

Session 1

Singapore Port and its Role in International Shipping and Global Trade

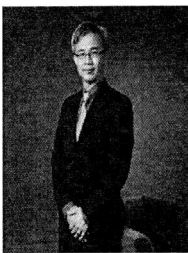
PORT DEVELOPMENT AND COMPETITIVENESS

Session 1

Singapore Port and its Role in International Shipping and Global Trade

Speaker: Dr. Tan Kok Choon, BSc (Hons) NUS, PhD MIT
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Self Introduction Who am I?



Director (Degree Education)
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Tan Kok Choon

Associate Professor (Practice), Department of Analytics & Operations, NUS Business School, and The Logistics Institute – Asia Pacific

Prof Tan received his BSc (1st Class Hons) in Mathematics from National University of Singapore (NUS) and his PhD in Operations Research from Massachusetts Institute of Technology (MIT). He was an NUS Overseas Post-Graduate Scholar at Operations Research Center, MIT. He had held appointments in Department of Mathematics at NUS, Operations Planning Department at PSA Corporation Limited, and Group Technical and Operations Development Department in PSA International. While at PSA, he was seconded to Singapore Land Transport Authority and was Adjunct Associate Professor in Department of Industrial & Systems Engineering, NUS.

Prof Tan teaches Business Analytics, Management Science, Inventory Systems, Industrial Logistics and Supply Chain Management in the Department of Analytics & Operations at NUS Business School.

Prof Tan's research interests include Optimization Applications, Container Terminal Operations, and Transportation & Logistics Systems Modeling and Analysis. He has journal and conference papers in Mathematics of Operations Research, Mathematical Programming, European Journal of Operational Research, Proceedings of the Symposium on Discrete Algorithms, OR Spectrum, Intermodal Transportation Research, Supply Chain Optimization, among others.

Prof Tan is an active member in the management committee of the Operational Research Society of Singapore (ORSS) and is currently the Honorary President of ORSS.

Self Introduction

My Teaching Experience

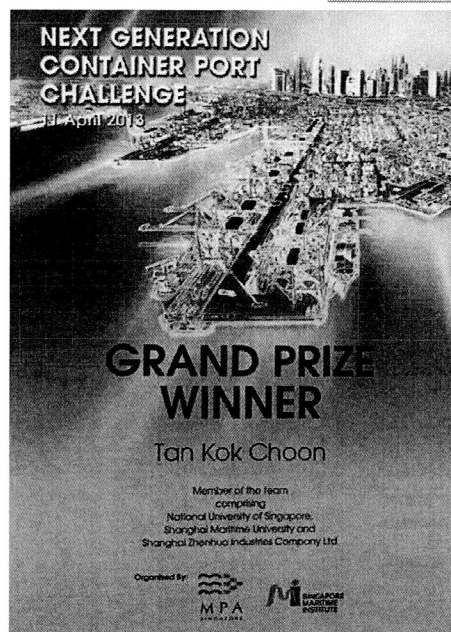
- Business Analytics: Models & Decisions
- Management Science
- Supply Chain Management
- Industrial Logistics
- Inventory Systems
- NUS-Georgia Tech Double Master Program
 - <http://www.tliap.nus.edu.sg/dmp/default.aspx>
- M.Sc. (Supply Chain Management) Program
 - <http://www.tliap.nus.edu.sg/mscm/>

Self Introduction

My Award

US\$1 million grand prize

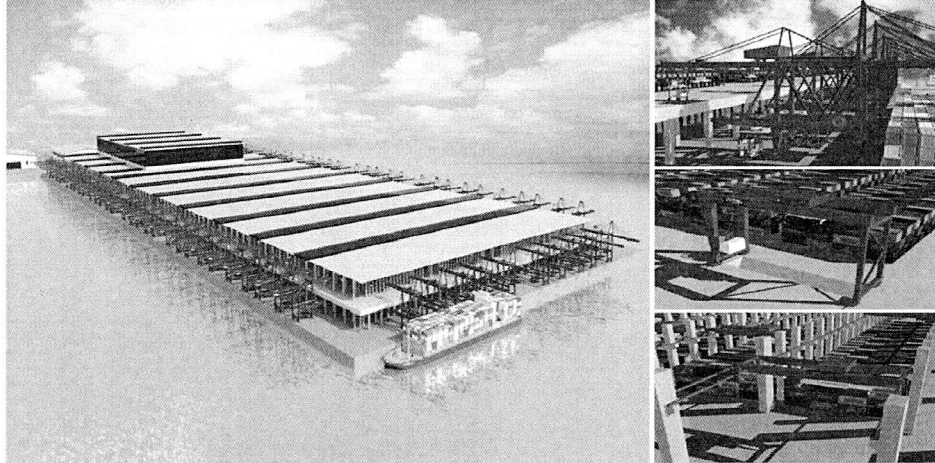
Innovative double-storey container port concept, named the SINGA (Sustainable Integrated Next Generation Advanced) port



56 submissions from 25 countries were received for the Challenge

<https://www.mpa.gov.sg/web/portal/home/media-centre/news-releases/detail/ccceb28e-357b-4be5-9590-963ef053fb70>

NGCP Challenge – Grand Prize Winner



Registration Number: NGCP-7121

*National University of Singapore, Shanghai Maritime University,
Shanghai Zhenhua Heavy Industries Company Limited*

Outline

- Brief introduction of the whole course
- Singapore Port's position – a premier global hub port
- Impact on global shipping
- Contribution to regional growth and development
- A maritime gateway to key Asian and global markets
- Role in the One-Belt-One-Road initiative

Singapore Port's Position – A Premier Global Hub Port

World Top 20 Ports, 2006-2015 (1000TEU) (Table 1)

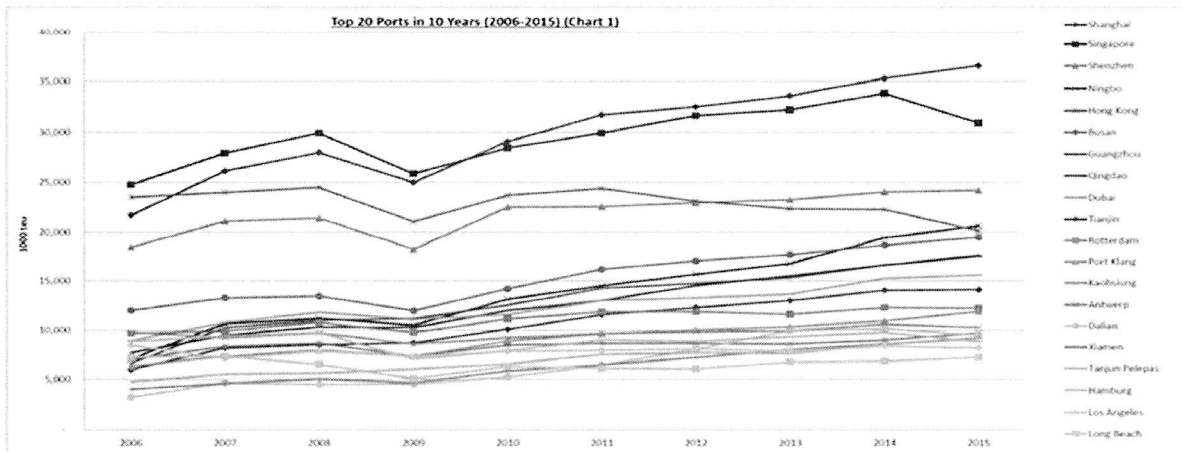
Rank	Ports	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	10 Y Growth Rate (2015/2006)	
1	Shanghai	21,710	28,150	27,860	25,002	29,069	31,739	32,529	33,617	35,304	36,537	168%	China
2	Singapore	24,792	27,936	29,918	25,866	28,431	29,937	31,649	32,240	33,869	30,922	125%	Singapore
3	Shenzhen	18,469	21,099	21,414	18,250	22,509	22,570	22,940	23,278	24,037	24,204	131%	China
4	Ningbo	7,066	10,653	11,226	10,502	13,144	14,510	15,670	16,774	19,430	20,620	292%	China
5	Hong Kong	23,539	23,968	24,404	21,040	23,090	24,384	23,117	22,367	22,293	20,114	85%	China
6	Busan	12,030	13,270	13,452	11,960	14,104	16,184	17,046	17,666	18,683	19,469	162%	Korea
7	Guangzhou	6,600	10,257	11,001	11,190	12,550	14,260	14,743	15,309	16,626	17,625	267%	China
8	Qingdao	7,702	9,462	10,320	10,260	12,012	13,020	14,503	15,520	16,624	17,510	227%	China
9	Dubai	8,923	10,791	11,827	11,100	11,600	13,000	13,270	13,641	15,249	15,592	175%	UAE
10	Tianjin	5,950	8,176	8,500	8,700	10,080	11,580	12,300	13,010	14,050	14,100	237%	China
11	Rotterdam	9,655	9,900	10,800	9,743	11,145	11,876	11,865	11,621	12,297	12,235	127%	Netherlands
12	Port Klang	6,326	7,312	7,970	7,369	8,370	9,603	10,000	10,350	10,046	11,890	188%	Malaysia
13	Kaohsiung	9,775	9,200	9,677	8,591	9,181	9,636	9,781	9,938	10,593	10,264	105%	China(Taiwan)
14	Antwerp	7,010	8,355	8,664	7,309	8,408	8,664	8,833	8,578	8,978	9,654	138%	Belgium
15	Dalian	3,212	4,642	4,503	4,552	5,242	6,400	8,060	9,912	10,128	9,450	294%	China
16	Xiamen	4,019	4,827	5,034	4,680	5,820	6,450	7,201	8,008	8,572	9,183	228%	China
17	Tanjung Pelepas	4,770	5,500	5,600	6,016	6,530	7,520	7,700	7,628	8,524	9,120	191%	Malaysia
18	Hamburg	8,862	9,360	9,737	7,607	7,900	9,014	8,863	9,302	9,729	8,821	100%	Germany
19	Los Angeles	8,470	7,103	7,850	7,261	7,831	7,940	8,078	7,869	8,340	8,161	96%	USA
20	Long Beach	7,290	7,312	6,448	5,067	6,263	6,100	6,045	6,730	6,821	7,192	99%	USA
S. Total		206,181	235,103	246,455	221,415	254,538	274,387	283,993	293,378	311,083	312,063	152%	
Share among Total (%)		53.9%	54.3%	50.9%	43.5%	53.9%	52.7%	48.3%	47.0%	47.0%	47.0%	N/A	N/A
World Total		382,622	433,253	484,361	509,440	472,273	540,816	587,484	624,480	651,201	N/A	N/A	

1)2006-2012 "Containerisation International Yearbook" (2005-2012) data; 2014-2015 "The Top 100 ports in 2015 of Containerisation International" data

2) Highlight shows ports of more than 200% increase in 10 years

Source: http://www.iaphworldports.org/iaph/wp-content/uploads/WorldPortTraffic_Data_for_IAPH_using_LL_data2016.pdf

Singapore Port's Position – A Premier Global Hub Port



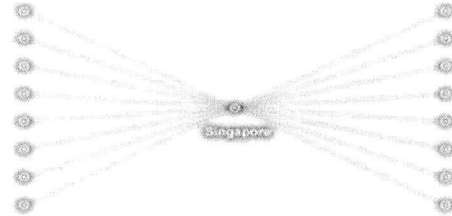
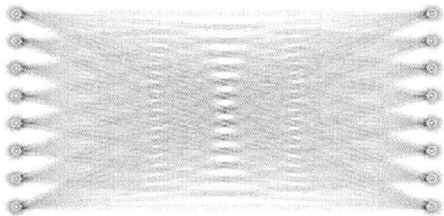
Source: http://www.iaphworldports.org/iaph/wp-content/uploads/WorldPortTraffic_Data_for_IAPH_using_LL_data2016.pdf

Singapore Port's Position

- A premier global hub port - Connected to 600 ports in over 120 countries, giving users reliable, value-added and cost-efficient marine services and facilities
- MPA works closely with both port operators and shipping companies to regulate and develop the port into a global hub, offering a one-stop-shop for the global maritime community.
- Singapore is the busiest port in the world in terms of shipping tonnage, with more than 130,000 vessel calls annually.
- Super post-Panamax quay cranes have been deployed to service some of the world's biggest vessels, such as the Emma Maersk.
- Besides offering reliable and efficient cargo handling, Singapore is also one of the top bunkering ports in the world, lifting more than 40 million tonnes of bunkers annually.
- A wide range of essential marine services are also available, including pilotage, towage, fresh water supply, crew changes, ship supplies and slop disposal.
- More than just a container transshipment hub, Singapore is also the world's third-largest petrochemical refiner and operates the most technically advanced and efficient shipbuilding and ship-repair facilities in Southeast Asia.

Impact on Global Shipping

- Importance of transshipment in global shipping
 - Without transshipment, the number of journeys to connect every port directly will look like the below:
 - With transshipment via Singapore, the number of journeys is dramatically reduced.



- ✓ Transshipping is quicker and more efficient than direct shipping.

PSA Singapore's Core Business is Transshipment

About 85% of containers that arrive in Singapore are transhipped to another port of call.

Shipping lines use Singapore Port for these modes of transshipment:

- Hub & Spoke (Main Line to Feeder)
- Cross strings (Main Line to Main Line)

Impact on Global Shipping

- Critical factors of a transshipment hub
 - Efficiency & Flexibility
 - Reliability
 - Security & Safety
 - Cost vs Service Level (e.g., tight connections)
 - Connectivity – a vital port in an inter-connected port network
 - Infrastructure & technology (ensure sufficient handling capacity)
 - Skilled workers and stable & supportive government
 - Strategic location is an advantage

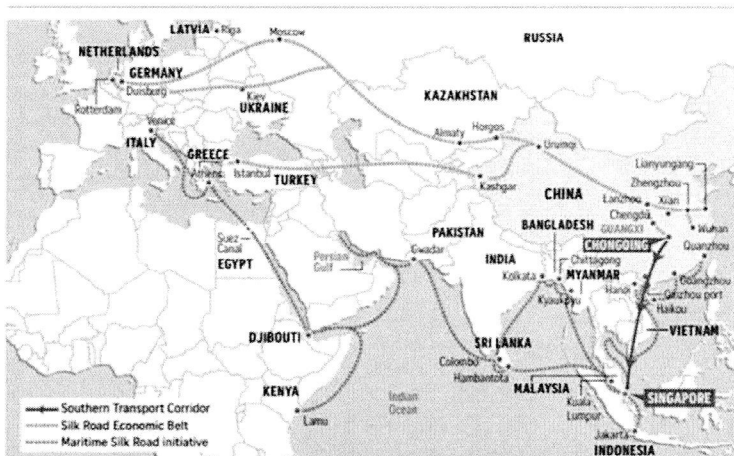
Contribution to Regional Growth & Development

- Maritime gateway to Asian and global markets
 - Located at the cross-roads of the East-West trade, Singapore's **strategic location** in the heart of Asia enables businesses to access the region's rapidly expanding markets.
 - Singapore's extensive **connectivity to regional and global markets** further cements its position as the connecting hub that connects Asia to the world, and the world to Asia.
 - Singapore offers unparalleled connectivity to passengers and cargoes and is a particularly efficient location to **access the Asian economies**.
 - Singapore is one of the world's **top transportation hubs for sea and air cargo**. It's container ports are the busiest in the world and Changi International Airport is linked to 300 cities in 70 countries, with more than 6,500 weekly flights.
 - Singapore has **strong business, cultural and linguistic links to many Asian markets**. Singapore's cultural and linguistic connections across Asia, highly qualified workforce, and openness to top global talent makes Singapore the **preferred location to support the global business community** in their expansion in Asia.

Role in the One-Belt-One-Road Initiative

Southern Transport Corridor (STC)

The corridor acts as a bridge between the overland and maritime silk roads of China's Belt and Road Initiative



- Part of a new Chongqing-Guangxi-Singapore (Yu-Gui-Xin) trade route between western China and SE Asia.
- Network of railroads will link the western cities of Chongqing, Guangxi, Guizhou and Gansu to both overland and sea routes of the Belt Road Initiative.
- When fully integrated, freight from Singapore to Chongqing will take 1 week by sea and rail, instead of current 3 weeks via Shanghai and Yangtze River.

Source:
<http://www.straitstimes.com/asia/east-asia/rail-corridor-to-boost-s-e-asia-west-china-trade-links>

Wrap-up

- Singapore Port is a premier global transshipment hub
- It is a maritime gateway to key Asian and global markets
- It has huge potential in the Maritime Silk Road

Questions?