of push



flow

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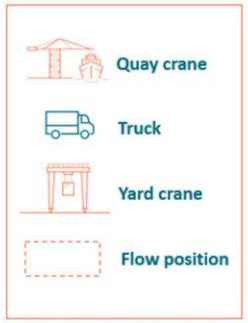
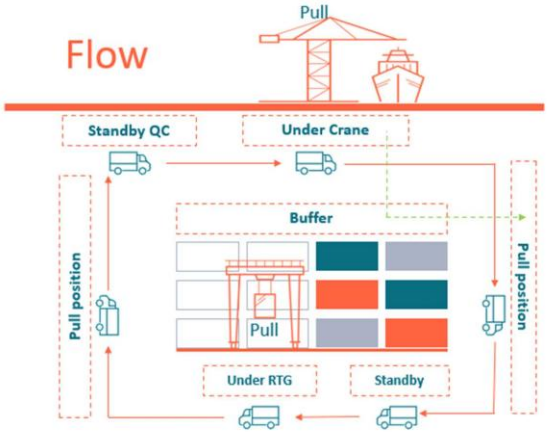
Flow | A methodology that applies just-in-time principles to our operations

What is Flow in APM Terminals?

- Applies just-in-time principles using pull system (instead of push) – ensuring the precise number of trucks arrive at the quay crane exactly when needed.
- Creates uninterrupted movement of containers through the value streams in our terminals.
- This means that containers are delivered in a timely manner, with minimal delays, bottlenecks, or disruptions.
- Flow is critical to creating value for customers and stakeholders, as it ensures that work is completed with seamless order and efficiency, without unnecessary waiting or idle time.





1 Non TAS Scenario

- **Unplanned deployment creating congestion.**
- **Delay in handling at Yard**

2 After Implementation of TAS

- **Reduce external traffic on road**
- **Can plan RTG in yard prior**
- **Better TAT without hampering vessel operation**

- **Andon** – Japanese for "lantern" or "sign"
- Key component of Jidoka or autonomation
- A system used in lean manufacturing to signal real-time problems, such as defects or equipment malfunctions
- The system uses visual/audible alerts to stop production and enable a quick response to resolve the issue and prevent recurrence

Improved Communication

Faster Problem Resolution

Enhanced Transparency

Increased Accountability

Cost & Time Savings

LEAN Practices:
Optimization – Reducing wastes

Dojo – Experiential Learning | Risk free virtual learning | Training within Industry (TWI) | Skill Development

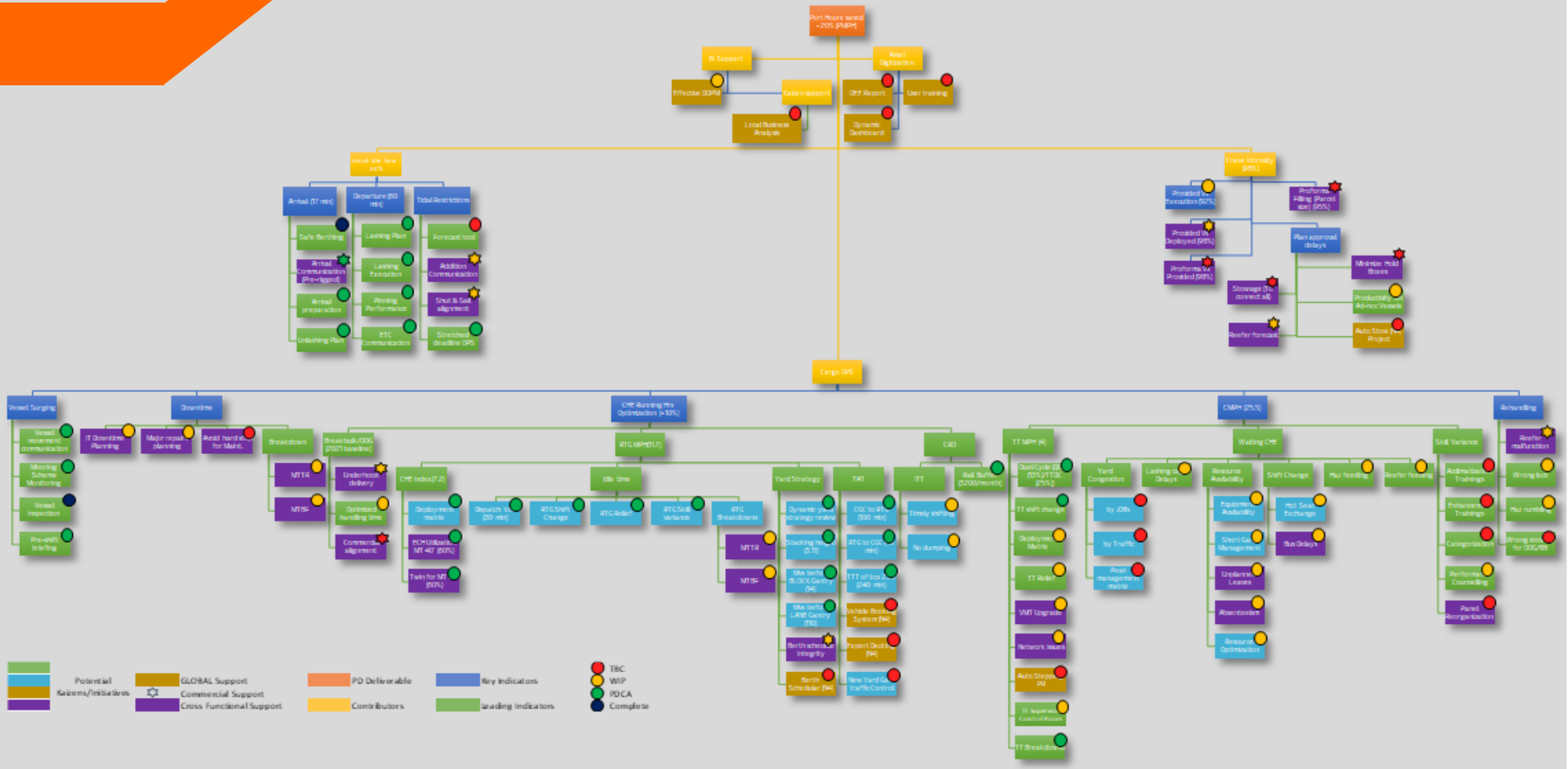
TWI|WI alignment


Lashing Dojo

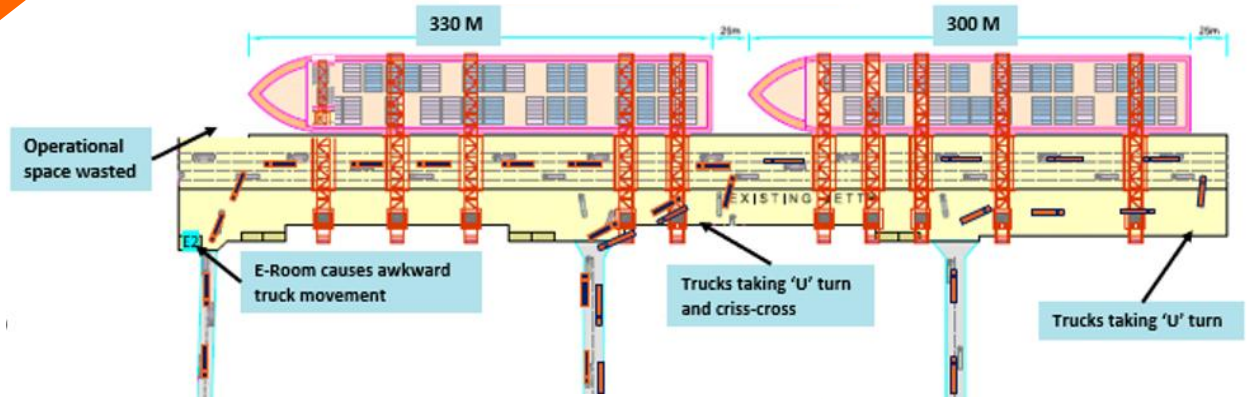

Training Kiosk

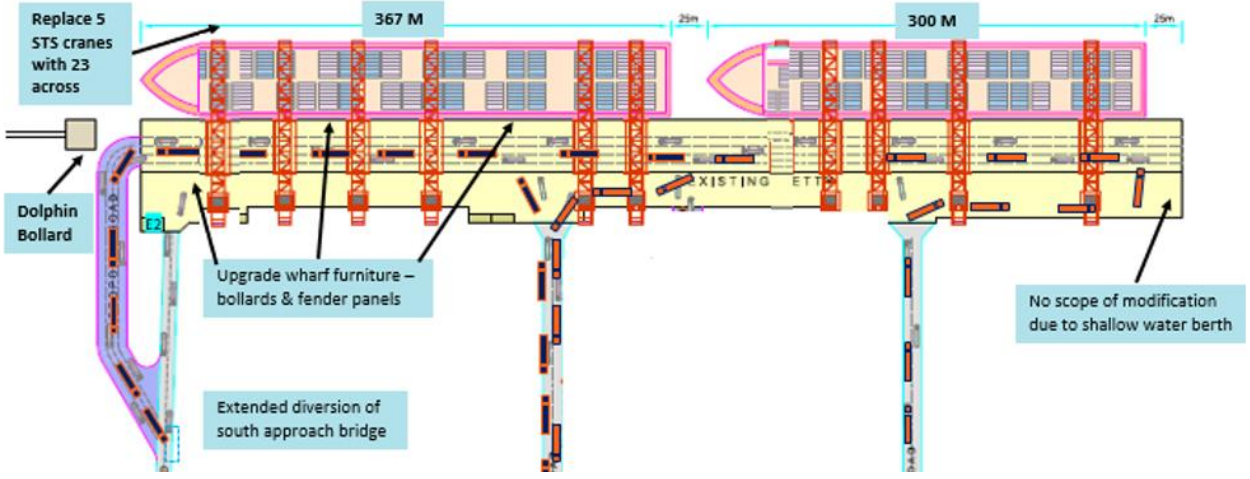
Pinning Dojo

Visual Management: Terminal KPI Tree – Kaizen opportunities



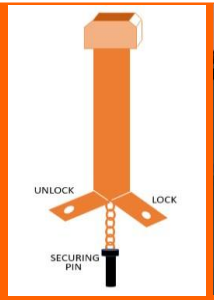
Problem Solving: Virtual expansion of berth length augmenting capacity by 10%





Road Safety: Problem Solving-Improve External Truck Driver's Safety

From:
Twist lock tends to move from 'unlocked' to 'locked' position due to vibrations. Risk of trucks lifting during unloading & container not locking in securely during loading.
Unsafe condition:
Drivers getting down from trucks to confirm twist lock is unlocked.



To:
Simple locking pin arrangement on twist lock allowing the lock to be secured in locked or unlocked position.
Safe condition:
Driver need not get down as they are confident that the twist lock is secure and cannot move due to vibration.

Thanks to this modification, I don't need to get down from the vehicle anymore. I feel safer in the terminal now!

Benefits:

- Truck lifting is prevented
- Man-machine interface caused due to driver getting down in yard is eliminated
- Improvement in truck turnaround time
- Prevents toppling of containers on road saving lives & property loss
- Significantly minimized risk on container transport and enhanced driver's safety
- Pilot modification done in 200 external trucks
- Awareness campaign with Freight Stations effected modification in another 400 trucks
- Awareness continued with trucking agencies/ Traffic police in the Road Safety Month 2024 and the Port Authority for the safety of external truck driver community

Q&A

Thank you