The product strategies of the Kaohsiung Port for 21 Century

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Abstract

With the economic tendency toward the globe and the trade toward the freedom, the large-scale international business has been proceeded to cross-nation production management and marketing in order to keep competitive advantage and reduce productive cost. Meanwhile, As global competition is severed than ever before and the economic and trading activate in Pacific Asia are dramatically increased, it leads to serious inter-port competition in Sea port market, thus port authority should develop the flexible marketing strategies to cope with further challenges.

As for Kaohsiung port, there are a number of issues associated with port marketing waiting for solution on the existing system. For instant, inflexible customs procedure, legal limitation of offshore shipping center's development, insufficient knowledge of port marketing, no exclusive marketing and sale department, etc,

The paper attempts to figure out the optimal product strategies of Kaohsiung port by means of making a comparison analysis between theoretical perspective and practical perspective. The research process is to identify port selection criteria of carrier, and then the formulation of product strategies based on theoretical perspective such as SWOT, market positioning, and product strategies planning. Finally, through Comparison analysis between theoretical perspective and practical perspective is to find out the difference and give some feasible suggestions.

As a result, this paper is to give some considerations of planning product strategies for port authority. (1) Improvement of custom procedures, (2). Restructuring the port organization and management, (3). Extending functions of offshore shipping center (4). Direct sea link across Taiwan strait, (5). Development of logistics center, (6). Revision of improper regulation and introduction of incentive system, (7). Strengthening port marketing education and know-how, (8). Establishment of exclusive marketing and sale department (9). renovation of port facility and port MIS.

Keywords: Port marketing, Product strategy, port authority, seaport, market positioning

I. Introduction

The concept of marketing strategic has been developed for use by manufacturing industries. Its adaptation to service industries has been difficult because of the lack of a physical product which competes directly with other products. it is necessary to adapt this planning concept to the needs of the port industry which is concerned with the type and quality of service provided to individual market (UNCTAD,1993).

Ports are operating in a more and more competitive environment and the importance of marketing in port management and development is being recognized by the port communities almost all over the world. Port marketing however is a relatively new notion, it is only since the 1980s what we can see the notion of port marketing appearing in port organization charts.

Port marketing concerns an overall concept where the whole port community-all-actors-is constantly acting in an awareness of total customer satisfaction. Customer satisfaction is related to the fact that the clients will judge our services in terms of their fundamental value to them.(Eddy Somers and Andre de wilde,1997)

For obtaining an awareness of total Customer satisfaction, it has to define port selection criteria of port user in the primary.

Recent studying paper related with Port selection criteria for carrier has a variety of arguments, we have to refine selection criteria among these factors by means of frequency rate. As a result, it appears Port charges, Geographical position, Service quality, Port facility, Cargo volume, Sea-transport distance, Port efficiency, Port size, Inland tariff, Hinterland linking system, Turn around time and Frequency of loss and damage.

As previously mentioned selection factors had reflected real need of customer behavior, hence port authority has to carefully set up product strategies based on these factors to match with requirement of port user.(Table 1)

Table 1 Port selection criteria

Willingale (1982)	Miki,tatehiko (1985)	B.Slack (1985)	Murphy (1987)
● Proximity of port ● Nautical approach ● Port facilities ● Port charges ● Port size	● Transport distance ● Transport expense	● Number of sailing ● Inland freight rates ● Proximity of port ● Congestion ● Possibility of intermodal links ● Port equipment ● Port charges ● Port security ● Size of port	● Port facilities ● Frequency of loss and damage ● JIT delivery ● Cargo handling expenses ● Possibility of large sized vessel calling on ● Flexibility in Meeting special Requirement
Murphy (1992)	**Brent Mester (1992)**	**Kim,ha-sou (1993)**	**Tan,ie-sue (1993)**
● Large and/or Odd-sized freight ● Large volume shipment ● Low freight handling shipment ● Low frequency of loss and damage ● Port facility	● Transport Costs ● Quality of cargo handling/service ● Cargo volume and quanity ● Cargo handling costs ● Geographic position ● Personal relations ● Frequency of departure	● Annual cargo flow volume ● Cargo price per tone ● Nautical distance ● Inland transport expense ● Shipment time ● Average turn around time	● Nautical facility and possession condition ● Port productivity ● Price competitivity ● Port Service quality
Lee,seo-tai (1993)	**Ni,an-seun (1996)**	**Zue,kim-won (1996)**	**Chung,T.W. & Kwak,K.S. (1999)**
● Geographical position ● Facilities ● Cargo flow volume ● Expenses ● Service ● Operating condition	● Hardware facility ● Software facility	● Geographical position of port ● Direct cargo volume ● Port charges Political and social stability ● Port development project	● Geographical position of container port ● Port charges ● Service quality ● Hinterland linking transportation system ● Government port policy

Source:1.Kim,hong-seob, "A study on the construction scheme of marketing mix strategy of port service, The Korea port economic association,1998.

2.Bernt Mester, "Marketing from the port's point of view", *port marketing book*, Institute of shipping economics and logistics,1992.

3. Ni,an-seun (1996), *a study of port competitive strategy of shipping center in Asia Pacific*, unpublished paper.

4. Zue,kim-won(1996),port marketing of international port in Taiwan, *shipping digest* .

5. Chung,T.W. & Kwak,K.S.(1999), The port marketing strategies of the container terminal, Korea port

association.

Table 2 Frequency rate analysis

Main selection factor	Frequency
Port charges	4
Geographical position	4
Service quality	3
Port Facility	3
Cargo volume	3
Sea-transport distance	3
Port efficiency	2
Port size	2
Inland tariff	2
Hinterland linking system	2
Turn around time	2
Frequency of loss and damage	2

To meet with requirement of port user, port authority has to plan the appropriate product strategies. Eddy Somers and Andre de wilde(1997) proposed product strategies being composed of various elements.

1. Geographical position
2. Nautical approach
3. Hinterland connections
4. Infrastructure and equipment
5. Disposition of quays and land
6. Service whish can be offered
7. Labor force and social climate
8. Information
9. Technical and management know-how
10. Port organization
11. Fiscal management

The client normally makes his choice on the basis of these element, excluding for the moment the question of price, so each of these elements will play an important role in the decision-making process of whether finally the port will be chosen or not. This choice of the port will be determined by the quality of the composition.

Besides, with regard to product strategies, we could find out a variety of product strategies during1979 –1999 by means of literature review.

Table 3 The literature review with product strategies.

Distribution world	Brian Slack	Yamaue, tezu	UNCTAD
1979	1985	1991	1995
1. Transport costs 2. Proximity of port 3. Number of sailing 4. Port equipment 5. Congestion	1. Number of Sailing 2. Freight rates 3. Proximity of Port 4. Congestion 5. Intermodal links	1.Logistic service 2.Upgrade capability of logistic facilities	1. Geographical position 2. Nautical approach 3. Hinterland connection 4. Disposition of quays and land 5. Service 6. Labor force and social climate 7. Know-how 8. Fiscal management
Zue, kimwon	Eddy Somers and Andre de wilde	Ha,do-yon & Hain kwen seog	Institute of port engineering
1996	1997	1998	1999
1.high efficiency and high quality of port facilities. 2.Land available for industrial need. 3.Direct shipping across Taiwan strait.	1.Geographical position 2.Nautical approach 3.Hinterland connections 4.Infrastructure and equipment 5.Disposition of quays and land 6.Service whish can be offered 7.Labor force and social climate 8.Information Technical and management Know-how 9.Port organization 10.Fiscal management	1.Deregulation of stevedoring tariff 2.revise of port facilities charge system	1.Exclusive wharves, stevedoring tools, land logistic and warehouse and other facilities. 2.Acquisition the international quality series recognized by ISO 3.Strengthen the working attitude of labors

Source: 1. Brain slack(1985), "Containerization, inter-port competition, and port selection", *Maritime policy and management*.

2.Kim,hong-seob, "A study on the construction scheme of marketing mix strategy of port service, The Korea port economic association,1998.

3. Zue,kim-won(1996),port marketing of international port in Taiwan, *shipping digest* .

Some debate has been existed whether are they any significant relationship among vessel volume, vessel traffic tonnage and cargo handling volume? We can examine it by correlation analysis according to container cargo handling data of Kaohsiung port over ten years.

As table4 stated significant interrelation among vessel traffic volume, vessel traffic tonnage and cargo handling volume, correlation coefficient between vessel traffic volume and vessel traffic tonnage is 0.99; correlation number between vessel traffic volume and cargo handling volume is 0.99, it proved significant relationship vessel traffic volume and cargo volume.

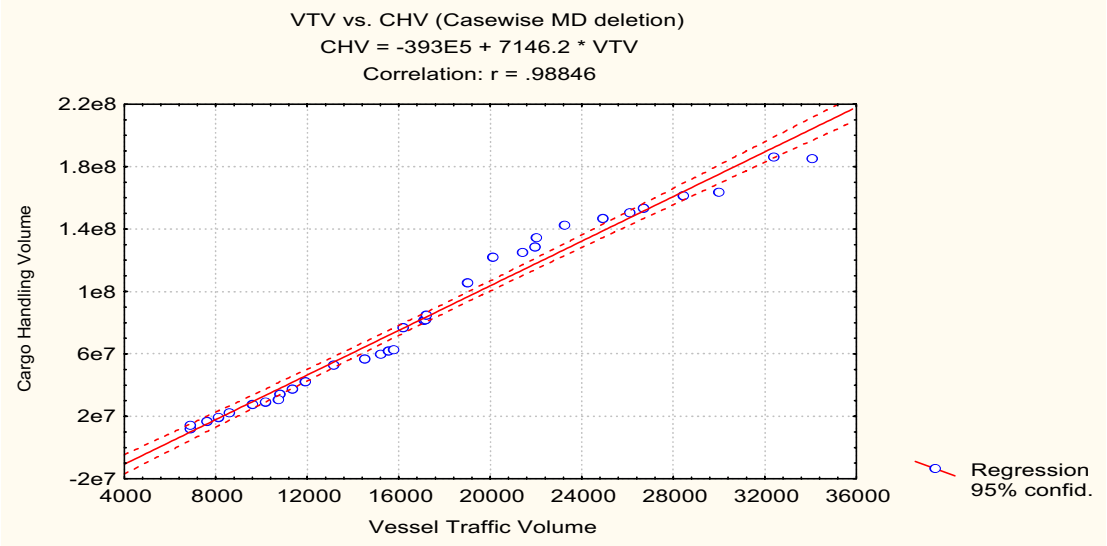
As a result, frequency rate of vessel calling at the Port has directly impact on cargo volume, port authority must plan optimal product strategy with cost efficient and high value-added service port user need and want.

Table 4 Correlation analysis

	Vessel traffic volume	Vessel traffic tonnage	Cargo handling volume
Vessel traffic volume	1	0.99	0.99
Vessel traffic tonnage	0.99	1	0.99
Cargo handling volume	0.99	0.99	1

P<0.05

Figure 1 Regression analysis

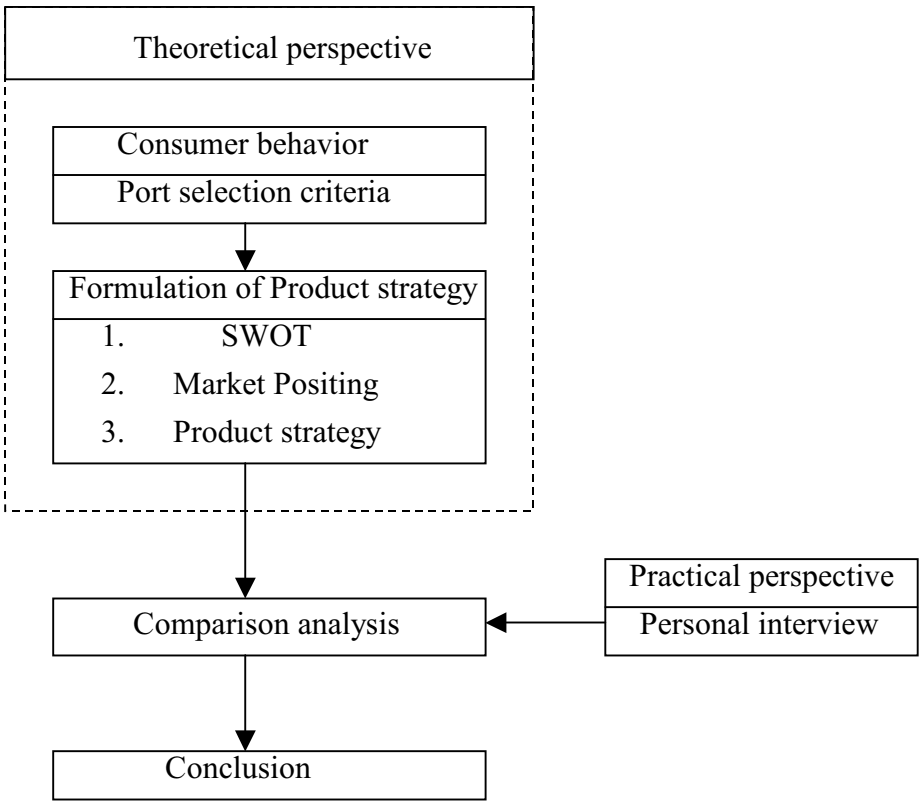


II. Methodology

The purpose of this paper is to highlight rational product strategies for port authority, thus the methodology of this paper is to analyze differences between Theoretical perspective and Practical perspective on product strategies of Kaohsiung port by Comparison approach, the analysis procedure states in the following:

1. Figuring out port selection criteria of port user by literature review.
2. Formulation of product strategies for Kao port by means of basic marketing tools such as swot, market positing and product strategies based on theoretical perspective.
3. Collecting product strategy data from Kaohsiung port authority by interview with some key manager responsible for sale and marketing businesses.
4. Examining the difference between theoretical and practical perspective by Comparison analysis.

Figure 2 The research framework



III. The profile of Kaohsiung port

The Kaohsiung Port located on the southwestern coast of Taiwan and faced the key trade lanes running through the Taiwan Strait and the Bashi Channel, is the largest international seaport in Taiwan. The harbor is spacious with more than 27km2 hinterland. Its area has a pleasant climate, a long sand bar as a natural breakwater, and a good geography, which make it a good natural port.

The Kaohsiung port was declared as the auxiliary port of the port of An-Ping in 1863.Then, the port facilities were commenced to construct in 1908. Kaohsiung port authority was organized to manage and operate the port business in 1945 after World War II .

12 year Harbor Extension Projects was carried out in 1958-1970 , This allowed the facilities such as Chung-Tao Commercial Harbor Ares, Kaohsiung Export Processing Zone termed KEPZ , Container Terminal No1-3, 2and Harbor Entrance and Cross Harbor Tunnel ..etc., could be developed lately and made the Kaohsiung port as a modern international port.

Kaohsiung port has an excellent location, the harbor is naturally formed, the port area is 26.8km2,and can handle ships under 1000,000 DWT. At Present there are 113berths, 25,140m in length including 22 container berths, 6,655m in length, which can take the 6,000TEU Post-Panama type container ships. It is one of the major hub ports in the world, which has worldwide suborned links extending to the five continents.

The Kaohsiung provides a worldwide suborn traffic links with almost all of the famous ports in the world. It handles around 80-mmillion tons of imports and exports annually in terms of about 2.3 of the total cargo volume in Taiwan. The total tonnage of cargo handled for 1996 reached 260-million tons, most of the import cargoes were energy minerals and most of the export cargoes were chemical products, Main import cargoes came from Australia, USA, Saudi Arabia, Japan While main export cargoes went to Hong Kong, Japan and USA, In the same year, the significant container throughput of 5,063,048Teus, has made the Kaohsiung port the third largest container port in the world. Hence Well-Known container shipping companies all have exclusively operated container berths in the port.

At present the port five container terminals have 57container cranes which offer fast and precise service. Their annual loading and unloading capacity is 8 million TEU. They can quickly and efficiently deal with import, export and transshipment containers.

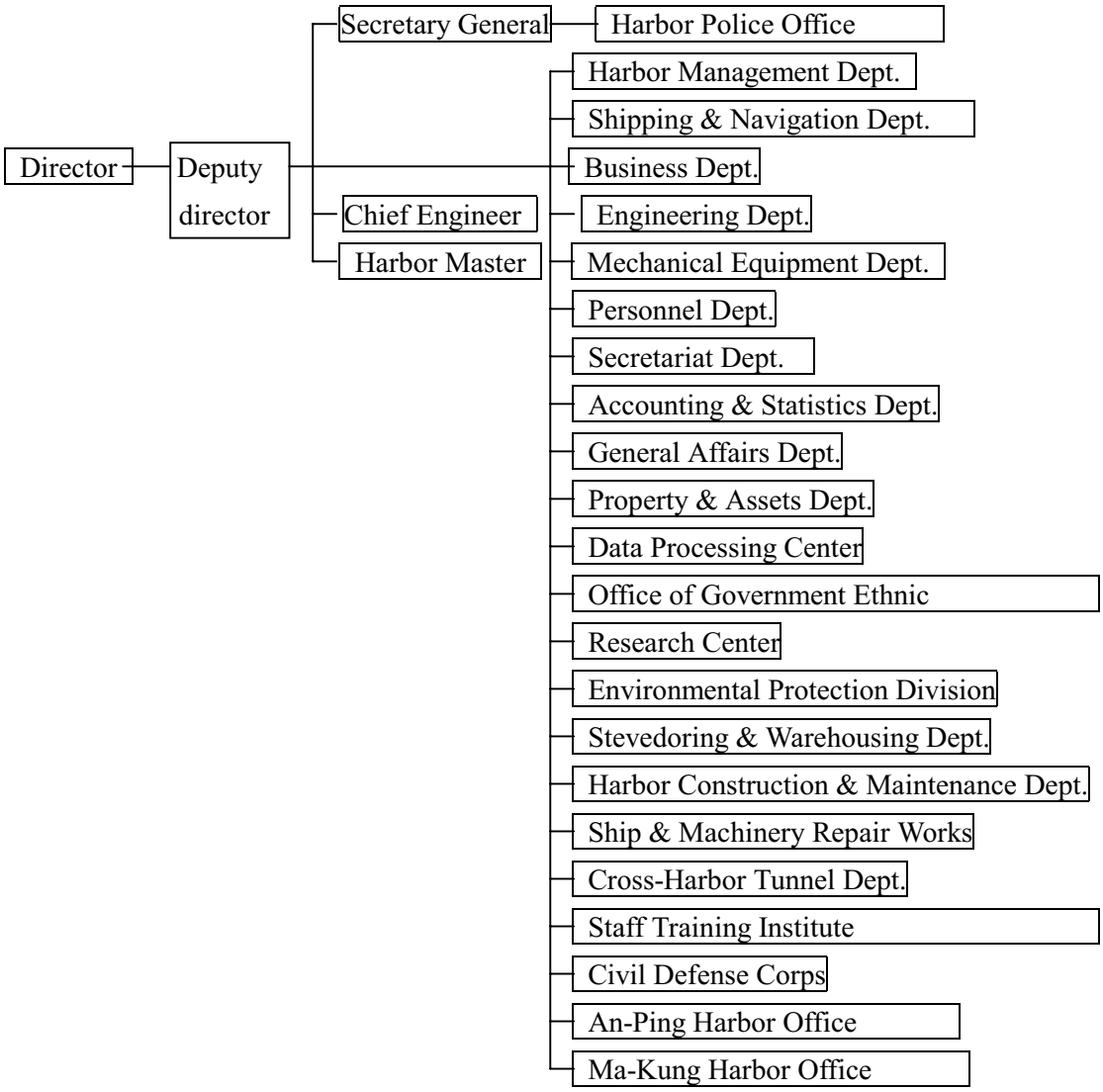
With fast growing in containerization development, the container Terminal No.5 including 8 container berths with 3 of 15 meter deep were completed in 1998 ,which it

can create another 1.4 million Teus of container throughput annually and provide shipping line more better service quality.

Recently, our government is actively planning to develop Taiwan as an "Operation Center" in the Asia Pacific Region, While Kaohsiung port has been selected to develop as a "Hub Port" of the region. To meet this policy, the Kaohsiung port is dedicated to setting a goal to upgrade the service quality and to enhance the operation efficiency for shipping and industrial sectors.

Current organization chart of Kaohsiung port authority was depicted as follow:

Figure 3 Organization chart of Kaohsiung port authority



Source: Kaohsiung Harbor Bureau(1999), *The profile of Kaohsiung port.*

However, As the privatization policy of port authority being submitted by ministry of transportation and communication, the existing organization structure of Kao port authority is to be simplified and downsized in the near future.

In general, Kao port's job functions has been divided into 2 parts, First part of job functions related with port management (such as port marketing, port operation, sale, lease, construction and other tasks) are to be assignment to special public enterprises so called "port of Kaohsiung". Second part of job functions involved in administrative tasks and public power enforcement is to be contributed to the bureau of shipping and harbor in 2001-02. The purpose of port organization transformation is expected to improve efficiency of port operating efficiency and diminish interference of government.

The basic profile of Kaohsiung port was illustrated in brief:

(1) Total harbor area is 111,184,422m2(including land area and water area)

(2) Total navigational channel(containg main channel and branch channel) is 18 Km.

(3) Total Wharves (such as Container berths, General cargo wharves, Bulk cargo wharves, Grain silos and other) are 116.

As Table 6 depicted container-handling volume of international ports in Taiwan in 1990-1999, Kaohsiung port had made a great achievement over years

Table 5 Basic profile of Kaohsiung port

Categories	Descriptions	
Harbor area	Land area	14,423,320m2
	Water area	96,761,102m2
	Total	111,184,422m2
Navigation Channel	Main channel	12 Km
	Branch channel	16 Km
	Total	18 Km
Wharves	Container berths	24
	General cargo wharves	30
	Bulk cargo wharves	31
	Grain silos	3
	Others	28
	Total	116

Source: Kaohsiung Harbor Bureau(1999), *The profile of Kaohsiung port.*

Table 6 Container handling volume of international Ports in Taiwan Area

Unit: 10000TEUs

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Keelung	184	200	194	188	204	216	210	198	170	167
Taichung	12	20	27	30	36	44	69	84	88	111
Kaohsiung	249	391	396	463	489	505	506	569	627	699
Total	445	611	617	681	729	765	785	851	885	977

Source: Department of Statistics Ministry of transportation and communication, Monthly Statistics, 2000. .

Table 7 The performance of Taiwan's ports in 1999

	Unit	1998	1999	Growth rate
Vessel traffic in ports	Vessel No.	68,078	70,477	3.52%
Cargo handling volume	Million tones	49,402	53,409	8.11%
Container handling volume	Million Teus			
Keelung		171	167	-2.34%
Kaohsiung		627	699	11.48%
Taichung		88	111	26.14%
Total		886	976	10.16%
Container handling efficiency				
Keelung	Hours/Per box	22.8	23.5	3.07%
Kaohsiung		29.8	30.2	1.34%
Exclusive lease Terminal		31.2	31.1	-0.32%
Public Terminal		23.6	23.6	0
Taichung		22.4	23.8	6.25%
Vessel transit time	Hours/Per vessel			
Keelung		37.0	35.2	-4.86%
Kaohsiung		44.2	44.5	0.68%
Taichung		48.7	45.2	-7.19%

Source: Ministry of Transportation and Communication (2000), " Annual report",htpp:\\www.motc.gov.tw/service/ana89/8901-2.htm.

After reviewing the performance of international ports in 1999 published by ministry of transportation and communication, it can be made some conclusion.

1. Total vessel traffic of international ports in 1999 is 70,477 vessels; its growth rate is 3.52% over than 68,078 vessels of 1998.
2. Total Cargo handling volume in 1999 is 53,409 million tones; its growth rate reached 8.11%, comparing with 49,402 million tones of 1998.
3. The container handling volume of Kaohsiung port and Taichung port have an increasing trend, but for Keelung had negative performance by –2.34% growth rate comparing with previous year.
4. As for container handling efficiency, except 31 boxes per hour of exclusive leasing terminal and 30.2 boxes per hour of Kaohsiung port, the other Taichung port and Public port are average 23 boxes per hour. Port authority must upgrade port facilities and automatic operating system, otherwise she

will lose competitive advantage on the serious battlefield.

5. Kaohsiung port's vessel transit time increased from 44.2 hours of 1998 to 44.5 hours of 1999, its performance is not reasonable if comparing with 35.2 hours in 1999 of Keelung port. Therefore Port authority of Kaohsiung should improve current custom clearance and port handling facilities so as to diminish vessel turn around time.

IV. Product strategies formulation of Kaohsiung port

1. Market prospect

Over the past ten years, Taiwan people have made a total of 13 million visits to Mainland China while the number of visits by mainland people to Taiwan has reached around 250,000, moreover, mainland China has become Taiwan's largest investment Destination, absorbing 40 percent of Taiwan's total oversea investment.

Although some local businessmen disagree with government's "no haste, be patient" policy governing Taiwan investment in the mainland, however the purpose of this policy only restricted to high-end and infrastructure investment projects worth more than US$250,000, the other types of investment are not subject to the same regulations. Nevertheless, the recent investment amount of Taiwan companies on Mainland China has some influenced by such policy as it is shrinking from US$ 320.6million of 1996 to US$ 269million of 1997.

If the Great Chinese Economic region were composed of Taiwan, Mainland China and Hong Kong, it would constitute the world's fifth largest economy, with a combined GNP of US$ 1.33trillion that would trail along the United States, Japan, Germany and France. Cargo handling volume in Great Chinese economic region is expected to increase from 2,190 million TEUs of 1993 to 5,774 million TEUs of 2000. No one could neglect the potential market with booming economic development even through horrible Asia financial crisis.(intermodal Shipping,1997).

In addition, As table 8 indicated the prospect of Inbound and outbound container volume on North American Shipping routes published by DRI/McGraw-Hill and KMI, it shows total container volume has increased from 9,292 thousand Teus of 1996 to 12,605 Teus of 2000.

As regard to domestic market prospect illustrated by Table9, there is a trend analysis of different cargo categories (including Total bulk and general cargo, container cargo) according to past cargo volume statistics. It appears total bulk and general cargo volume of Kaohsiung port being increasing from 10,508 million tones of 1997 to 12,771 million tones of 2001; container cargo volume is growing from 570

Teus of 1997 to 1028 Teus of 2001.

Consequently, market prospect of Kaohsiung port is expected to be optimistic no matter according to foreign or domestic sources.

Table8 The prospect of Inbound and outbound container volume on North American Shipping routes

Unit: 1000TEU, %

		1996		1997		1998		1999		2000	
		Volume	Growth Rate	Volume	Growth Rate	Volume	Growth Rate	Volume	Growth Rate	Volume	Growth Rate
INBOUND	Mainland China	1,826	26.6	2,351	28.8	2,892	23.0	3,476	20.2	3,844	7.1
	Nies	1,104	2.0	1,184	7.3	1,480	25.0	1,547	4.5	1,624	5.0
	Japan	1,027	-1.4	1,098	6.9	1,186	8.0	1,180	-0.5	1,217	3.1
	South-east Asia	817	10.0	882	8.0	1,059	20.0	1,151	8.7	1,272	10.5
	West-South Asia	185	10.1	207	11.9	228	10.0	256	12.3	280	9.4
	Subtotal	4,959	10.8	5,723	15.4	6,845	19.6	7,610	11.2	8,237	8.2
OUTBOUND	Mainland China	364	29.2	415	13.8	402	-3.0	447	11.1	482	7.9
	Nies	1,640	6.6	1,661	1.3	1,362	-18.0	1,433	5.2	1,629	13.7
	Japan	1,394	-2.1	1,359	0.1	1,298	-73.0	1,260	-2.9	1,281	1.7
	South-east Asia	788	14.8	828	5.1	596	-28.0	678	13.8	762	12.4
	West-South Asia	148	9.6	165	11.4	181	10.0	198	9.4	214	8.1
	Subtotal	4,333	6.6	4,463	3.0	3,839	-14.0	4,016	4.6	4,368	8.8
Total		9,292	8.8	10,187	9.6	10,684	4.9	11,626	8.8	12,605	8.4

Source: 1.DRI/McGraw-Hill and KMI

2.the volume of 1998 ,1999,2000 is forecasted.

Table9 The anticipated cargo volume of the international ports

		Keelung			Taichung			Kaohsiung			Hualian		
		1997	2000	2011	1997	2000	2011	1997	2000	2011	1997	2000	2011
Total bulk & general Cargo (Million tones)		1408	1749	2813	3947	4254	5346	10508	14000	12771	1146	1950	2421
Container(million Teus)	Inbound & Outbound	187	0	378	69	0	156	319	0	463	0.4	0	0
	Transshipment	11	0	61	15	0	104	251		565	0	0	0
Total		193	205	439	84	100	260	570	800	1028	0.4	0	0

Source: Institute of port engineering of Taiwan province (1999), international marketing planning for

international Commercial ports in Taiwan district.

2. Theoretical perspective

According to ministry of transportation and communication ‘s statistics indicated total revenue in 1999 of Kaohsiung port is 359 million dollars; Keelung port is 212 million dollars; Taichung port is 165 million dollars respectively. Nevertheless, as to net income, Kaohsiung port is 73 million dollars, Taichung port is 30 million dollars, and both of them were more than 18 million dollars of Keelung port.

“A study of competitive strength and core competence of Kaohsiung port ” published by Lee, zai-won (1999) to analyze Kaohsiung port by means of SWOT (including Strength, Weakness, Opportunity and Threat) finding insufficient recognition of port marketing in this organization(see table 10).

In addition, based on the past container throughput in1991 –1999, it can depict port portfolio of international container port in Taiwan area by means of BCG analysis approach. For instant, Kaohsiung port is in the position of “star”, Keelung port is “poor dog”, Taichung port is in “question mark”. (See figure 4)

“ Question mark”

Here we find out products that are still in the introductory phase at the beginning of their life cycle. They promise a strong growth rate, but at first show only a very small share of the market. An effort will have to make to effect an increase in the market share by means of offensive strategies. Taichung port has made a great achievements on fast growth container handling volumes over ten years because its ideal geographic location in central Taiwan, no matter shipping companies or logistic companies are anxious to lease the container terminal or logistic warehouse in harbor on the consideration of transport factor.

Nevertheless, owing to strong challenge from Kaohsiung and Keelung port, Taichung port is looking for a niche market for survival, such as, logistic center, Free Trade Zone, direct link between Taiwan and Mainland China.

“Star”

These are the products that in general bring in a profit. Re-investment is necessary in these cases to ensure and improve the actual market position. After privatization of port operations Kaohsiung port has not only offer shipping companies more reasonable port charges but also more high efficiency operating service than before. However the serious threat from domestic and foreign she also have to find out the niche market as well as Taichung port, for instant extending the function of offshore

shipping center ,logistic center, direct sea-link across Taiwan strait, etc,.

"Poor Dog"

"Poor dog" have no great share of the market, nor are they in a state of growth, In the long run it is advisable to remove these products from portfolio by mean of div-investment strategies.

The growth rate of Keelung port has slowed down on the container cargo volume because of insufficient of existing port facilities and land capacity for the large sized vessel calling on. It appears so hard for Keelung returning back the past gold age if its inferior conditions have not improved in the future.

In particular, facing the serious threat from Taipei port located near by Taipei city has deep water depth over 15m^2 with a large hinterland available for operating logistic business, so many international shipping companies and logistic companies are interested to own the exclusive container berth through BOT process. The dramatic inter-port competition arising between Keelung port and Taipei Port, it directly hints cargo volume of Keelung port in term of substitution effect.

Figure 4 the international container port Portfolio in Taiwan Area

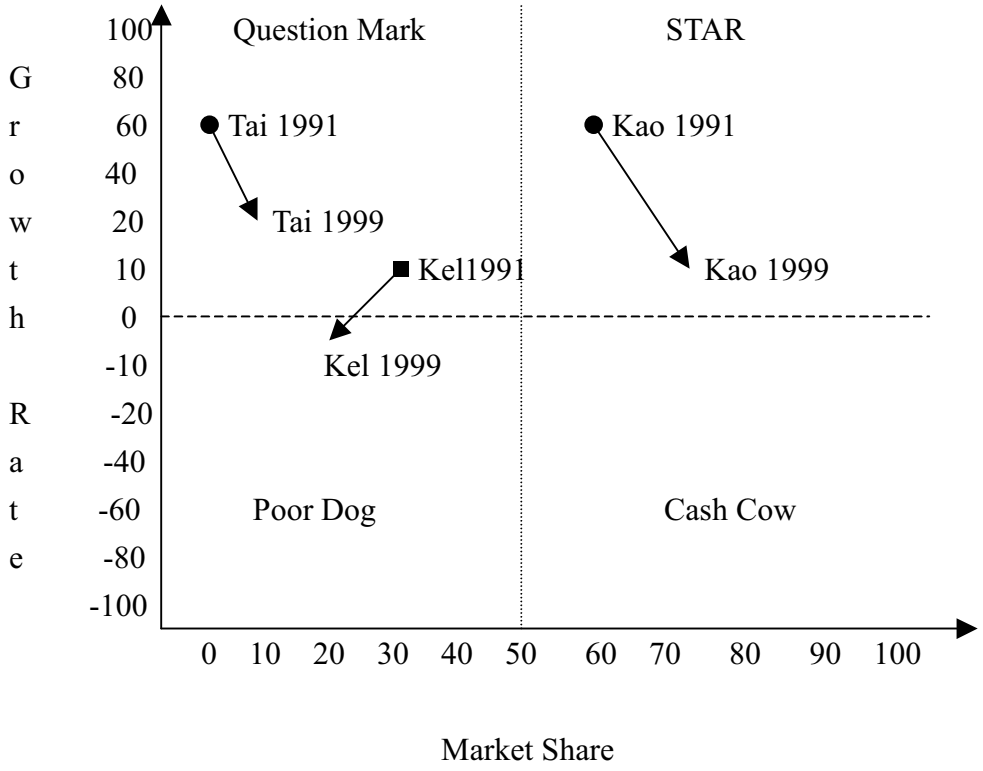


Table10 SWOT analysis of Kaohsiung port

Strength	Weakness
1.Ideal geographical location 2.Superior harbor conditions 3.Excellent harbor facilities 4.Offshore shipping center 5.Stable growth of import and export resource in Taiwan 6.competitive port tariffs	1.Shortage of external linking accesses out of port region. 2.Insufficient recognition of port marketing 3.Coexistence with commercial port and fishing port endanger nautical approach 4.Inefficiency of custom clearing process 5.Unstable position of port authority hinder administrative operation efficiency 6.Port informative operation service being fall behind than other main competitor 7.Repeat investment of domestic port facilities arise serious inter-port competition. 8.Ambitious political climate across Taiwan strait restrict port development
Opportunity	**Threat**
1.According to government programs of multi-functional economic and trade districts forms the combined development of City and port. 2.As a direct shipping port across Taiwan strait through the operation of offshore shipping center. 3.With large port hinterland and land resource becomes a port center with multi-functional service 4.To diversify transport service value creation by coordination among sea, air, surface so called intermodal transportation. 5.Development of process and re-production promotes high added value in logistic zone 6.Presence of large sized vessel and containerization stimulate the development of appropriate transport condition available for Kaohsiung port 7.Privatization of harbor operations and rationalization of stevedore hiring systems improves efficiency of port operation 8.Obtainment of ISO 9002 recognition to refresh new service quality concept of port employees	1.Imperfect port regulation being hard to deal with threat from external competition and future challenge 2.Cargo sources transition formed by consistent extend port facilities of mainland china and other main competitors. 3.Effect cargo transition owing to domestic inter-port competition. 4.Port pollution occurred by insufficient capabilities of port environment protection. 5.Imbalance development between port and city's land construction. 6.Serious threat from deep depth sea ports in south-east Asia

Source: Lee,zai-won (1999), A study of competitive strength and core competence of Kaohsiung port,

Kaohsiung port authority.

Dinh Yann Tsai and Kuo Tung Lin(1998) concluded the market segmentation factors for Taiwan 's international port stated :

1.Carriers(liner or tramp)
2.Cargo types(container, bulk, general cargo, chemical and so on)
3.Economic hinterlands(northern area, central area, southern area, eastern area of Taiwan)
4.Shipping routes(Asia-Pacific route, Europe route, Global route)
5.Industries(Carrier, warehouse operator, stevedoring company, processing industries, logistics and so on)

Meanwhile, they also proposed the theoretical framework of market positing of international ports in Taiwan, as for Kaohsiung port, Target market selection is container market, Mass bulk cargo, general cargo, international transshipment market and process and re-export of manufacturing market and logistics market. Market position is main international port for container transport in Taiwan, Import ports of liquid, general cargoes in southern Taiwan, Main import and export port of general cargo in southern Taiwan, Hub port with International transshipment center functions and International integrated port with multi-functions.

Table11 Target market segmentation and market position of international ports

	Market segmentation	Market position
Kaohsiung port	1.Container market 2.Mass liquid, bulk cargoes market in Taiwan southern districts 3.general cargoes market in Taiwan southern 4.international transshipment market 5.process and re-export of manufacturing market and logistics market	1.main international port for container transport in Taiwan 2.Import port of liquid, general cargoes in southern Taiwan. 3. Main import and export port of general cargo in southern Taiwan. 4.Hub port with International transshipment center functions 5.International integrated multi-functions port
Keelung port	1.Coastal container market in northern Taiwan northern. 2.Oil market available for power station of Sie-he 3.Cement, coal and other general and bulk cargo market in northern	1.Main international commercial port of cargo source in northern district. 2.Shipping transshipment centers assistance ports as an import and export port for high value cargo.

	Taiwan. 4.Shipping cargo sources market for coastal transport around Taiwan area. 5.Transit container market of assistant port across Taiwan strait.	3.Main hub port on around Taiwan island navigation round.
Taichung port	1.Mass bulk cargo market around Taiwan area 2.Mass bulk cargo market for Central Taiwan 3.Direct shipping market across Taiwan straits 4.General and bulk cargo market	1. Main port for cargo source in central district 2. Main import and export of general cargo 3. Hub port with shipping transshipment center, logistic network center for district process, re-export and distribution.
Hualian Port	1.East cement, mine, lime market 2.general cargo market 3.Around Taiwan island market	1.Key international port in Eastern Taiwan. 2.Main export port of cement, rock, lime etc in eastern Taiwan. 3.Main import port of granite 4.Main port for navigation routes around Taiwan island

Source: Dinh-Yann Tsai and Kuo-Tung lin (1998), "port marketing in Taiwan's international port and harbors", KaoPort21 international conference on shipping development and port management, Kaohsiung harbor bureau.

With regard to product strategies of Kaohsiung port, Zue, kim-won (1996) proposed his opinions as following:

1. High efficiency and high quality of port facilities.
2. Land available for industrial need.
3. Direct shipping across Taiwan Strait.

Moreover, "a study of container marketing strategies of Kaohsiung port" written by Fan, wan-pin (1999) stated as:

1. Promotion of port infrastructure
2. Improvement of berth turnover rate
3. Automatic custom operating system
4. Establishment of VTMS
5. Development of Warehouse Transshipment Zone
6. Setting up Cargo tracing system

Finally, institute of port engineering in Taiwan province (1999) had published research report the title of "international marketing planning for international Commercial ports in Taiwan district" associated with the product strategies for Kaohsiung port indicated as below:

1. To set up one-stop service center as some special service representatives to cope with the requirement of exclusive berth leasing tenant.
2. Privatization of port operation
3. Promotion of pilot service
4. Simplification with custom procedures
5. Upgrade port information system
6. Protection of navigation safe and establishment of VTMS
7. Renovation of port facilities
8. Optimal planning of ports new land usage and developing various special zones.
9. Deregulation of port user's restriction.
10. Obtainment of ISO 90002 ratification in 1998.
11. Establishment of port business center available for not only related business units in port authority but also port related sector such as financial and other service companies.
12. Development of free leisure space for Kaohsiung citizen.

V. Comparison analysis between Theoretical perspective and Practical perspective

1. Practical perspective

After personal interviewed the key manager being charged in marketing and sale business and collected the related data from port authority of Kaohsiung, it appears existing product strategies adopted by port authority:

1. Privatization of port operations
2. Rationalization of stevedore hiring systems
3. Operation of Vessel transportation management system(VTMS)
4. Simplification of port logistic processes.
5. Promotion of Off-shore shipping center function
6. Improvement of international logistic service
7. Port communication with EDI network system
8. Upgrade Handling facilities
9. improvement of external linking highway system

10. Construction of port infrastructure by BOT and/or Joint Venture

11. Berth assignment with automatic operating system

In addition, As previously mentioned marketing problems occurred in Kaohsiung port, there are a number of issues waiting for solution on the existing system. For instant, inflexible customs procedure, legal limitation of offshore shipping center's development, insufficient knowledge of port marketing, no exclusive marketing and sale department, etc,

2. Comparison Analysis

Based on Comparison Analysis between theoretical perspective and practical perspective, it can simply find out the significant difference, the common points of both sides are Privatization of port operations, Simplification with port custom processes and Operation of Vessel transportation management system(VTMS).

As for different points, the theoretical perspective proposed by Institute of port engineering stressed the importance of the future product strategies0, such as one-stop service center, promotion of pilot service, upgrade port information system, optimal planning of port new land usage etc.

Besides, the practical perspective adopted by Kaohsiung port authority focused on the improvement of existing port function, such as promotion of off-shore shipping center function, improvement of international logistic service, port communication by EDI network system and so on.

Owing to development of port marketing research being at the beginning stage, it's an ambitious concept for theorist or practitioner so hard to figure out the optimal product strategies of Kaohsiung port. Some strategies were attributed to the domain of product strategies, such as obtainment of ISO 9002 ratification, privatization of port operations, rationalization of stevedore hiring system and deregulation of port user's restriction, it seems like not appropriate.

Through examining differences between theoretical perspective and practical perspective by comparison approach, we can make a brief remark:

1. improvement of custom procedures

As table 7 showed vessel transit time of Kaohsiung port has increased from 44.2 hours per vessel in 1998 to 44.5 hours per vessel in 1999, its performance is not reasonable if comparing with 35.2 hours in 1999 of Keelung port.

May be it so hard to define the real problems where it is in a short time, however current port logistic system in Kaohsiung port has several problems need to be revised

based on total cost concept. For example, custom clearing process, custom custody charges and system, port construction fee, Entering barrier , regulation restriction, and so on. (Charlie young, 1999)

Above all, it is necessary for custom authority to transform old custody attitude into new customer-driven attitude, we perhaps should adopt the principle of " cargo pass first, document check later" used by Hong Kong and Singapore to accomplish the objectives of transit time reduction and cost down.

2. Restructuring port organization and management

For improving efficiency of port operating and productivity of port authority, our government has performed a series of port privatization activities since 1998 including privatization of port operations, rationalization of stevedore hiring systems, deregulation of port user's restriction and so on. Such port operating privatization has made a great achievement on diminishing vessel turnaround time and increasing cargo-handling efficiency for carriers. Meanwhile, the containers handling throughput of Kaohsiung port had almost broke the record of 7 Million Teus last year.

However, according our government's policy the category of port privatization is not only limited to port operating privatization but also including port organization privatization. For reducing interference from government and keeping independent management system, port authority is expected to become a special public legal entity so called port of Kaohsiung. If this project could be performed smoothly in the coming year, port authority will make decision process more fast and offer its client more competitive price than before. After all, software reform is more important than hardware reform.

3. Extending functions of offshore shipping center

Any shipment from mainland china via offshore shipping center is not allowed to enter the domestic according to the exiting policy of " No Custom clearance and No entrance", it's force to limit development of offshore shipping center.

Even though increasing freight volume from 105 thousand Teus in 1997 to 354 thousand Teus in 1999, we can't provide our clients any high value added activities such as simple processing, labeling, stuffing and unstuffing, co-loading and other logistic activities. For extending functions of offshore shipping center, our government has to revise the exiting regulation and create more flexible environment for port users.

4. Direct sea link across Taiwan straits

Our national vessels can't carry any Mainland China's shipment without indirect

navigation via other countries under old government policy in term of " No haste and Be patience", such regulation make our domestic shipping companies have to re-flag their vessel nationalism or joint venture with foreign companies. In contrast, foreign shipping companies are enjoying a lot of profit by utilizing these opportunities.

For dealing with this issue our government have to sign bilateral navigation agreement with Mainland China as new president appears on the stage in 20 May. According to new government transport agenda in favor of " Direct Link with Mainland China by 3 way", it appears such issue can be solve through bilateral negotiation in the near future.

5. Development of Logistic center

For labor cost reduction and upgrading productivity most of state owed companies have forces to lay off the unproductive employees after privatization, some management prefer transferring some employees to other public sectors or private sectors to eliminate labor dispute or labor strike.

Several lands in WTSZ (warehouse transshipment special zone or so called logistic center) owned by state companies are eager to support this project for labor dispute settlement and organization transformation, but they are not capable of handling any related activities due to insufficient logistic management know-how and technical skill.

Port authority of Kaohsiung facing the same problem as well as stated-owned companies are not able to operate logistic center by himself, and also has no any integrated development project in the long term. It appears that there is not enough sophisticated person or department being responsible for this filed in the organization.

To solve this issue our government should set up the education institution of helping port authorities to promote logistic know-how and management skill including transportation, distribution, automatic warehouse and information management. Meanwhile, for elimination of learning curve port authority could cooperate with superior domestic or international logistic firms to establish logistic center or Free Trade Zone by way of BOT, Joint Venture or Strategic Alliance.

6. Revision of improper regulation and introduction of incentive system

As for the equation of cargo handling volume =-393e5+7146.2*Vessel Traffic Volume, it proved a positive relationship between cargo handling volume and vessel traffic volume. Therefore, it's of vital important for port authority attracting more

carriers to use its port service, however existing budget and personnel regulations restrict port authority taking any flexible marketing strategies.

Hence, our government has to not only revise improper regulations but also introduce some “revenue center system” being prevailed in private sector. It would be an incentive for port marketer or sale men to perform their duties with aggressive attitude.

7. Strengthening port marketing education and know-how

After privatization of port operating system port management begins to stress the importance of port marketing since 1998, it’s a new term as well as port logistics for anyone. If comparing with advance country, domestic related research is still staying at the primarily stage. Although Service marketing can be applied to port industry, it’s so difficult to use the same method to perform marketing strategies on account of its special characteristic.

For reaching the consensus of port marketing port authority has to offer an incentive for employee to receive port marketing education through school or external teacher expert in this filed, and assign sale mission to periodic visit sister ports and shipping companies for information exchange.

8. Establishment of exclusive marketing and sale department

On existing structure of port organization, the port marketing tasks are dispersed into a number of departments such as business department, research department, stevedoring and Warehousing department, and other department. That means port users have to contact with different units if they need a variety of customer services. For solving this issue our government have to set up “one stop service center” as well as exclusive marketing and sale department being responsible for port marketing tasks such as marketing research, market promotion, port sale, marketing planning, customer service center etc.

9. Renovation of port facility and Port MIS

As for container handling efficiency, there no significant difference between 30.2 boxes per hour of Kaohsiung port and 31 boxes record of exclusive leasing terminal. However comparing with high efficiency of Hong Kong port and Singapore port, port management should upgrade cargo-handling facility to decrease operating time and also to meet presence of large sized vessel.

Furthermore, using EDI system of Kaohsiung port has decreased custom clearance time and paperless process. Our government have to transform Port MIS system to port logistic system in the future, it's expected to diminish vessel turn around time and create high value-added service quality.

Table 12 Comparison Analysis

	Theoretical perspective	Practical perspective
Privatization of port operations	●	●
Rationalization of stevedore hiring systems		●
Operation of Vessel transportation management system(VTMS)	●	●
Simplification of port Custom processes.	●	●
Promotion of Off-shore shipping center function		●
Improvement of international logistic service		●
Port communication by EDI network system		●
Upgrade Handling facilities and port facilities		●
Construction of port infrastructure by BOT and/or Joint Venture		●
Berth assignment with automatic operating system		●
improvement of external linking highway system		●
One-stop service center	●	
Promotion of pilot service	●	
Upgrade port information system	●	
Optimal planning of port new land usage and various special zone	●	
Obtainment of ISO 90002 ratification in 1998.	●	
Deregulation of port user's restriction.	●	
Establishment of port business center	●	
Development of free leisure space for Kaohsiung citizen.	●	

VI. Conclusion

Our report clearly defined port selection criteria of carrier, and then compare the difference between theoretical product strategies and practical product strategies in the context of Kaohsiung port, finally this paper attempts to give a number of rational suggestions for port authority.

The suggestions of this paper can be summarized in the following:

1. Recent studying paper associated with port selection criteria has a variety of selection factors, we have to refine selection criteria among these factors collected from 1982 to 1999 by means of frequency rate. As a result, Main port selection factors for carrier based on frequency rate analysis, it appears Port charges, Geographical position, Service quality, Port Facility, Cargo volume, Sea-transport distance, Port efficiency, Port size, Inland tariff, Hinterland linking system, Turn around time and Frequency of loss and damage.

2. By comparison analysis between theoretical perspective and practical perspective, it can simply find out a number of common points such as Privatization of port operations, Simplification with port custom processes and Operation of Vessel transportation management system (VTMS).

3.There are significant interrelation among vessel traffic volume, vessel traffic tonnage and cargo handling volume, it means that frequency of vessel calling at the Port has a direct influence on cargo volume, thus port authority must design more attractive product strategies for carriers making use of port service.

4. The current port logistic system in Kaohsiung port has several problems need to be revised. For example, custom clearing process, custom custody charges and system, port construction fee, Entering barrier, regulation restriction, and so on.

Moreover, it is necessary for custom authority with custom-driven attitude to simplify custom procedure and easy inspection process, thus it will result in cargo and vessel movement more smoothly.

5. For reaching the consensus of port marketing port authority has to offer an incentive for employee to receive port marketing education through school or external teacher expert in this filed, and assign sale mission to periodic visit sister ports and shipping companies for information exchange.

6. As for container handling efficiency, port management should upgrade cargo-handling facility to save operating time and also to meet presence of large sized vessel. Furthermore, using EDI system of Kaohsiung port has decreased custom clearance time and paperless process. Our government should transform

Port MIS system to port logistic system in the future, it leads to diminish vessel turn around time and create high value-added service quality.

7. Any shipment from mainland china via offshore shipping center is not allowed to enter the domestic according to the exiting policy of " No Custom clearance and No entrance", it's force to limit development of offshore shipping center. Therefore our government have to relief of existing legal restriction and extend functions of offshore shipping center, such as simple processing, labeling, stuffing and unstuffing, co-loading and other logistic activities.

8. At existing structure of port organization, the port marketing tasks are dispersed into a number of departments such as business department, research department, stevedoring and Warehousing department, and other department. That means port users have to contact with different units if they need a variety of customer services. For settlement this issue our government have to set up "one stop service center" as well as exclusive marketing and sale department responsible for port marketing businesses such as marketing research, market promotion, port sale, marketing planning, customer service center etc.

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