Session 2

The Contribution of the Port to the Singapore Economy

Container Depot and Logistics Association (Singapore) | CDAS

PORT DEVELOPMENT AND COMPETITIVENESS

Session 2

The Contribution of the Port to the Singapore Economy

Speaker: Mr. *Fong Kum Hor*

Self Introduction
Who am I?

Fong Kum Hor

Vice President/Senior Consultant with global consulting company Global Maritime and Port Services Pte Ltd (GMAPS)

Since 2013 after retiring from PSA Corporation with nearly 4 decades of experience in Port and Terminal Operation/Management, Logistics & Supply Chain Management and Human Capital Training and Development. Currently, he is engaged in the Conceptual and Preliminary Engineering Design of Tuas Terminal Gateway Development, the Singapore mega Terminal of the future.

He was the Head of Department (Contract & Haulier Services) where he built up Container Terminal Gate resources to support 30 million TEUs in South East Asia biggest gate with 26 lanes.

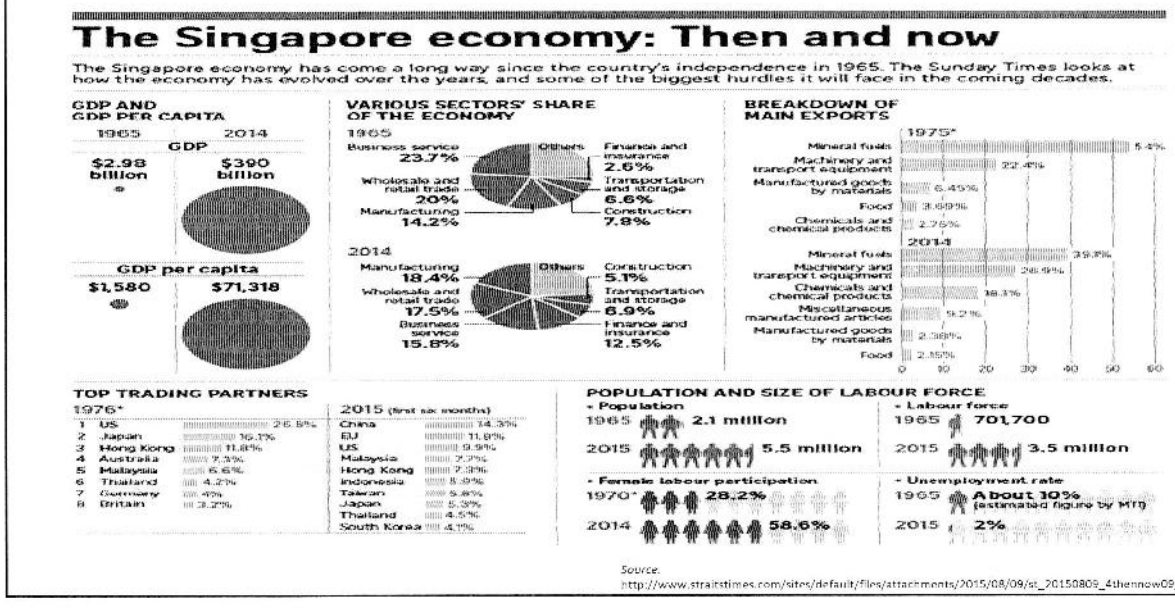
He was the Operations Division representative in CITOS, Computer Integrated Terminal Operations System for container and ship movements and a KCM, Key Customer Manager for targeted shipping line. Concurrently, he was Operations Division representative in the Portnet e-commerce platform Working Committee for the Shipping Community, spearheading the integration of Portnet and Jurong Port (JP) On-Line System for inter-gateway movements of containers promoting Singapore as 1 single Transhipment Port.

He was was appointed the Chairman for the PSA, Singapore Logistics Association (SLA), Singapore Transport Association (STA), Container Depot Association Singapore (CDAS), Keppel DistriPark (KD) and Immigration Check Point Authority (ICA) Ports Command Committee.

As Head of Department (Container Logistics), he was instrumental in developing world class service standards in logistics support for the 5 Container Terminals in Singapore.

Outline

- Contribution of 7% of GDP & 175,000 jobs.
- The Port's Story, A Nation Success.
- The Singapore Maritime Authority (MPA)
- From Entrepot Trading Post to Technoport & Global Distriport.
- From Tanjong Pagar Container Port to Spoke & Hub Port.
- The FTZ and its adoption.
- The Birth of Jurong Industrial Estate from a Swamp land to Industrial Park for MNCs.
- From the City Port to the West, Jurong Port with features of Bulk Handling & Multiple Purpose Port.
- To the North, Sembawang Port from naval base to commercial port for high volume low value cargo port serving its neighboring hinterland.
- The iconic Airport and Seaport – world's busiest Port since 1982.
- The multi-faceted Nation-Port towards Premier Maritime Centre.
- Thrust Towards Cost-effective and Efficient, Better, Faster Turn-round.
- The Safe and Secure Port – Value Adding in the Total Supply Chain.



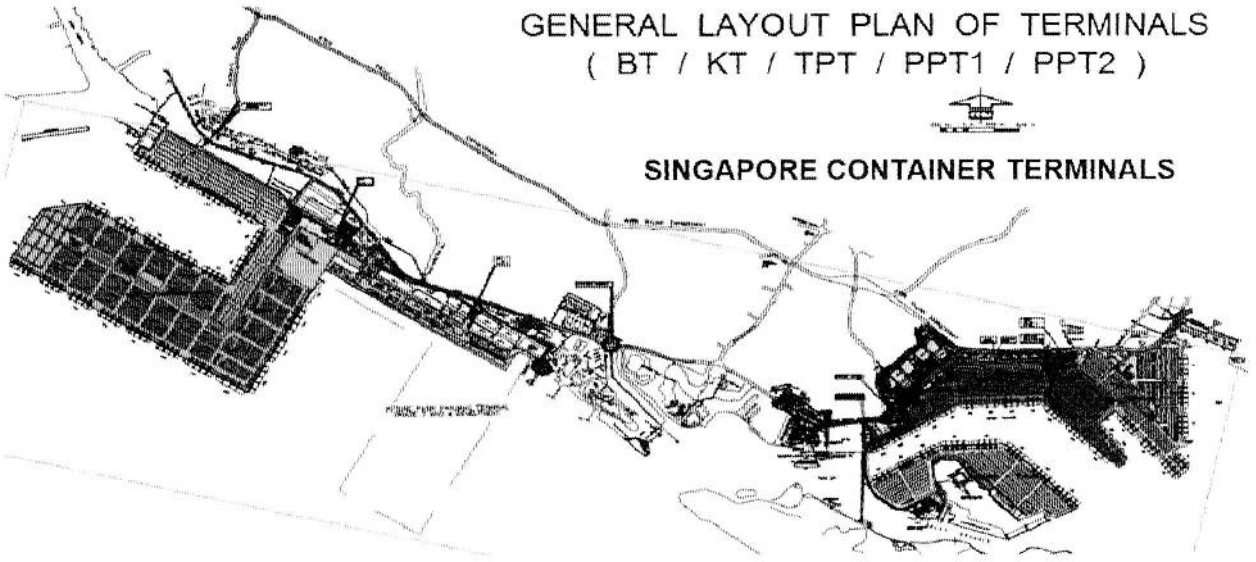
Source:
http://www.straitstimes.com/sites/default/files/attachments/2015/08/09/st_20150809_4thennow09_1586110.pdf

The 4015 Milestones (Port's Story & Nation's Success)

- 40 years of Containerisation
- 15 years of Corporatisation
- The Transformation Journey

PSA Milestones

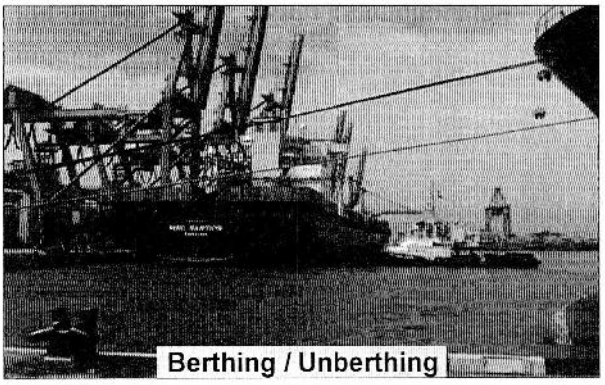
1968: Singapore begins building three container berths at East Lagoon (Tanjong Pagar Terminal.)	**2000:** Pasir Panjang Terminal officially opens.
1972: Arrival of the MV Nihon, Singapore's first container ship on June 23.	**2003** PSA International Private Limited becomes the main holding company for the PSA Group. Officially launches Cosco-PSA Terminal at Pasir Panjang Terminal.
1982: Achieves 1 million twenty-foot equivalent units of containers(TEUs) in a single year.	**2004:** Achieve 20 million TEUs in a single year. Total container volume crosses 20 million TEUs.
1984: Introduces the first version of Portnet, a one-stop 24-hour paperless electronic link with local port and shipping community.	**2005:** Enters into a joint venture with Mediterranean Shipping Company (MSC) to jointly manage and operate a container terminal for MSC at Pasir Panjang Terminal.
1987: Widening and dredging of terminal to allow simultaneous departure and arrival of container ships.	**2006:** MSC-PSA Asia Terminal officially opens. Emma Maersk, the world's largest container ship with a nominal capacity of 15,550 TEU's calls at Pasir Panjang Terminal.
1988: Implements CITOS, a propriety planning system to co-ordinate and integrate PSA's entire port operations.	**2007:** Enters into a joint venture with NYK and 'K' Line to operate Singapore's first dedicated car terminal called Asia Automobile Terminal (Singapore) (AATS) at Pasir Panjang Terminal.
1990: Passes 5 million TEUs a year to become world's busiest container port for the first time.	**2008:** Enters into a joint venture with PIL to operate a dedicated container terminal called PIL-PSA Singapore Terminal at Keppel Terminal.
1991: Keppel Terminal starts operation following re-organization of the original Tanjong Pagar Terminal into Keppel and Tanjong Pagar terminals.	**2009:** Pasir Panjang Automobile Termianl, which houses AATS, starts work.
1994: Achieves 10 million TEUs in a single year.	**2011:** Container volume handled exceeds 400 million TEUs, hitting more than 29 million TEUs in 2011 alone.
1997: PAS corporatises and renamed PSA Corporation Limited. Hits record of 100 million TEUs handled since start of container operations.	



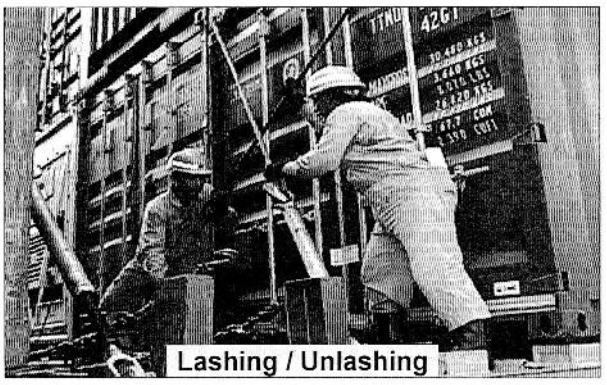
GENERAL LAYOUT PLAN OF TERMINALS
(BT / KT / TPT / PPT1 / PPT2)

SINGAPORE CONTAINER TERMINALS

Terminal Service & Facilities



Berthing / Unberthing



Lashing / Unlashing

Terminal Service & Facilities

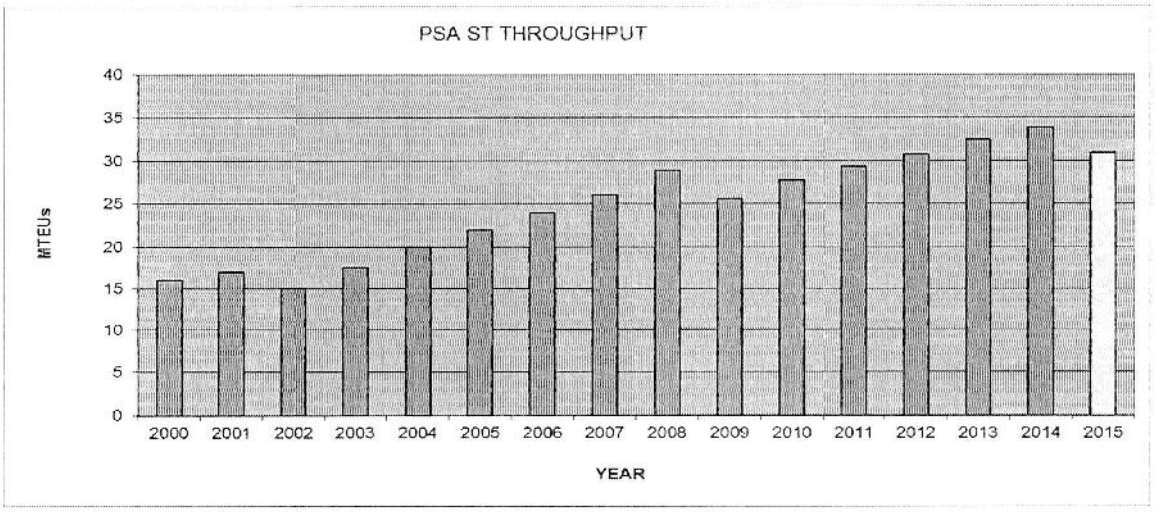
Reefer Services & Facilities

Dangerous Goods Storage

Hub-Spoke Dynamics

Hinterland Modal Connections	International Modal Connections (Globalisation)	Regional Modal Connections (Regionalisation)
❖ Air-Land Integration ❖ Lines Representations ❖ Agents ❖ Consignees/Consignors/ Shippers ❖ Hauliers /Trucking/Freight Forwarders/Empty Depots ❖ Manpower & Logistics Suppliers ❖ Stevedorage ❖ Refurbishing	❖ Ports, Lines, Lines Representatives, Agents, Consignees/Shippers and Logistics ❖ Feedering Network	❖ Ports, Lines and Logistics ❖ Mother and Feeder Network, Common Feeders and Dedicated Feeders ❖ Ship Alliances, vessel sharing and slot chartering

PSA Singapore Terminals in 2015 Handled 30.9m TEU



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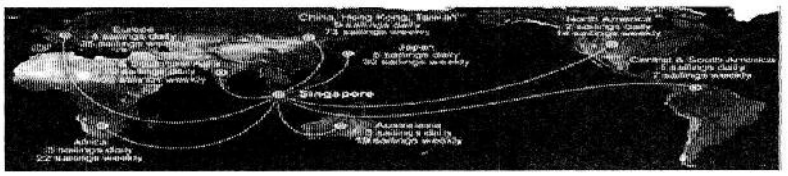
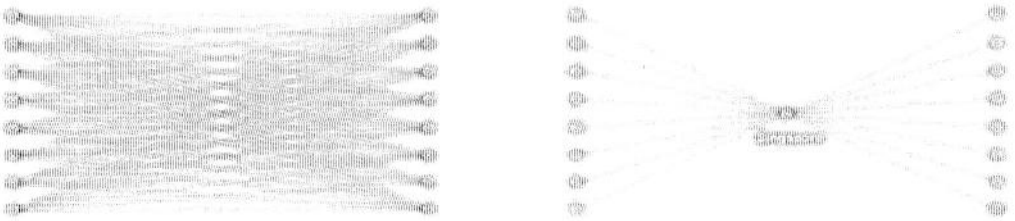
Transhipment Connections

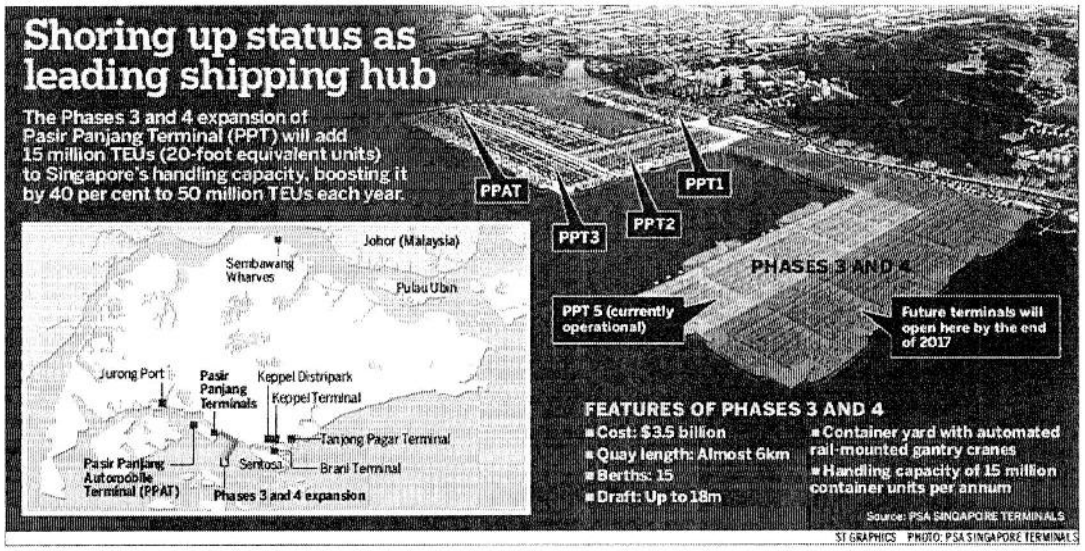




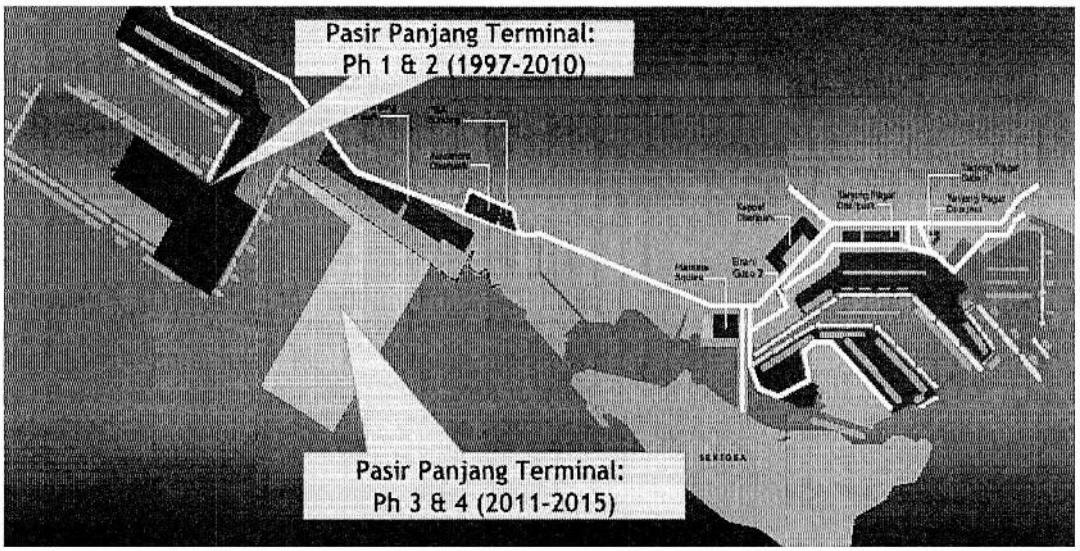
The Ports in Singapore

- The PSA Ports
- The City Terminals
- The Pasir Panjang Phase 1 & 2
- The Pasir Panjang Phase 3 & 4
- Jurong Port
- The Multi Purpose Port
- The Mega Port
- NGP 2030

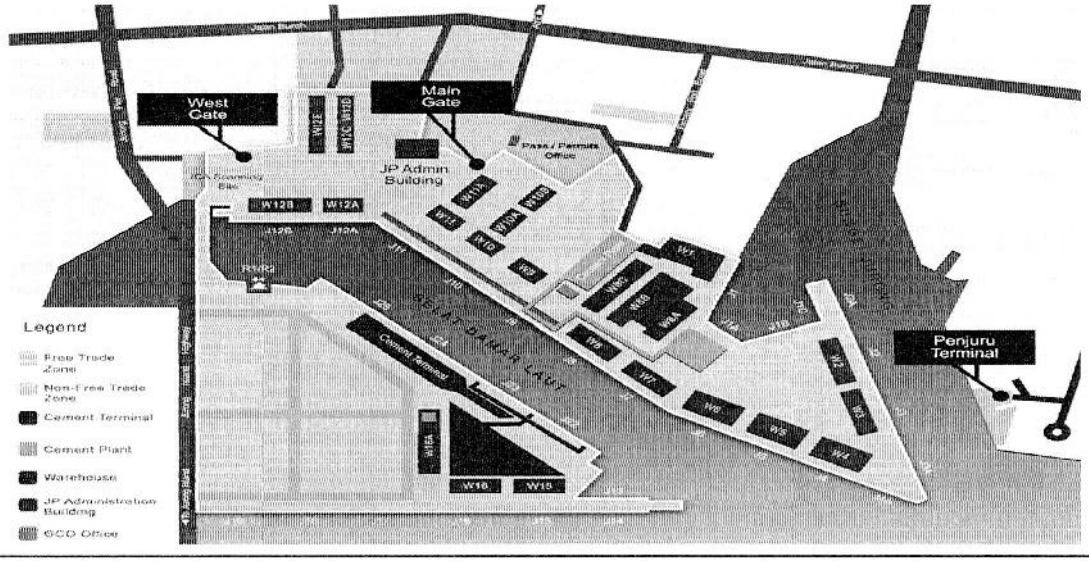
Ports of Singapore



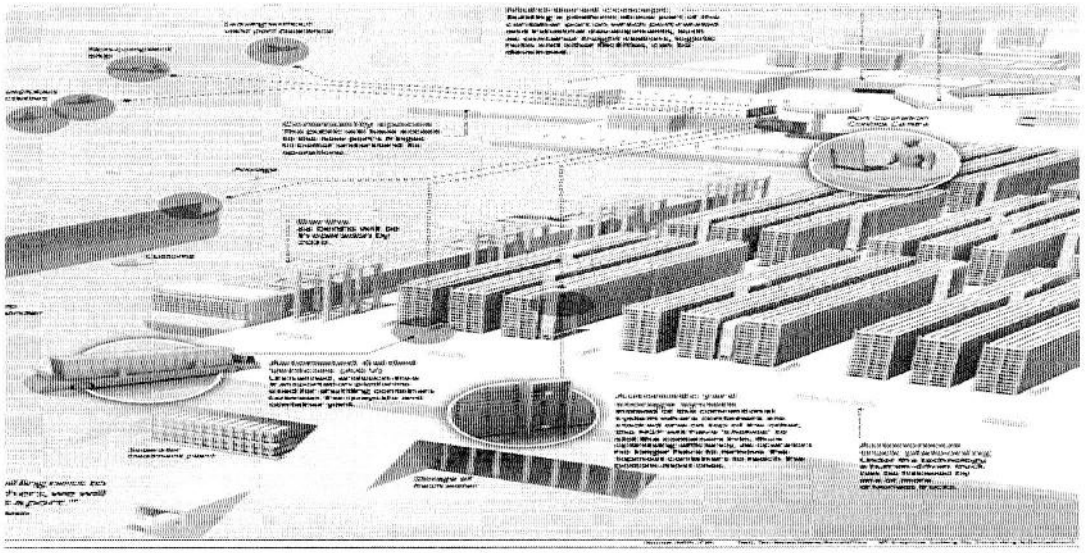
The Ports Of Singapore - Layout & Locations



Jurong Port - The Multi-Purpose Port



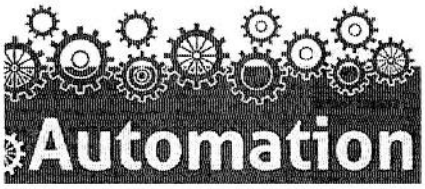
The Mega NGP 2030

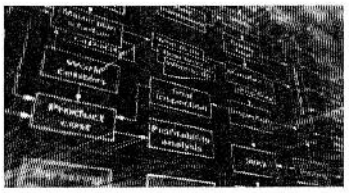


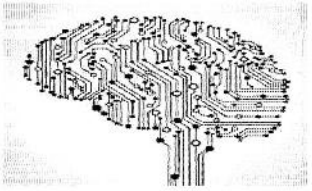
Future Challenge to Ports

Aspects Of The Smart Port Singapore 2030

❑ Smarter, greener and automated, these will be the key features in the next generation port (NGP) by 2030, as Singapore embraces **automation**, **digitization** and **artificial intelligence** in its maritime vision.



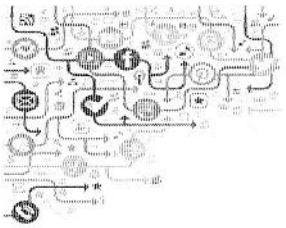


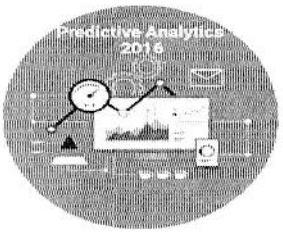


Future Challenge to Ports

Aspects Of The Smart Port
Singapore 2030

- Because of land and sea space constraints and a limited pool of manpower, Singapore needs to ride the inevitable trend towards **smart shipping**, in which ship owners are turning to **automation** and the application of **big data** and **predictive analytics** to lower operating costs and improve efficiencies.





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Future Challenge to Ports

Aspects Of The Smart Port
Singapore 2030

- Big data and predictive analytics
  - An unprecedented amount of data-from worlds meteorological and oceanographic data, traffic data, material and machinery performance data, data on cargo flows across the world, maritime-accident data and even passenger and seafarers' personal data-will be shared among the next-gen ship owners, port operators and other players in the maritime eco-system.
- Multi-tiered concept
  - Building a platform above part of the container port on which port-related and industrial developments, such as a container freight stations, logistic hubs and other facilities, can be develcped.

Future Challenge to Ports

Aspects Of The Smart Port
Singapore 2030

- By relocating container terminals from Pasir Panjang to **Tuas** where the multi-purpose Jurong Port and most maritime logistic providers are based, Singapore is able to design and build a maritime port for the future from scratch, incorporating new ideas, and technologies. Consolidating port operations at one location will also improve connectivity and economies of scale, thus reducing costs by eliminating inter-terminal haulage.

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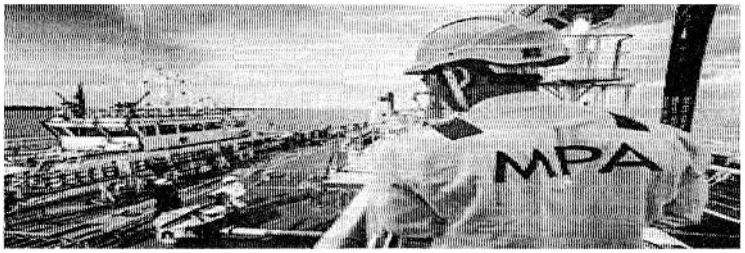
Future Challenge to Ports

Aspects Of The Smart Port
Singapore 2030

- Another challenge for Singapore is building a **maritime-future ready workforce**. By 2030, it is envisaged the labour mix at the

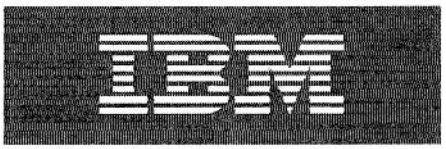
  Port of Singapore will encompass more highly skilled technicians and engineers with specialized training.

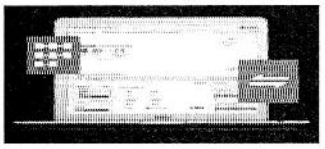


Future Challenge to Ports

Aspects Of The Smart Port
Singapore 2030

- The Maritime and Port Authority of Singapore signed a 2 year agreement with IBM in August 2015 to create a **unified platform to integrate real-time data** and provide a consistent view across data points to help port operators make more informed decisions.





- The blue print of NGP will also look at intensifying land-use, raising the level of sustainability and connecting with the community.

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Future Challenge to Ports

Aspects Of The Smart Port
A Safe & Secure Port (NG VTMS)

A next generation Vessel Traffic Management System (VTMS) will be developed to handle increased shipping traffic and larger ships in the future. The system will leverage data analytics to predict traffic hotspots and decision support tools to assist vessels in planning and optimizing their sea passages.

Next-gen Vessel Traffic Management System

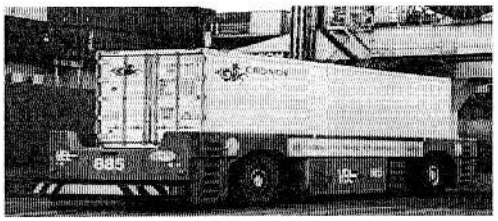
Smart ships communicate vital information to the port operators via onboard sensors. Smart buoys, satellites, and radars detect ships due to arrive. If arrival times are predicted to be later or earlier than scheduled, predictive analytics will advise ships to slow down or accelerate. This helps the port to better manage its anchorage space and plan ahead for loading or unloading.

Future Challenge to Ports

Aspects Of The Smart Port
An Efficient Port

➢ Automated Guided Vehicle

Unmanned, emission free transportation platforms used for shutting containers between the quayside and container yard.

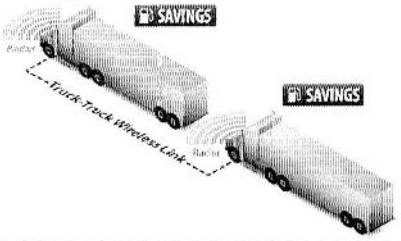


➢ Automated yard storage system

Instead of the conventional system where containers are stacked one on top of the other., the NGP will have "shelves" to slot the containers into, thus optimising efficiency, as operators no longer have to remove the topmost containers to reach the most-bottom ones.

➢ Automated truck platooning

Under the technology a human-driven truck can be followed by one or more driverless trucks.



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Future Challenge to Ports

Aspects Of The Smart Port
An Intelligent Port

Real-time information from multiple smart sensors and sources will be used to provide data for analysis. The data will then be fed through advanced maritime sense-making systems that can process, mine and extract useful information for decision and policymaking, along with contingency planning.

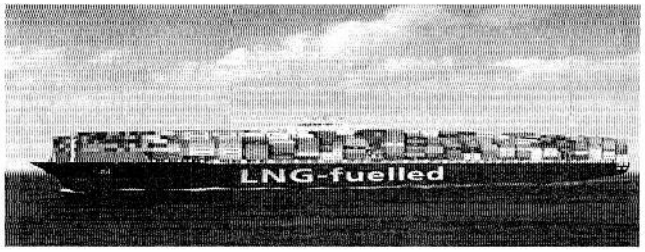
➢ Intelligent Port System

Built-in algorithm detects "anomalies" when two vessels are coming together at the wrong place or the wrong time, alerting port operators to possibilities of illicit activities such as illegal bunkering. A separate algorithm can detect vessels suddenly slowing down or changing directions and alert port operators of possible hijacking or piracy.

Future Challenge to Ports

Aspects Of The Smart Port
A Green & Community Oriented Port

The use of clean energy will be heavily promoted-especially **liquefied natural gas(LNG) as a ship fuel**-for day-to-day port operations. More community spaces will be built around the port fringes for public access tc allow the maritime sector to stay connected with the masses. The public will have access to the new port's fringes to better understand its operations.



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Discussion 1

The Impact of the participant's Port to their country's development and what are their development plans.

Question?