Session 8

Port Management & Operations
Part 1: Operations Insights

PORT DEVELOPMENT AND COMPETITIVENESS

Session 8

Port Management & Operations

Part 1: Operations Insights

Speaker: Mr. Jeffrey Lim

Self Introduction
Who am I?

Mr. Lim Kok Poy, Jeffrey

Lim Kok Poy worked in PSA Corporation Ltd for 30 years in various senior positions such as Management Services, Management Executive, and Cargo & System Consultant (PSA International).

He was reassigned as an Associate Trainer in PSA Institute 2006 till to-date where he conducted courses for divisional directors, executives and managers of overseas ports, and senior officers, supervisors and workers of PSA Singapore Terminals. He has also assisted PSA Institute in designing and developing various courses for overseas port management and local courses and was the course administrator for port logistics and operations courses conducted for Kuwait Port Authority delegates in Singapore.

He was involved in a port consultancy projects in Libya and Bangladesh ports and developed course materials for S I I Maritime Pte Ltd on Senior Managers Induction Programme and Port General Management.

Kok Poy was a certified ISO9001 Quality Management System auditor and has conducted auditing and consultancy project for various local companies and businesses.

Outline

Basic Setup of a Port Operations

- Pilots and berthing.
- Planning – ship and yard.
- Resources allocation and planning.
- Ground operations and control.
- Gate Operations.
- Port Security and Safety.
- Maintenance and equipment management.
- Computer Systems maintenance and support.
- Training and adoption of technologies.

Operations

- General Process cycle.
- Development of Container Terminal Operations through the years.
- Use of technology to improve operations flow.

Port Security and Safety

- Security and Safety concerns.
- National and global security laws and regulations.
- Why is Security and Safety issues contribute to Port Competitiveness.

Basic Setup of a Port Operations
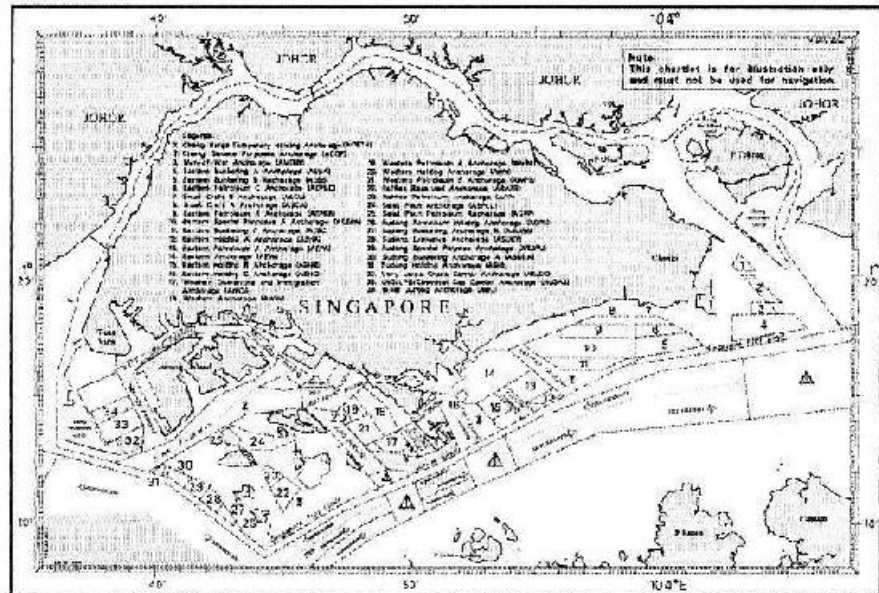
○ Pilotage and Marine Operations

Pilots and Marine Operations

- Port Master or Director of Marine - responsible for enforcing the regulations of a particular harbour or port, in order to ensure the safety of navigation, the security of the harbour and control the overall marine operations and activities.
- Pilotage Section – Superintendent of Pilotage - Control Centre, Harbour Pilot Deployment
- Tugboats and Pilot boats Deployment Section
- Berthing Section (member of Berthing Committee) and Wharfinger Section
- Vessel Traffic Information System Section
- Port Clearance Section
- Navigation Aids Section – Nautical charts, lighthouses, tidal information, etc
- Bunkering Section – Standards, licence, etc
- Harbour and Pleasure Craft Section – Licensing, Deregistration, Lay Up, Breaking Up and Disposal.

Pilots and Marine Operations

- Navigation and Pilotage

- The waters of Singapore are divided into different anchorages. This is done basically for the purpose of control and safety where certain anchorages are exclusively reserved for the use of a particular type of vessel or activity.

- With the many shipping movements within Singapore waters, a system of fairways are carefully charted to prevent a chaotic traffic situation developing. Certain demarcated for the exclusive use by vessels to proceed to one particular direction. The main emphasis is navigational safety.

Pilots and Marine Operations

- Navigation and Pilotage

- Owing to the tidal conditions, peculiarities/constraints of various berths and the natural hazards to navigation, it is necessary to enforce compulsory pilotage to assist ships manoeuvre their vessel. The compulsory pilotage is also to aim to increase safety in the port.

- Navigational aids such as buoys. lighthouses and beacons are installed in strategic locations around the port to guide the ships move safely as the various channels, wrecks, shoals or rocks are dangerous to surface navigation.

Pilots and Marine Operations

- **Berth Planning and Allocation**

- Berth planning process schedules the usage of the quay by vessels. Optimise berth utilisation and minimise waiting time to vessels. In line allocation, assigning "home terminal" to each shipping line.

- Information on in-coming vessel eg. overall length, draft, tonnage, no. of containers to be discharged etc are transferred from a shipping line to the port terminal. These information are then recorded into the berth planning system of the terminal. Must apply for berth at least 3 days ahead of the required berthing time.

- Vessel will be allocated at the dedicated berths which are based on the contract or agreement or at the common user berths.

Pilots and Marine Operations

- **Berth Planning and Allocation**

- It is desirable that vessel operations are completed within an operation time pre-specified by a mutual agreement between the corresponding ship carrier and the terminal port.

- Port terminals with a large tidal difference may have a further issue on the berthing and unberthing time for the large vessels.

- Basic set-up : Berthing Manager, Assistant Berthing Manager and Administrative staff.

Pilots and Marine Operations

- Berth Planning and Allocation

- Is the berth to be allocated to the vessel near to the loading containers?
- Is the berth to be allocated to the vessel has sufficient storage space?
- Is the berth available upon the arrival of the vessel?
- Are the required types and no. of equipment and gears available for use by the vessel?
- Are the manpower be available upon the arrival of vessel?
- Are there any restrictions to the vessel? What are they? Can the vessel work with the restrictions?
- Are all the documents be readily for vessel operations eg bay plan, crane sequence?

Basic Setup of a Port Operations
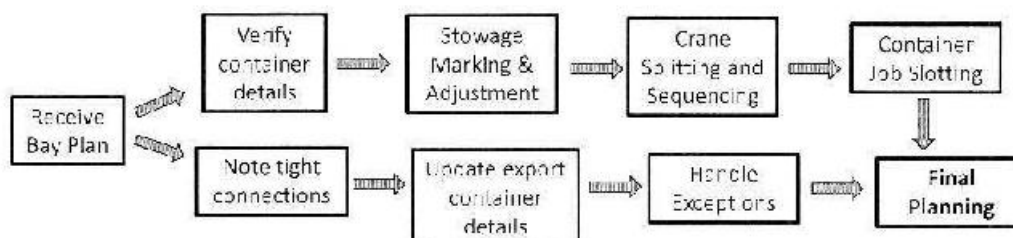○ Planning – Ship and Yard

Planning – Ship and Yard

- **Ship or Stowage Planning**

- Ship or Stowage planning is the process of specifying the containers to be discharged and loaded into slots in a ship bay.

- The information required by the Ship or Stowage Planner are:
    - Schedule list of ports that the vessel will be calling at in the order of rotation
    - Bay Plan showing the stowage of containers
    - Summary of containers with size/type/weight of containers per port that are planned to be loaded on the vessel
    - Summary of the dangerous goods, refer and OOG containers to be handled
    - List and summary of transit containers that are on board after discharge

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Planning – Ship and Yard

- **Ship or Stowage Planning**

- The Stowage Planning process is as follows:

Planning – Ship and Yard

- **Ship or Stowage Planning**

- Based on the information and details supplied the shipping line, the Ship Planner will create the Crane Sequence, Discharging List and Loading List to execute the discharging and loading operations (also known as Vessel Operations).

- Set-up:
  - Stowage or Ship Planning Manager
  - Stowage or Ship Planners
  - Assistant Planners
  - Planning Assistants

Planning – Ship and Yard

- **Yard Planning – Export Containers**

- In planning export containers, most of the terminals rely on Shipping Line/Agent's Booking Forecast for information on the no. of containers to be handled and their particulars. Containers are then segregated according to:
  - Size
  - Types
  - Weight class
  - Ports of call
  - Special requirements
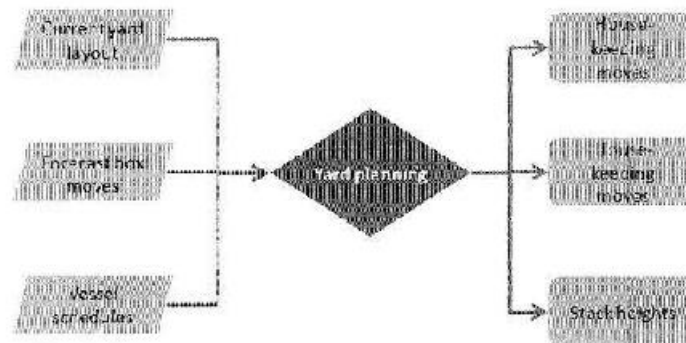
Planning – Ship and Yard

- **Yard Planning - Import Containers**

- Normally these containers are classified under 3 types before assigning space for them.
  - Full contain load (FCL)
  - Less container load (LCL)
  - Transhipment

- The import containers are assigned space separately according to their status. Within each status the containers are segregated by sizes.

Planning – Ship and Yard

- **Yard Planning**

- Macro Yard Planning
- Plan space 7-5 days ahead of vessel's arrival
- Derive broad yard template
- Decide no. and size of clusters
- Consolidate containers to make space and optimise utilisation of yard space

- Micro Yard Planning
- Assign containers into clusters allocated
- Ensure that the containers are stacked according to PSCW and second carrier
- Take corrective actions where necessary eg resolve contention, divert containers

Planning – Ship and Yard

- **Yard Planning Process**

Planning – Ship and Yard

- **Yard Planning**

- **Set-up:**
  - Yard Planning Manager
  - Yard Planners
  - Assistant Planners
 - Planning Assistants

Planning – Ship and Yard

- **Yard Planning**

- Yard performance indicators
- Yard utilisation
  - TEU/Ground slot
  - % containers lying vs capacoity
- Dwell time
  - Length of stay of container
- Service level
  - Time taken by yard crane operator to serve a haulier
- Volume of yard shifting
- Yard crane productivity

Basic Setup of a Port Operations

○ Resource Allocation and Planning

Resources allocation and planning

- Resource allocation and planning play a very important role to attain high levels of productivity, performance and quality services in port operations.

- Before the arrival of vessel it is essential to make a provisional plan for various categories of manpower and types of equipment.

- The planning and allocation of resources also depends on the availability of information such as volume and types of containers to be handled, stowage plan, and date & time of berthing.
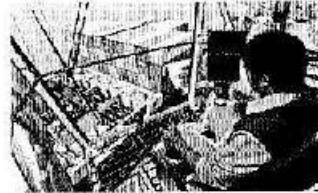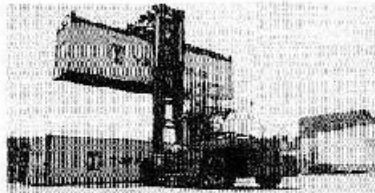
Resources allocation and planning

- **8-hour Shift Roster**
  - 0700 – 1500 hours
  - 1500 – 2300 hours
  - 2300 – 0700 hours
  - F = Flexible Shift ie. 1st shift or 2nd shift
  - Roster Pattern – 1133022F

- **12-hour Shift Roster**
  - 0730 – 1930 hours
  - 1930 – 0700 hours
  - F – Flexible Shift ie. Day or Night duty
  - R - Reserve
  - Roster Pattern – DFNOOOR

Resources allocation and planning

- **Staff Unavailability**
  - Vacation leave
  - Medical leave
  - Special leave (Wedding, compensate, etc)
  - National service reservist training

- **Managing Staff on public holidays and festivals**
  - Not all can be released for vacation leave
  - Need to have a leave quota system to determine the no. of staff to be granted vacation leave.

Resources allocation and planning

- **Managing Equipment and Machines**
  - No. & types of equipment/machines available
  - No. & types of equipment/machines on breakdown repairs
  - No. & types of equipment/machines on scheduled servicing and maintenance

- **Deployment Process**
  - Establish the staff available and deploy them accordingly such as QC operators, Yard crane operators, PM drivers, lashing specialists, wharf operations supervisors, etc.
  - Request for contractor to supply additional manpower is necessary.
  - Monitor actual deployment and make adjustment whenever necessary.

Resources allocation and planning

- Problem facing resource deployment
  - Delays in arrivals and departures of vessels.
  - Delays due to cell guide damaged, ship crane breakdown, etc
  - Seasonal demands
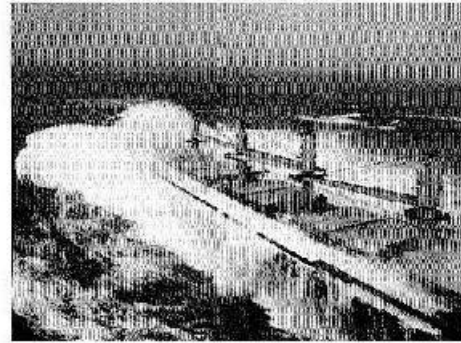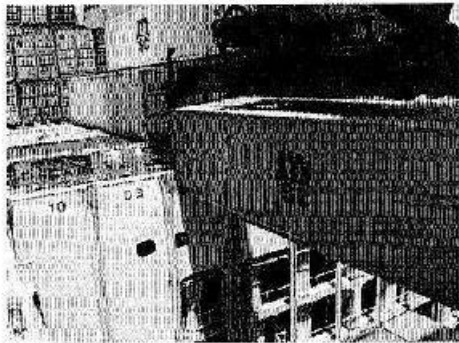
Basic Setup of a Port Operations

o Ground Operations and Control

Ground operations and control

- With the increasing volume of containers in a container terminal, computerisation of records and automation of cranes, the ground operations and control are getting more complex. Control Centres may need to be set up in the container terminals to manage the ground operations and control.

- The roles of a Control Centre are:
  - Execute discharging and loading operations as planned by the stowage planner.
  - Monitor crane sequencing and movement to avoid crane clash.
  - Monitor vessel and shore crane performance as operations progress.
  - Solve problems arising from vessel operations or ship-to-shore (STS) operations.
  - Monitor and control yard operations to avoid crane clash and congestion.
  - Monitor resource deployment and increase resources when necessary.
  - Ensure safe and proper discharging and loading operations.
  - Achieve the planned departure time (PDT) of vessels.

Ground operations and control

- Set-up of Control Centres:

  - Various units are set up to manage different group of resources – for example, shore cranes, yard cranes, prime movers, lashing specialists, etc. There is a overall Controller in each shift to manage the Control Centre. He will be assisted by Asst. Controllers or Senior Operations Supervisors to look after each group of resources.

  - Another way various units where each unit looks after vessel operations, yard operations, transfer of containers from vessels to shore and to yard. There is an overall Controller in each shift to manage the Control Centre. He will be assisted by Asst. Controllers or Senior Operations Supervisors to look after each areas at Vessel Operations. Yard Operations, etc.
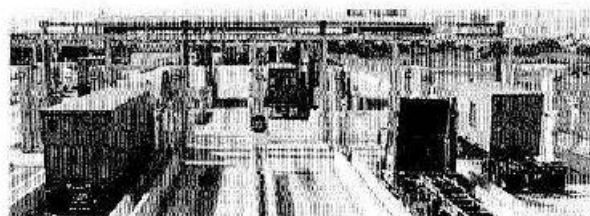
Ground operations and control
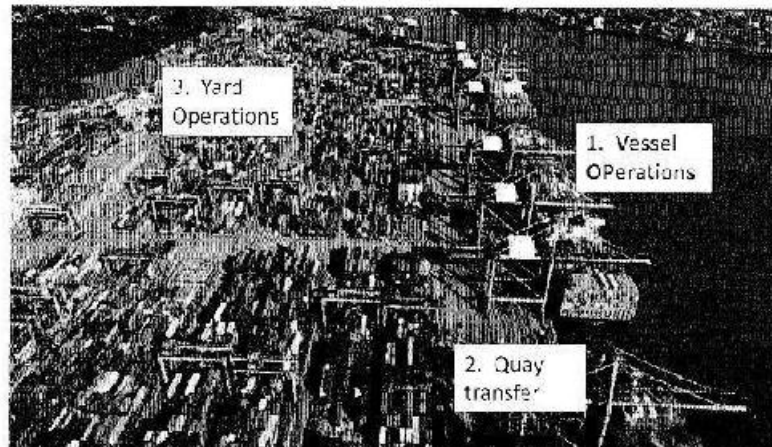
3 main ground operations

Basic Setup of a Port Operations

o Gate Operations

Gate operations

- Staffing – Operation Manager, Operations Supervisor, Operations Assistants
- No. of IN and OUT gates
- No. of gate lanes at each gate
- Gate system and procedures
- Opening hours
- Holding areas
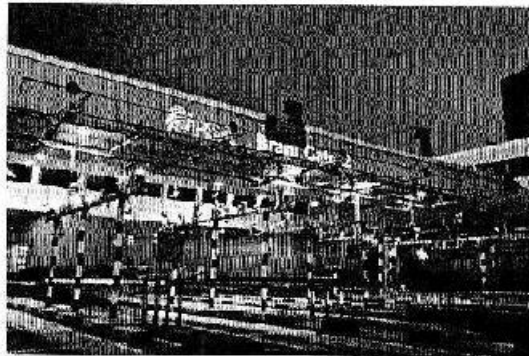
Gate operations (cont'd)

- Congestion at container terminal gates is a recurring topic that is being mentioned frequently at large import/export terminals globally.

- The reasons for such congestion are numerous, ranging from volume peaks due to large container vessels, failure of equipment or IT system, change in work procedures or simply the increase in volume due to seasonal peaks or general growth.

- The most common approaches to address the problem are longer opening hours, more gate lanes, appointment system, OCR system and more staff.

Gate operations (cont'd)

- **Flow-Through Gate**

- PSA Flow-Through Gate, introduced in 1997, is a fully automated system that identifies container trucks and gives drivers instructions within 25 seconds.

- It handles an average traffic flow of 700 trucks per peak hour, and 9,000 trucks per day.

- After a manifest is submitted through PORTNET®, the fully automated and paperless process at the gate clears trucks entering the port within 25 seconds, with the following steps:

- The truck arrives at the in-gate. The driver taps his PSA pass on the Self-Service Terminal (SST) and verifies his identity through a fingerprint biometric reader or keys in his Personal Identification Number (PIN).

- The truck is weighed at the weighbridge.

- The gate picks up the truck's identity from the In-vehicle Unit (IU) at the dashboard.

Gate operations (cont'd)

- **Flow-Through Gate** (cont'd)

- The gate's Container Number Recognition System (CNRS) captures the container number via Closed-Circuit Television (CCTV) cameras.

- The system checks the driver's identity, truck's identity, weight and the container number against the manifest and clears the truck for entry.

- The system sends a message to the driver's mobile phone or Mobile Data Terminal (MDT) on the exact position in the yard where the container will be stacked.

- In 1999, the Flow-Through Gate System was conferred an Innovation Award at the 11th UK Seatrade Awards for its contribution to the port's excellence.

Basic Setup of a Port Operations

○ Port Security and Safety

Port Terminal Security and Safety

- **Terminal Security Philosophy**

    - To detect and deter.
    - First step towards ability to provide adequate warning is security awareness.
    - One must maintain vigilance and be observant for abnormalities.
    - CARP – **Consider Always** and **Remember** that the ship/port facility is open to risks and there are **Perpetrators** lurking around.

Port Terminal Security and Safety

- **TSSD Role and Functions (Terminal Security and Safety Department)**

    - Outsource of PSA Police to auxiliary Aetos Security Management, a private armed guards entity.

    - TSSD was organised into TSD (Terminal Security Department) and SHD (Safety & Health Department) .

Port Terminal Security and Safety
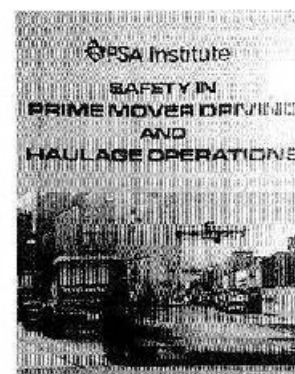
Safety courses provided to port users

Life Cycle Costing in Evaluation of Equipment Purchases
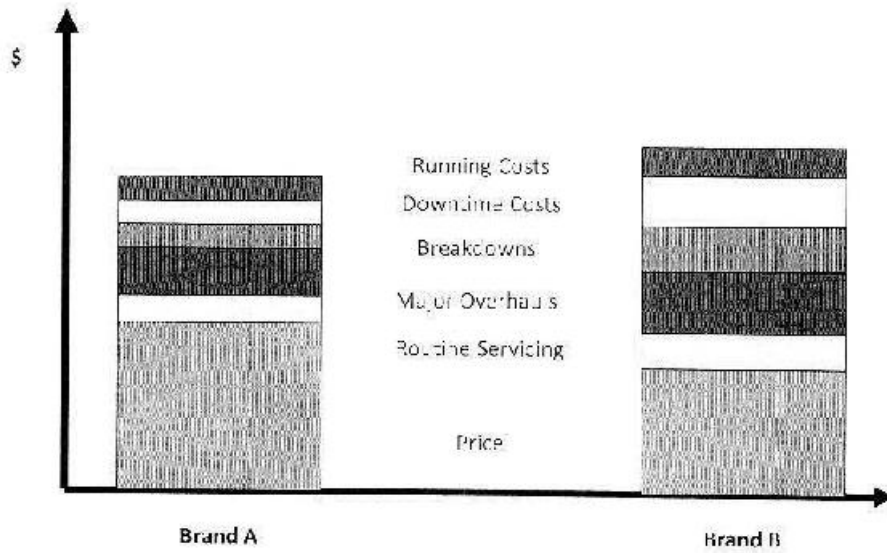
Maintenance Cycle of Equipment
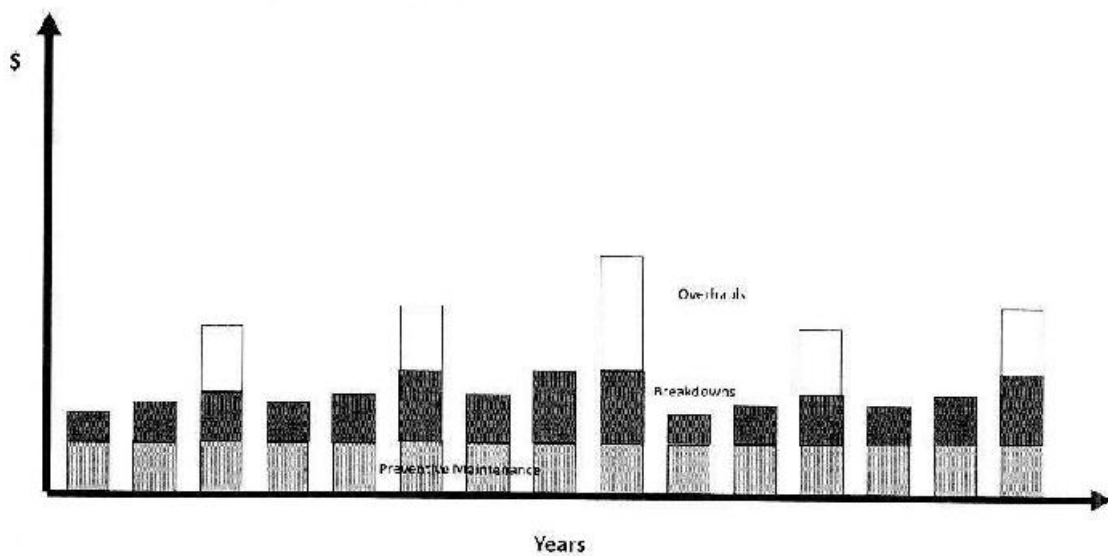
Port Terminal Security and Safety

- PSA Safety Philosophy

1. All accidents can be prevented.
2. Safety is everyone's responsibility.
3. We must be proactive in improving safety.
4. Working safely is a condition of employment.
5. We can work safely and productively at the same time.
6. We must train and equip people to work safely.

THINK SAFETY! WORK SAFELY!

SAFETY IS EVERYONE'S RESPONSIBILITY

Basic Setup of a Port Operations

o Maintenance and Equipment Management

Maintenance and equipment management

- Even if a port terminal is running optimally, the services and maintenance of container handling equipment still need proper attention. It should not be neglected. It is an ideal situation where all the equipment is able to operate faultlessly so that it does not become a constraint on the performance of the terminal. It will also lengthen the economic life of the equipment.

- The primary goal of maintenance is to avoid or mitigate the consequences of failure of equipment. This may be by preventing the failure before it actually occurs by the planned preventive maintenance programme.

Maintenance and equipment management

Preventive Maintenance

- Testing, adjusting and replacing parts
- Cleaning, greasing and lubricating
- Change wire rope, oil
- Minor modification
- Refurbishment

Corrective Maintenance

- Identify and repair breakdown
- Rectify component failures
- Repair damages due to accidents
- Modification
- Overhaul of equipment
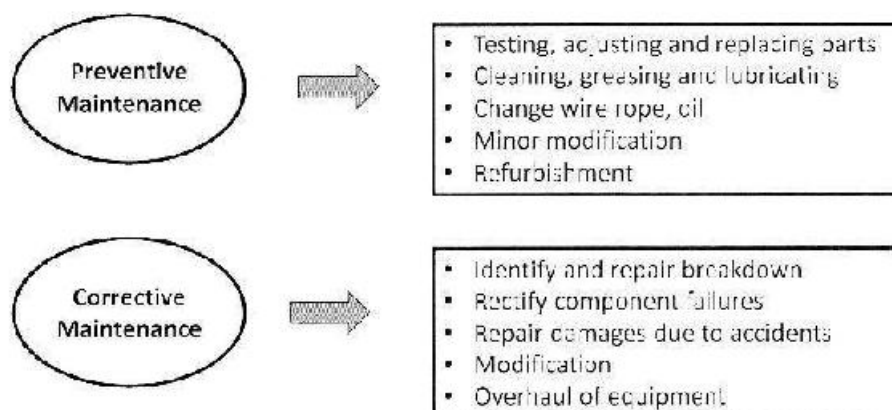
Maintenance and equipment management

- **Preventive maintenance** includes testing, measurements, adjustments, parts replacement and cleaning performed specifically to prevent faults from occurring. Preventive maintenance tends to follow planned guidelines from time-to-time to prevent equipment breakdown. It is a regular and routine action taken on equipment.

- **Corrective maintenance** includes identifying, isolating and rectifying a equipment fault or breakdown and restoring it to an operational condition within the tolerances or limits established for operations.

Maintenance and equipment management

- Equipment Management System
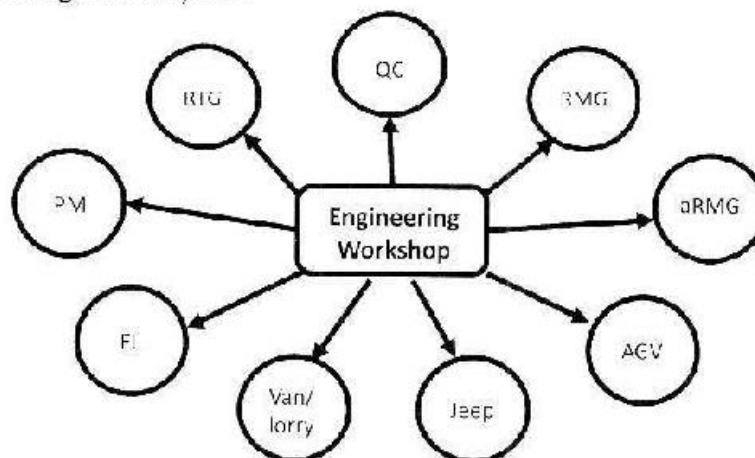
Maintenance and equipment management

- Equipment Management System

  - Maintain and carry out maintenance programmes as planned
  - Equipment availability
  - Low operating costs
  - Proper maintenance records of all equipment
  - Equipment replacement programme
  - Planning and scheduling of maintenance programmes
  - Inventory system and records
  - Job records
  - Equipment history
  - Cost and budget control

Basic Setup of a Port Operations

○ Computer Systems Maintenance and Support

Computer Systems maintenance and support

- PSA computer systems are maintained by its own Information Technology (IT) Division. The systems are connected to various customers and government departments to enable business transactions done in real time.
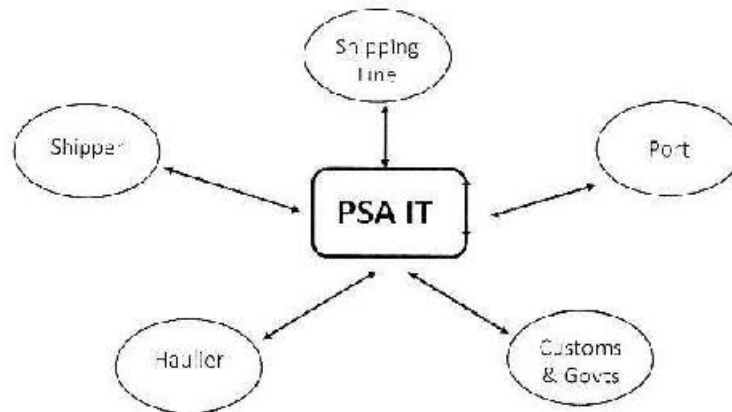
Computer Systems maintenance and support

- The communication is done via Single Portal with
  - Single lodgement
  - Data validated
  - Security built-in
  - Biz intelligence
  - User templates.

Computer Systems maintenance and support

- PSA IT maintains and supports the following services:

  - Requisition for berths and pilotage
  - Submission of bay plans, stowage instructions for stowage planning
  - Submission of shipping notes and delivery orders
  - Enquiry on berthing schedules
  - Enquiry on container status and location
  - Entry to PSA In-gates
  - Linkage to MPA system eg Arrival declaration, Port clearance, etc
  - Linkage to Customs and Trade Department
  - Billing of container handling charges and other charges

Basic Setup of a Port Operations
○ Training and Adoption of Technologies

Training and adoption of technologies

- Bringing new technologies to a port terminal will provide several benefits such as a) increase productivity and performance, b) improve work safety c) provide better customer services and d) reduce cost. This will enhance the port 's competitiveness.

- However getting every staff on board to adopt the new technologies with training is often a challenge. There are fears and resistance from the staff. There are always some staff who have their routines for years and they just do not want to change. Hence, in choosing for a new technology one should look at its functionality and user-friendliness. Technologies that require several days of training and going through hefty user manuals will encounter with staff resentment.

Training and adoption of technologies
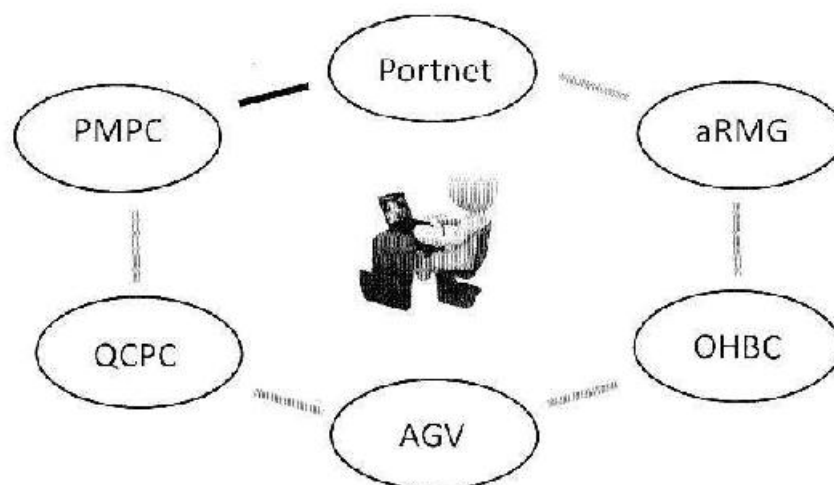
Training and adoption of technologies

- Before implementation, get the staff or team to do trails, get feedback from them and learn from that before you take the jump. Is the new system more cumbersome and time consuming.

- Once the staff begin to use the technology regularly, draw attention to the positive impact. Get these positive impact and publicising it to build a case for change. With the successful roll out, use the leverage of the users to communicate and disseminate the message.

- Rewarding the staff who adopted the new technology is effective in influencing other staff in adopting it in terms of financial incentives.

Training and adoption of technologies

- **Principles to Remember - DO**

- Win hearts and minds by emphasizing how the new technology benefits the port terminal and makes the staff achieve a safer workplace and better life.

- Encourage adoption by rewarding staff in ways that are most meaningful to them. A tea party may be organised in handing out the rewards.

- Build the new technology into the routines of the daily work as soon as possible.
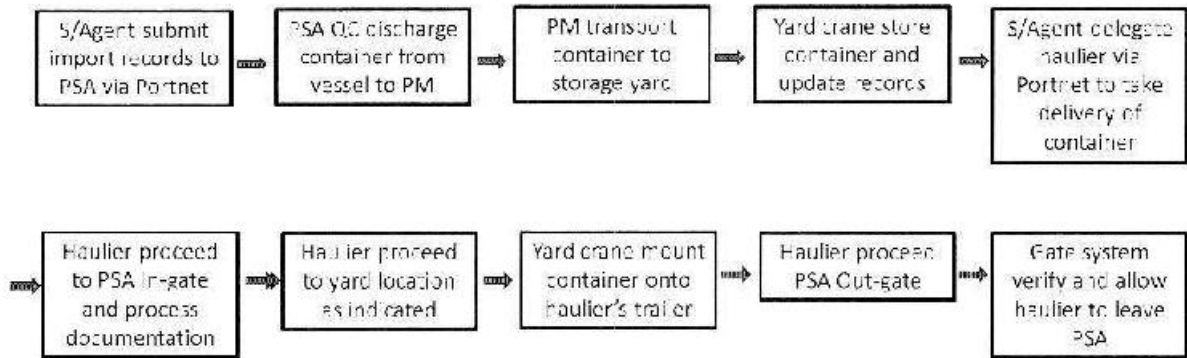
Training and adoption of technologies

- **Principles to Remember - DON'T**

- Implement a technology that is more complicated than it needs to be.

- Overlook the importance of getting the most influential staff on board early in the process.

- Punish staff who do not use the technology or make mistake in their work in the new technology,

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Operations

General Process cycle

- Import Process

Flow diagram (top row):

S/Agent submit import records to PSA via Portnet → PSA QC discharge container from vessel to PM → PM transport container to storage yard → Yard crane store container and update records → S/Agent delegate haulier via Portnet to take delivery of container

Flow diagram (bottom row):

Haulier proceed to PSA In-gate and process documentation → Haulier proceed to yard location as indicated → Yard crane mount container onto haulier's trailer → Haulier proceed PSA Out-gate → Gate system verify and allow haulier to leave PSA

General Process cycle

- Export Process

Flow diagram (top row):

S/Agent submit export records to PSA via Portnet → S/Agent appoint haulier via Portnet to send container to PSA → Haulier proceed to PSA In-gate and process documentation → Haulier take note of storage location as advised by Gate system → Haulier proceed to yard location

Flow diagram (bottom row):

Yard crane verify container records and off load container → Haulier proceed to Out gate and leave the port → Yard crane mount container onto PM when vessel arrived → PM transport container to QC for loading → QC load container on vessel

30

General Process cycle

- Look out for Processes with:

  - Bottlenecks or congestion
  - High waiting time
  - Complicated documentation procedures
  - Documentation creating high mistakes or errors
  - Areas take too much time to act
  - Too many customers complaints
  - Poor performance
  - Work accidents
  - Involving too many staff
  - Manual work which can be replaced with computerisation or automation.
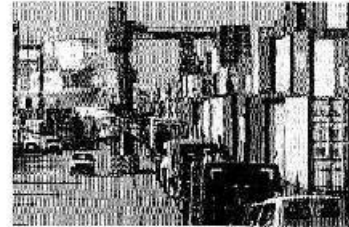
Development of Container Terminal operations

- On a typical day, 60 vessels of different sizes call at PSA terminals. Although a high number of them arrive out of schedule, the berth planning system allows most of them to be berthed on arrival.

- Planning begins 72 hours before the ship arrives, when the shipping line applies for a berth and sends ship stowage and connection instructions to PSA Singapore through PORTNET®.

- Once berthed. the quay cranes unload boxes destined for other ports and load boxes brought in by other vessels.

- The prime mover moves off with the containers to the yard. There, the yard cranes lift containers from prime movers and stack them in the yard. The sequence is reversed for delivery out of the yard to a connecting vessel.

Development of Container Terminal operations

Development of Container Terminal operations

- PSA Singapore's extensive connectivity and staggering volumes are supported by its IT backbone - Computer Integrated Terminal Operations System (CITOS®). Developed in 1988, CITOS® is an Enterprise Resource Planning system that coordinates and integrates every asset from prime movers, yard cranes, quay cranes to containers and drivers.

- With CITOS®, PSA is able to manage its equipment and people seamlessly, flexibly and in real-time especially in the operations as follows:
  - Berthing System
  - Ship Planning System
  - Yard Planning System
  - Resource Allocation System
  - Flow-through gate
  - Reefer monitoring

Development of Container Terminal operations

CITOS^R
COMPUTER INTEGRATED
TERMINAL OPERATIONS SYSTEM
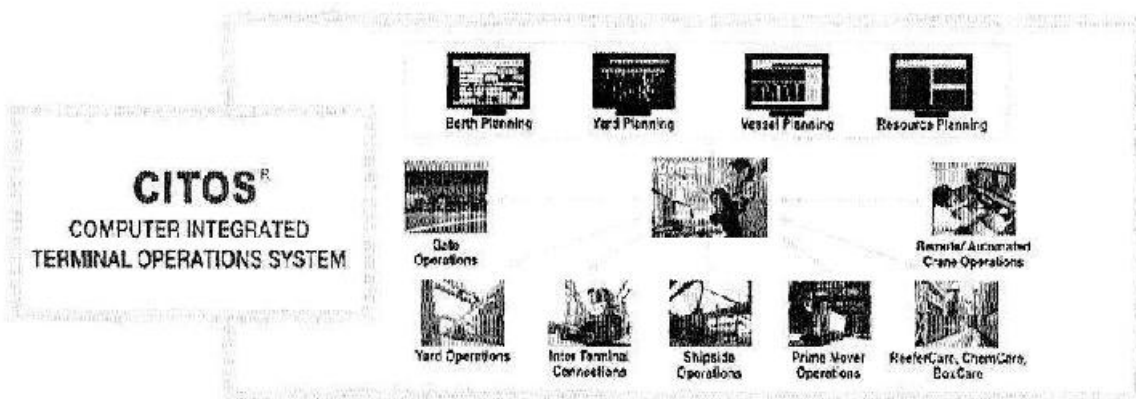
Use of technology to improve operations flow

- Remote Crane Operations & Control

- The RCOC (Remote Crane Operations & Control) system, introduced in 2000, supports the running of Remote Yard Operations for Pasir Panjang Terminal.

- It enables PSA Singapore to break away from the conventional yard operations where every yard crane is operated by an operator. The operator only handles the mount or offload of container at the chassis lane. The rest of the action is fully automated by the Overhead Bridge Cranes (OHBC). With RCOC, a 6-fold increase in productivity is achieved.

Use of technology to improve operations flow

SYSTEM

OVERHEAD
BRIDGE CRANE

REMOTE CRANE
SPECIALIST
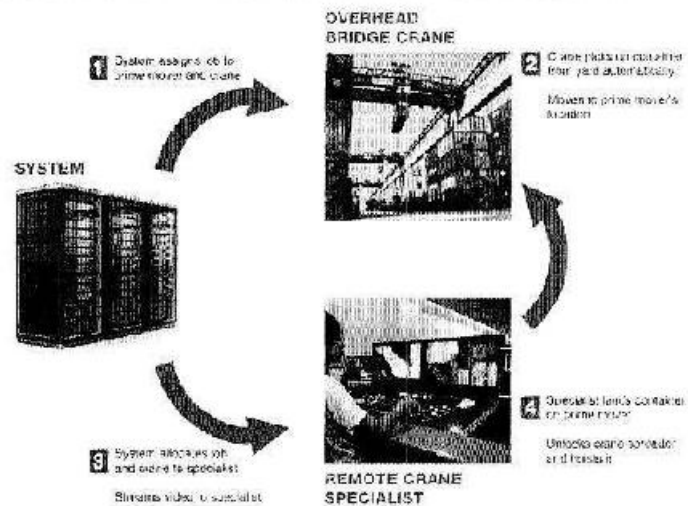
Use of technology to improve operations flow

- RCOC comprises of a suite of system applications that have the following capabilities:

  - Built-in intelligence that optimizes the jobs to be executed and the deployment of Overhead Bridge Cranes and prime movers.
  - Real-time monitoring and control of the remote operations
  - Real-time live video and data streaming of images from the OHBC cameras and data signals exchange between the OHBC and the operator's consoles to achieve similar quality of service as if the operators are physically on the OHBC executing the jobs.
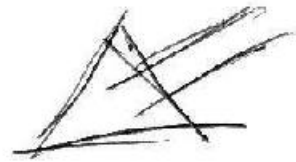
Port Security and Safety

Security and Safety Concerns

- Safety Management in PSA
  - Structure of Legislations

Pyramid diagram (top to bottom):
- Constitutions
- Acts
- Subsidiary Legislations
- Code of Practices & Singapore Standards
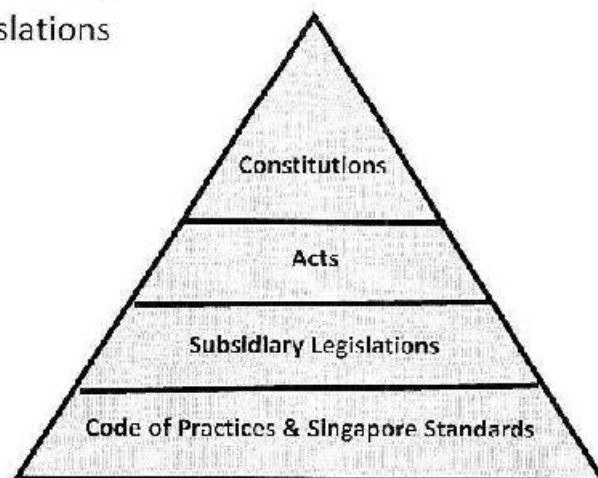
Security and Safety Concerns

- **Safety Management in PSA**
  - Workplace Safety and Health Act (WSH Act)

WORKPLACE SAFETY AND HEALTH ACT
(CHAPTER 354A, SECTION 65)

WORKPLACE SAFETY AND HEALTH (GENERAL PROVISIONS) REGULATIONS

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G.N. No. S 134/2006

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(1st October 2007)

[1st March 2006]
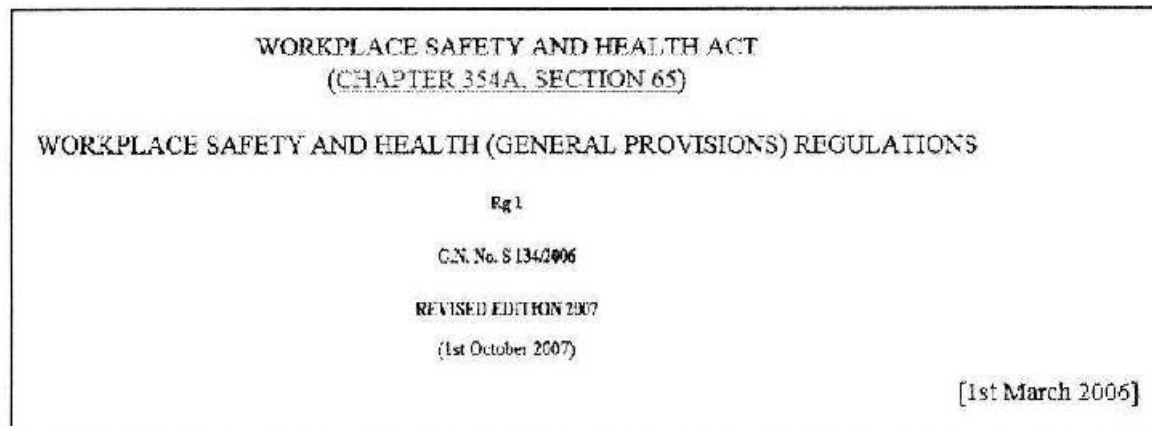
Security and Safety Concerns

- **Safety Management in PSA**
  - WSH Guidelines and Code of Practice

Workplace Safety and Health Guidelines
Safe Loading of Vehicles

Code of Practice on
Safe Lifting Operations in the Workplaces

CDAS
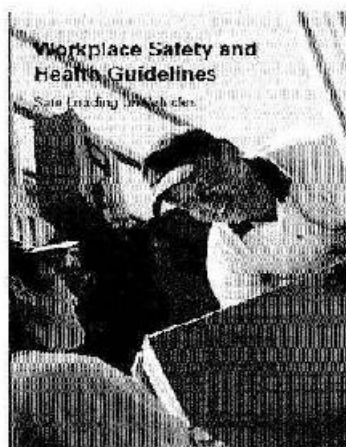
Security and Safety Concerns

- Safety Management in PSA

- **Reduce risks at source** by requiring all stakeholders to eliminate or minimize the risks they create.

- Industry required to take **greater ownership** of safety outcomes.

- Prevent accidents through **higher penalties** for poor safety management.

CDAS

Security and Safety Concerns

- Safety Management in PSA
  - Duty Holders under WSH Act

Employer — Principle — Employee — Manufacturer & Supplier — Erector & Installer — Occupier — **Duty Holders**
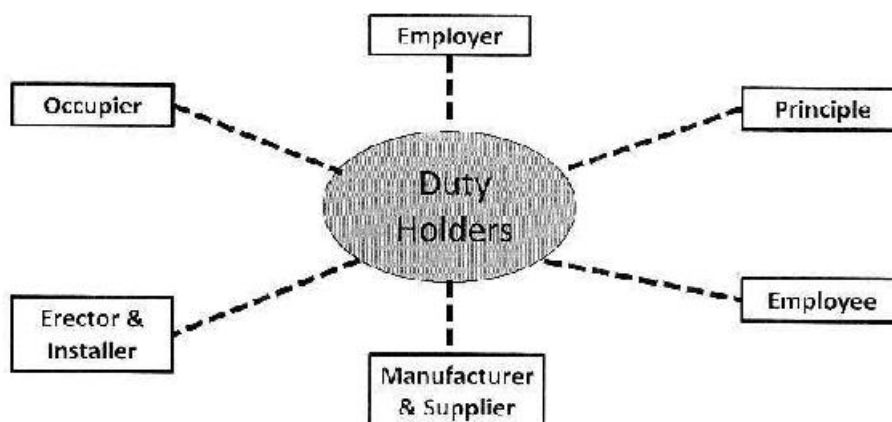
Security and Safety Concerns

- Safety Management in PSA
  - WSH Act

Under the WSH Act, all **employees** have a duty to keep their workplace and colleagues safe. As an employee, you should:

o Follow safety and health procedures at your workplace;
o Not endanger yourself and your colleagues;
o Not tamper with safety devices, or perform wilful or reckless acts;
o Report unsafe work conditions, behaviours and workplace incidents (regardless of whether an injury has taken place); and
o Provide suggestions to improve safety and health at work.

Security and Safety Concerns

- Safety Management in PSA
  - **WSH Act**

Under the WSH Act, **employers** are required to ensure the safety and health of every one of their employees. Employers should:

o Remove or control risks at their workplace;
o Maintain a safe work environment;
o Make sure that safety is maintained in the handling of all equipment used at the workplace;
o Develop plans for dealing with emergencies; and
o Provide employees with clear plans and resources to keep their workplace safe.

Security and Safety Concerns

- Safety Management in PSA
- **WSH (Work at Heights) Regulations 2013**
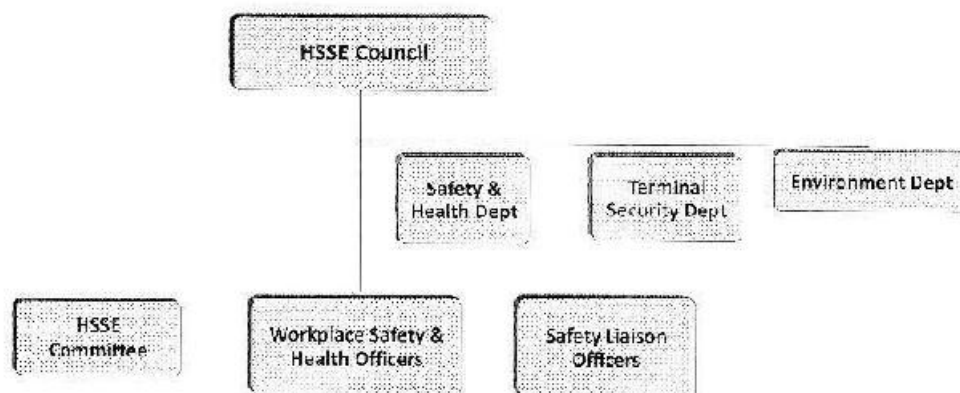
    WSH (Work at Heights) Regulations 2013
    - Fall Prevention Plan
    - Permit-to-work system for hazardous WAH
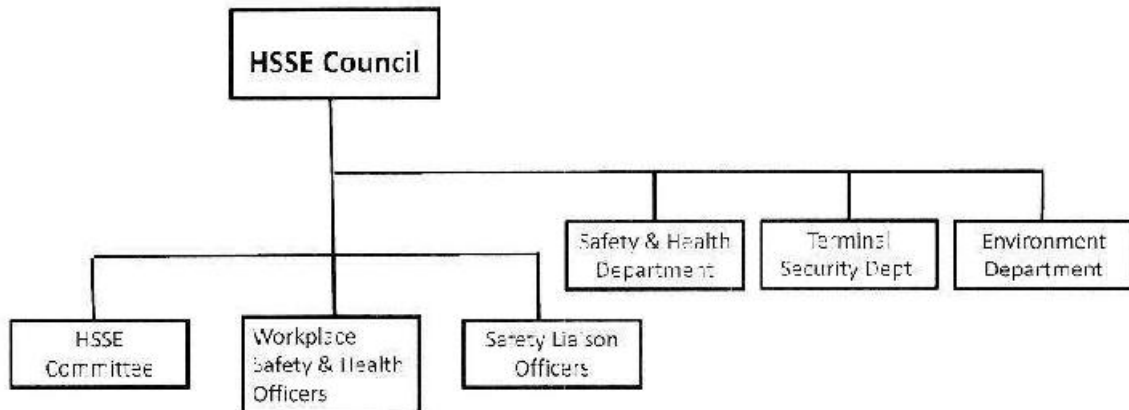   - Trainings

Security and Safety Concerns

- Safety Management in PSA

HSSE Council

Safety & Health Dept

Terminal Security Dept

Environment Dept

HSSE Committee

Workplace Safety & Health Officers

Safety Liaison Officers

Security and Safety Concerns

- Safety Management in PSA

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                    │  HSSE Council   │
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  │  HSSE    │ │Workplace │  │ Safety & │ │ Terminal │ │Environment│
  │Committee │ │Safety &  │  │ Health   │ │Security  │ │Department │
  └──────────┘ │Health    │  │Department│ │Dept      │ └──────────┘
               │Officers  │  └──────────┘ └──────────┘
               └──────────┘
  Safety Liaison Officers
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Security and Safety Concerns

- Safety Management in PSA

⊗PSA
The World's Port of Call

PSA GROUP HSSE POLICY

At the heart of PSA lies a strong, unwavering commitment to provide our people with a safe, secure, healthy work place & to promote sustainable development in the communities we operate in.

As an industry leader, we will continually upgrade our HSSE practices & performance & be an exemplary corporate partner on HSSE matters

Security and Safety Concerns

- Safety Management in PSA – Penalty System

INDIVIDUAL SAFETY SYSTEM	
Type Of Safety & Traffic Offence	Penalty
Less Serious Offence (L)	2 demerit points + $75 enforcement charge
Serious Offence (S)	4 demerit points + $150 enforcement charge
Very Serious Offence (V)	8 demerit points + $300 enforcement charge
On accumulation of 24 demerit points or more for any offences within a continuous 24-month period :-	
1st infringement period	3 months debarment & Safety Refresher Course
2nd infringement period	6 months debarment & Safety Refresher Course
3rd infringement period	Permanent debarment (immediate)
Serious infringement resulting in death or serious injuries or serious damage to equipment or property	Fines and immediate debarment (irrespective of whether it is the first infringement or not). Offender must attend a Safety Refresher Course before the PSA Pass may be re-issued to them.

Security and Safety Concerns

- Safety Management in PSA – Penalty System

COMPANY SAFETY SYSTEM	
Type Of Safety Offence	Penalty
Less Serious Offence (L)	2 demerit points + $500 enforcement charge
Serious Offence (S)	4 demerit points + $1,000 enforcement charge
Very Serious Offence (V)	8 demerit points + $2,000 enforcement charge
On accumulation of 24 demerit points or more for any offences within a continuous 24-month period :	
1st infringement period	Infringing Company must submit to PSA a letter of undertaking and safety improvement action plan to the satisfaction of PSA. PSA reserves the right to suspend or terminate all licences and/or contracts held by Infringing Company.
2nd infringement period	PSA reserves the right to suspend or terminate all licences and/or contracts held by Infringing Company with immediate effect.
Serious infringement resulting in death or serious injuries or serious damage to equipment or property	PSA reserves the right to suspend or terminate all licences and/or service contracts held by Infringing Company with immediate effect.

Security and Safety Concerns

- Safety programme is aimed at creating an accident-free environment and developing personal safety awareness among staff and port workers.

  - Accident investigation and reporting system
  - Review and analysis of accident statistics
  - Departmental safety promotion and activities
  - Safety training
  - Enforcement of safety measures
  - Enforcement of safety procedures

National and Global Security laws and regulations

- **Security Regulations and Requirements for Ships and Ports**

- 1948 International Maritime Organization Convention (IMOC) as a specialized group of the United Nations, which concentrates particularly on maritime issues such as marine safety, marine environmental protection, and marine security including marine legal systems.

National and Global Security laws and regulations

Singapore Maritime Port Authority (MPA)

- The safeguarding of vessels, harbours, ports, waterfront facilities and cargo from internal threats such as destruction, loss or injury from sabotage or other subversive acts; accidents; thefts; or other causes of similar nature.

- The security of port facilities and ships is of major importance, especially with the global threat of terrorism. The international Ship and Port Facility Security (ISPS) Code has been developed to enhance the security of ships and port facilities.

- Maritime Port Authority (MPA) has also developed a Port Security Manual for the Singapore port facilities and provides updates through port marine circulars/notices and the current security level of Singapore.

National and Global Security laws and regulations

- **Singapore Maritime Port Authority (MPA) - Port Marine Safety**

- MPA's Marine Environment and Safety Department strives to ensure MPA Port Regulations and Acts on marine safety and environmental protection are enforced effectively in the port wasters so as to safeguard and promote Singapore's status as a global hub port.

National and Global Security laws and regulations

Singapore Maritime Port Authority (MPA) - Port State Control

- The MPA performs Port State Control inspections to check and ensure that visiting foreign ships are in compliance with international regulations.

- The inspection also ensures that the ships leaving the port meet international safety, security and marine pollution prevention standards.

- Ships that do not meet these standards may be detained and would need to apply for a follow-up inspection before release.

National and Global Security laws and regulations

Singapore Maritime Port Authority (MPA)

Using Drones to Manage Marine Incidents

- Drones are all the rage right now and they are easily available at relatively low cost.. The industry and even the public sector are is exploring the use of drone technology in areas such as improving service delivery.

- MPA is looking at drones for a variety of reasons. Currently, to collect data, a boat is needed to navigate around the port. But using a boat may not be the most efficient way to collect data as the boat's speed is limited and there is heavy marine traffic.

- MPA plans to use drones to monitor marine incidents such as oil spills in Singapore's port waters. These drones can capture events and stream live video back to the control centre in near real-time. In fact, it is greener as a drone used in such a scenario weights about 7kg, uses battery instead of burning the marine fuel oil needed to power a 35 ton boat.

National and Global Security laws and regulations

- **Singapore Internal Security Act (ISA)**

- The Internal Security Act (ISA) is a law that enables the government to swiftly act against what it deems to be threats to national security by employing various measures. The law is carried out by the Internal Security Department (ISD), a body under the purview of the Ministry of Home Affairs.

- The key power of the ISA is the placing of an individual under preventive detention for a renewable period of up to two years at a time without trial in open court. The government justifies the law on the grounds of preserving public order and safety, and states that it is used only as a last resort. Since it was commenced in 1963, the ISA has been used to deal with national security issues such as communalism, communism, espionage, foreign subversion and terrorism.

National and Global Security laws and regulations

Powers granted by the ISA

One of the main powers granted by the ISA is preventive detention. It allows the government to detain an individual who is suspected of being a threat to Singapore's internal security for a maximum period of 30 days. Thereafter, an Order of Detention has to be issued in order to extend the detention period to a maximum of two years. If the offence is deemed not too severe, a Restriction Order can be issued instead, under which the individual is released but still subjected to certain restrictions such as having to seek permission to travel abroad. Both the Order of Detention and the Restriction Order can be renewed when necessary. Other powers of the ISA include the prosecution of those who disseminate misinformation to stir up public anxiety, and the imposition of curfews to calm public disorder.

Why is Security and Safety issues contribute to Port Competitiveness

- It is claimed that 90% of the world's trade travels by sea and any security and safety issues such as an attack happened in a port terminal will put economic activity at risk. So it is critical that port terminals should consider security vulnerabilities.

- The vulnerabilities to the port terminals may range from criminal activity and drug smuggling, to terrorism and cyberattacks. If this happen to the port terminal it would affect the port competitiveness in the global market.

Discussion 5:

Operations issue faced at Participant's ports and idea of exchange on possible

Question?