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Maritime Cluster of Japan

Complementary Implications for the Para

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Maritime Cluster

- A Cluster of : Firms in several industries
  Administrative institutions
  Trade associations
  Educational institutions
  Research institutions

Shipping, shipbuilding, shipping equipment, marine equipment, technical services, financial services, investors, ports, fishing, dredging, inland shipping, yachting & navy

(Wijnolst et al, 2003)

- Added Values + Employment
- Concentration of knowledge and expertise

Maritime Cluster Discussions

- European Union (European Maritime Policy Conference of 2005)

  European wide platform – Maritime interest and commitment

  1. Immense economic, political and environmental value of the ocean and coastal areas
  2. Better ocean governance
  3. Integrated approach

Effects

- Reduction of transportation costs
- Utilization of complementarities
- Substitution of resources & enhancement of competition
- Access to skilled labour
- Sharing of knowledge & learning through networking
- Development of leader firms
- Development of coordinating institutions

(Wijnolst et al 2005)

High degree of relational skills > Hard to imitate

Cluster Discussion in Japan

MOT: "*Maritime Japan*" concept in 2000

MLIT: Maritime Japan Study Group

Cluster size: Ripple effect

21 trillion yen (€190bn)

5% of GDP

'Development of Regional Clusters'

S&O Foundation: 'Lack of *traction engine'*

'Knowledge-based regional networking'

Kobe & Nagasaki *(Han, 2006)*

Limits of Regional Cluster Perspective:

Maritime industries: Aimed at global market

Regional specificity: Accountable only for the past

‘Shipping’ in the centre of Japan’s Maritime Cluster

Navy + Shipping ⇔ Steel + Shipbuilding

Trading Nation

Mitsubishi 1875 (NYK 1885)
Mitsui 1879 OSK 1884 (MOL 1964)

Banking Support

Share of Transporting Japan’s Foreign Trade Cargo by Country

Source: MOL, 1966

	1884 (%)	1894 (%)	1904 (%)	1914 (%)	1926 (%)	1937 (%)
Japan	20	11	10	**54**	**65**	**56**
UK	48	61	53	28	19	15
Germany	9	13	14	5	2	2
USA	13	3	10	5	8	3
Others	10	12	13	8	6	24
TTL	**100**	**100**	**100**	**100**	**100**	**100**

World top-20 ranking of registered fleet by country (2007)

Ranking	Country of Flag	No. of Vessels	Total Gross Tons
World		**94,936**	**721,855**
1	Panama	7,183	154,965
2	Liberia	1,907	68,405
3	Bahamas	1,402	40,831
4	Marshal Islands	953	32,840
5	Hong Kong	1,179	32,685
6	Singapore	2,079	32,174
7	Greece	1,455	32,048
8	Malta	1,294	24,850
9	China	3,697	23,491
10	UK	2,016	20,853
11	Cyprus	971	20,853
12	Norway	2,078	18,222
13	**Japan**	**6,731**	**12,798**
14	Italy	1,566	12,571
15	Germany	881	11,364
16	USA	6,498	11,218

Source: Source: *Kaiun Tokei Yoran 2008*, The Japanese Shipowners' Association

Fleet controlled by Japanese shipping companies (1970 – 2007)

Mid Year	Japanese Flag			Non-Japanese Chartered			Total		
	No. of Ships	**GT ,000**	**DWT ,000**	**No. of Ships**	**GT ,000**	**DWT ,000**	**No. of ships**	**GT ,000**	**DWT ,000**
1970	1,508	21,185	34,635	462	7,030	12,372	1,970	28,215	47,007
1980	1,176	34,240	59,073	1,329	30,987	56,132	2,505	65,227	115,205
1990	449	20,406	33,164	1,543	36,910	58,036	1,992	57,316	91,200
2000	134	10,098	14,384	1,905	59,040	88,144	2,039	69,138	102,527
2007	91	7,105	8,998	2,214	85,820	127,155	2,305	92,925	136,153
						Norway	1,774	n.a.	39,980
						UK	718	15,808	18,233
						World	**94,936**	**721,855**	n.a.

Source: *Kaiun Tokei Yoran 2008*, The Japanese Shipowners' Association
Remarks: 1) Minimum size of ships included varies by country.
2) For Japan, commercial ships of 2,000GT or above (Domestic ships are not included.)
For Norway, ships of 100GT or above.
For UK, unknown.
For World Total, 100GT or above.

Shipment by Japanese-controlled Fleet (in million tons)

Year	World Cargo Movement	Japanese Cargo Movement	Shipment by Japanese-controlled Fleet			
			Japanese Cargo	Cross Trade	Total	% of World
1970	2,482	508	317	27	344	13.8
1980	3,606	682	475	77	552	15.3
1990	3,977	770	503	95	598	15.0
2000	5,434	890	574	166	739	13.6
2006	6,982	959	547	245	791	11.3

Source: *Kaiun Tokei Yoran 2008*, The Japanese Shipowners' Association

GDP by Japan's Maritime Cluster (1999)

Category	GDP (billion Yen)	in billion Euro @\110.50
Shipping	1,736	15.71
Shipbuilding	636	5.76
Marine Equipment	606	5.48
Materials	118	1.07
Repairs	1,090	9.86
Energy	282	2.55
Port Logistics	707	6.40
Maritime Services	50	0.45
Marine Insurance	455	4.12
Finance	262	2.37
Wholesale/Retail	5,090	46.06
Inland Logistics	1,222	11.06
Total	**12,254**	110.90

Source: Nomura Research Institute in MLIT[a] 2001
Remarks: The exchange rate is the average of the year published by the Bank of Japan.

Employment by Japanese Maritime Cluster in 1999

Category of Industry	Employment
Shipping	59,488
Shipbuilding	38,017
Marine Equipment	63,876
Materials	1,417
Repairs	236,638
Energy	1,352
Port Logistics	78,397
Maritime Services	17,556
Marine Insurance	28,625
Finance	12,208
Wholesale/Retail	1,088,317
Inland Logistics	318,988
Total	**1,944,879**

Source: Nomura Research Institute in MLIT[a] 2001

GDP by Japan's Maritime Cluster in 1999 (Reconciliation of Industry Category Japan/EU)

Unit: Billion Yen

	Category by Japan	GDP
1	Shipping	1,736
2	Shipbuilding	636
3	Marine Equipment	606
4	Materials	118
5	Repairs	1,090
6	Energy	282
7	Port Logistics	707
8	Maritime Services	50
9	Marine Insurance	455
10	Finance	262
11	Wholesale/Retail	5,090
12	Inland Logistics	1,222
	Total	**12,254**

	Category by EU	GDP
1	Shipping	1,736
2	Shipbuilding	636
5	Repair & Conversion	1,090
1	Naval Shipbuilding	-
na	Scrapping	na
na	Offshore Supply	na
12	Inland Shipping	1,222
8	Dredging & Marine Works	-
na	Cables & Submarine Telecom	na
7	Ports & Related Services	707
13	Fishing & Aquaculture	1,441
3	Recreational Vessels	-
8	Classification Societies	-
na	R&D and Education	na
8,9,10	Support Services	767
3	Equipment Manufacturing	606
	Total	**8,205**

13	Fishing (Not included in Japanese Catgories)	1, 441

4,6,11	Eliminated in EU Categories	5,490

Source: Nomura Research Institute in MLIT[a], 2001 & Wijnolst et al, 2003

Value Added by Japan's Maritime Cluster from Input-Output Table (2000)

	Value Added		GDP	
	Million Yen	Million Euro @102.50yen	Million Yen	Million Euro @102.50yen
Fishing	1,098,676	10,719	1,725,547	16,835
Shipbuilding/Ship Engine/Repairs	633,284	6,178	1,830,321	17,857
Shipping	217,569	2,123	501,370	4,891
Coastal Shipping	465,904	4,545	819,304	7,993
Harbour Transport	843,922	8,233	1,369,010	13,356
Port Facility Management	77,896	760	119,645	1,167
Port Services	74,932	731	90,537	883
Total	**3,412,183**	**33,290**	**6,455,734**	**62,983**

Source: Input-Output Table of Japan 2000
Remarks: GDP figures are after reduction of internal transactions within the cluster.

Production and Export by Japanese Marine Equipment Industry (2007)

	Production (million yen)	Production (million Euro) @\153.50	Export (million yen)	Export (million Euro) @\153.50
Marine Turbine	24,790	161	7,260	47
Diesel Marine Engine	309,096	2,014	66,937	436
Spark-Ignition Marine Engine	37,329	243	4,089	27
Outboard Engine	190,933	1,244	172,024	1,121
Ship Boiler	27,075	176	531	3
Auxiliary Machinery	154,451	1,006	26,163	170
Mooring/Handling Machinery	59,165	385	1,357	9
Shaft and Propeller	55,573	362	14,679	96
Navigation Equipment	68,875	449	40,190	262
Ship Fitting	164,525	1,072	5,731	37
Parts and Component	209,896	1,367	39,723	259
Ocean Development Equipment	15	0	0	0
Total	**1,301,723**	8,480	**378,684**	2,467

Source: Japan Marine Equipment Association

Value Added and Employment by Japanese Shipping – consolidated (2007)

<From the company accounts>

	Value Added (million Yen)	Value Added (million Euro@\153.50)		No. of Employees (consolidated)
International Shipping	1,374,595	8,955		52,455
Domestic Shipping	71,756	467		11,272
Total Japanese Shipping	1,446,351	9,422		63,727

Source: *Kaisha Joho*, Nihon Keizai Shinbun Sha, December 2008
Kaisha Shikiho-Mijojo Kigyo Ban, Toyo Keizai Shinpo Sha, September 2008

Difficulty of Maritime Cluster Measurement and Comparison

- Lack of standard definition
- Different measurement methods
- Lack of accounts (cross-industry business)
- Lack of statistical standardization

Lack of objectivity of influencing factors for policymaking

Clear comparisons should bring improvement.

Maritime Cluster of Japan (1)

One Cluster for the Country

- Quantitative Aspect
  - Shipping : The largest (probably)
  - Shipbuilding: 2nd largest
  - Marine Equipment: Many largest sharers
  - Ports : 1,042 ports serving local economies
    4th largest container handling nationally

Sustainable

Maritime Cluster of Japan (2)

- Qualitative Aspect : Maritime Cluster Culture

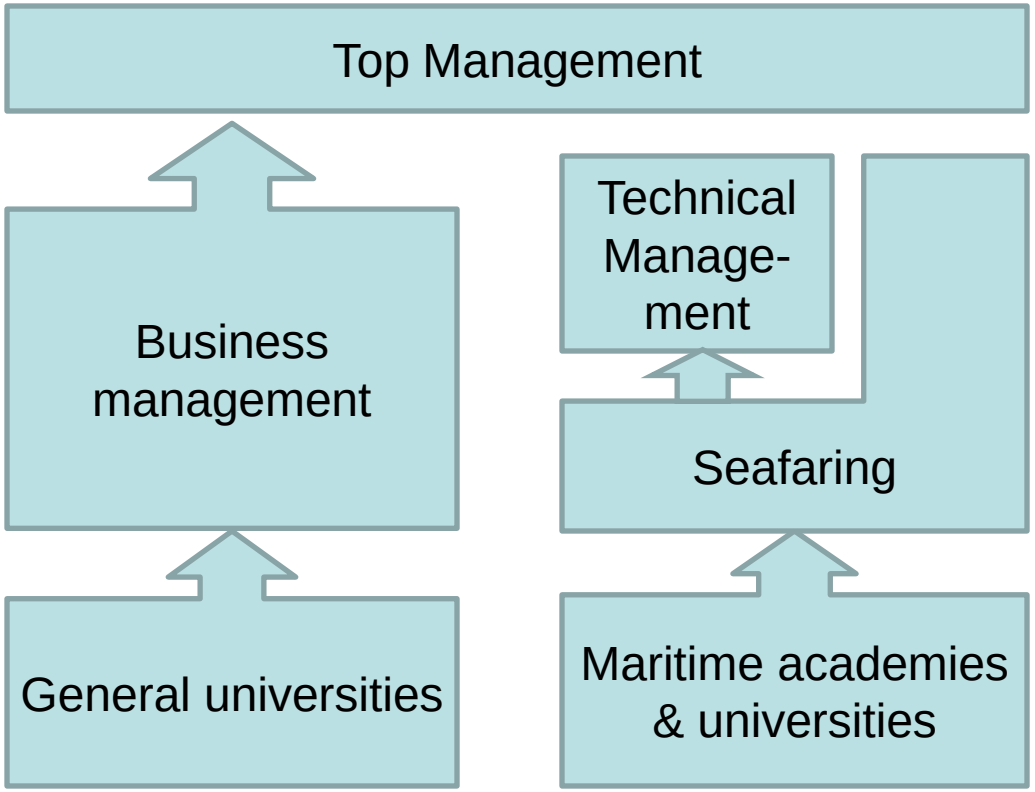
1) Corporate management

2) Knowledge creation & transmission

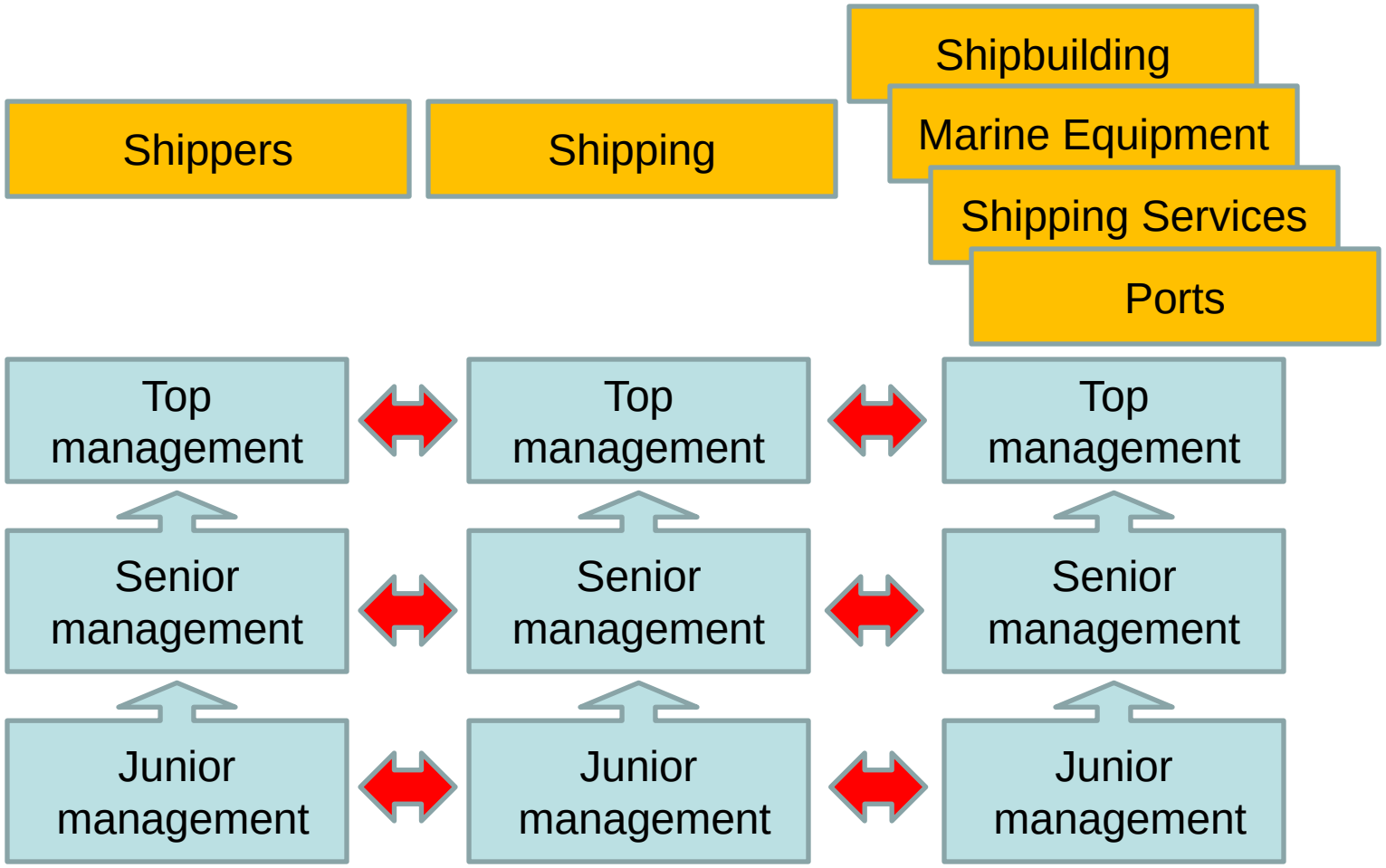
3) Value system of work

1) Corporate management

- Employment system



- Human networking system



Long-term employment Job transfer system

2) Knowledge creation & transmission

- Knowledge creation in team-working
- Knowledge transfer from senior to junior

Long-term employment

Job Transfer

Vague Job Description

Team evaluation

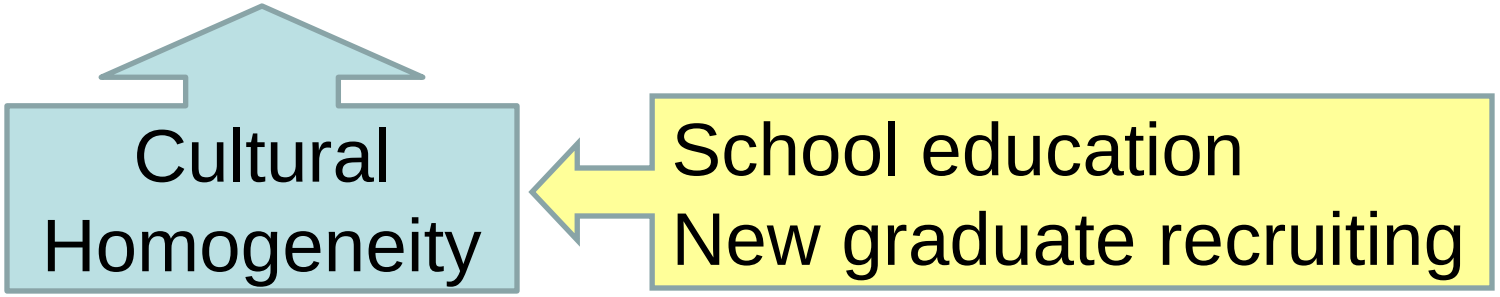
- Co-working across firms

Joint R&D

Close & frequent communication

3) Value system of work

- Predictability of responses & actions
- Mutual trust
- Spontaneous collaboration



Maritime Cluster of Japan

- Exclusionary?
- Anti-globalism?
- Old-fashioned?

Culture Specific

Non-Western

Hypothesis:

Japan's Maritime Cluster Management
A success formula for Emerging Maritime Nations?

Some suggestions for the success of maritime cluster formation

- Initial stage: Strong government support for incubating each industry
- Business networking and banking support
- Human resource management based on long-term co-working spirit

Verification needed