

**Container movement between the US and China:
Impact on Supply Chain Management**

By

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B.S. in Computer Engineering and Informatics (2005)

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Signature of Author _____

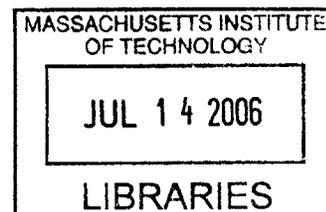
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Table of Contents

Table of Contents	3
Acknowledgments	5
Abstract	7
Introduction	9
Purpose	9
Content.....	9
Chapter 1 – China’s Economic Overview & U.S. – China Trade	11
Economic Analysis	11
Economic Indicators Overview	13
Foreign Direct Investment	15
Trade Overview	18
Trade Surplus.....	20
Imports.....	21
Exports.....	22
US – China Trade.....	23
Trade of Services.....	24
Trends and concerns in the Chinese Economy	25
Chapter 2 – Supply Chain and Containerized Trade	29
US- China Containerized Trade	29
China’s Supply Chain Infrastructure	31
Labor Force.....	31
Infrastructure.....	33
The Logistics Market.....	41
United States Logistics	43
Ports.....	43
Railroads.....	48
Concerns about outsourcing in China.....	53
Chapter 3 – The Container Shipping Industry	57
Effect on Container Shipping.....	57
Major Carriers and Services.....	61
Mergers, Acquisitions and Alliances	61
Far East to North America scheduled services offered by major carriers	63
Chapter 4 – New Balance in China	73
Abstract.....	73
Company Background	73
Commitment to domestic manufacturing	74
“New Balance for \$60 or New Barlun for \$20?”	76
Cost of fight against copies.....	77

Structuring a deal in China	78
Intellectual property protection	79
Other problems in the go-to-China process	81
Going back to China	81
Exhibit 1	83
Exhibit 2	84
Exhibit 3	85
Chapter 5 - Nike Inc: Terminals and Supply Chain Flexibility.....	87
Abstract	87
Nike Background.....	87
Nike Channels	89
West Coast Ports	91
Port Diversification	92
Other problems moving to China	94
Chapter 6 - Conclusions	99
Appendix A - Indices.....	101
Table Index	101
Figure Index	101
Appendix B – Companies offering Scheduled Routes form the Far East to China	103
Bibliographic Reference.....	105

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Abstract

The substantial growth of the Chinese economy over the past decades and the accession of People's Republic of China in the World Trade Organization, have formed a completely different trade environment. Outsourcing activities are the most important activities taking place in such an environment, benefiting from low labor cost in PRC. The United States of America are heavily involved in such activities and most multinational companies from the USA have moved their manufacturing activities in PRC. As a result trade between the US and China has substantially increased during the last decade. The ability to support such increase in terms of supply chain infrastructure and the problems faced by large companies when moving to China are the focus of this thesis. An overview of the Chinese economy is also presented as to give an image of the current market conditions, opportunities and issues in this transitional stage. Nike Inc. and New Balance Athletic Shoes are examined as large companies facing problems and giving solutions to improve parts of their supply chain.

Keywords: Supply Chain Management, infrastructure, ports, shipping, outsourcing, intellectual property

Supervisor: Henry S. Marcus

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Introduction

Purpose

China's economic growth and evolution into a huge manufacturing center hosting outsourcing activities from around the globe companies, makes China the epicenter of all economic and trade activities. The United States of America are one of the major investors and support factor to this growth.

Many US companies outsource their manufacturing activities to low labor cost regions in People's Republic of China, trying to cut the total production cost. As more and more companies follow this strategy, imports have increased in a level at which the tolerance of the infrastructure to support such activities is questionable.

Supply Chain Management is essential for having successful operations in China. From the raw materials to the finished product and delivery of it on the shelf there should be an underlying strategy that allows for performance and efficiency to be achieved. Otherwise it is very probable for the gains of low labor cost to vanish, into broken links of the Supply Chain. Transportation infrastructure, warehousing, and logistics service are of the essence when designing a China-to-US supply chain. As most of the products produced in China for use in the US travel through the Pacific Ocean, makes a closer look to the maritime industry and its evolution along with the Chinese phenomenon necessary.

The purpose of this thesis is to provide all the necessary information and analyses on both the economy of PRC and the infrastructure supporting trade with the United States, as well as to provide with propositions regarding outsourcing strategy aspects through case studies of US companies outsourcing to China.

Content

The first chapter analyses the Economy of the People's Republic of China, the trends and concerns for the economic development and the role of trade with the United States of America in this development. Economic indicators are analyzed, in order to

provide a wider view of what should someone expect in terms of future development, China market evolution and political changes.

The second chapter presents the infrastructure of both the People's Republic of China and the United States of America – with a closer look on West Coast ports, as these ports are the gateways for cargo from China. Problems and inefficiencies of the infrastructure on both sides of the Pacific Ocean are analyzed; Furthermore, future developments and investments as well as alternatives for moving cargo are also presented.

The third chapter deals with the Maritime industry. The nature of the products made in China, has a significant impact on the extreme growth of containerized cargo traveling through the Pacific. Future development of the shipping industry and services provided by major carriers are presented.

The fourth chapter discusses an incident of Intellectual Property theft, with New Balance being the victim and its major partner in China being the thief. This case study proposes factors that should be examined carefully when outsourcing in China and also discusses New Balance's manufacturing strategy and other problems faced or created by outsourcing activities in China.

The fifth chapter analyzes the importance of flexibility in the Supply Chain and diversification in distribution network. The Port Diversification strategy of Nike in both the US and China is presented, along with Nike's supply chain strategy and problems faced or created by outsourcing activities in China.

The sixth chapter compares the two companies in terms of customer base, information technology dependence, manufacturing activities and retail sales strategy.

Chapter 1 – China’s Economic Overview & U.S. – China Trade

The past two decades have witnessed the evolution of China’s economy, into a global economic superpower. The accession of the country in the World Trade Organization in 2001 gives the Chinese dragon an extra boost to continue evolving and emerging, by increasing imports and exports dramatically, and allowing for foreign investments to be made in China.

Economic Analysis

Chinese Economy at a Glance			
	1995	2000	2005
Population	1.22 Billion	1.28 Billion	1.3 Billion
Total GDP	\$0.7 Trn	\$1.07 Trn	\$1.9 Trn
GDP Growth	11%	8%	10%
Per Capita GDP	574	847	\$1,462
Exchange Rate	8.3514	8.278	\$1 = CNY8.2
Exports (Q1-Q3 2005)	\$149Bn	\$249Bn	\$682Bn
Total Imports	\$129Bn	\$206Bn	\$651Bn
Unemployment Rate	2.90%	3.10%	4%
Annual Inflation			3.4%

Figure 1 - China - Main Economic Indicators - Source: USCBC, Fairplay

China has had a consistent average GDP¹ growth of 9.9% over the last 25 years; 51% of its GDP growth comes from its industry and construction. The world growth rate in 2004 was 5.1%, the highest in nearly 30 years falling to 4.3% during 2005. By 2010, Chinese GDP is expected to account for 5% of the world total. China’s rapid development and growth since its inclusion to the WTO² in 2001 has resulted in an increase in FDI³. Currently more than \$1 billion in FDI flows into China every week (second only to the US). This investment further increases the demand for raw materials making China the largest consumer of iron ore and steel, and the second largest consumer of oil. The surge in manufacturing over the past decade as well as the relocation of manufacturing industry from western industrialized nations to China has resulted in the rapid increase in exports. The WTO predicts trade volume to increase by at least 9% for the next 2 years (down from 13% during 2002-2004).

¹ GDP: Gross Domestic Product

² WTO: World Trade Organization

³ FDI: Foreign Direct Investment

China's foreign trade accounts for \$1.15 trillion making it the third largest trading nation. (Three years ago it was 7th). China contributed to about half the growth of the world economy during 2004. Although China accounts for only 6% of the total world trade value, it is its effect on the growth of world trade that is so significant. In 2004, its increase in global shipments accounted for 21% of the world total.

China's economic boom has resulted in about 13.5 percent of the total Chinese population falling in the middle-class group. The main economic events during 2005 were the shift to valuing the renminbi⁴ (RMB) against a basket of currencies – of the main trading partners of China - rather than the USD alone, and moving toward a fully market-determined exchange rate in the future; and the results of the National Economic Census, showing that for 2004 China's GDP was 16.8% larger than it was thought to be. As a result, the RMB was appreciated by 2.5% against the USD, and analysts expect that appreciation to continue throughout 2006.

The results of the first National Economic Census made China the 6th largest economy, behind the US, Japan, Germany, the UK, and France. The revision occurred because for the first time, the census reached smaller companies not reached previously. Most of those companies are service companies such as private enterprises in transportation, storage, telecommunications and wholesale and retail trade. These new enterprises counted now, increased the service sector market share to 40.7% (from 31.9%). That transformed the market share of primary and secondary industry from 15.2% and 52.9% to 13.9% and 46.2% respectively.

This GDP increase caused by the revision, resulted in lower investment and bad-debt to GDP ratios. Along with the increased service sector, the above suggest that the Chinese economy tends to be more stabilized, erasing the fears of an investment bubble previously expressed. However consumption, even though it is stronger than previously thought, it still accounts for only a third of the GDP. In the US, consumption accounts for around 70% of the GDP.

In general the revision led to a change of what the Chinese economy was perceived to be. The increased service sector reveals that the Chinese economy does not

⁴ The Chinese currency is also known as YUAN

heavily rely on exports as it was thought to be. That pushes for a stronger RMB, as it will not heavily affect the exports and will increase consumption. That is a new policy goal for the Chinese.

Economic Indicators Overview

Trade

As shown below, PRC's⁵ trade surplus has boomed over 2005. The main reason for that is the effort to export overcapacity and the strong external demand for that year. Moreover, as the construction sector began to pick up during the latter part of the year, imports also began to rise.

Prices

In general, consumer price inflation remains low. Competition results in keeping prices low, despite the high costs of some of the raw materials. Low consumer price inflation is expected to be kept low through 2006; however, some believe that companies will try to pass the cost of raw materials to the customers, raising particularly retail prices. That might also lead to deflation in the following years as overcapacity contributes to downward pressure on prices. For example steel price has fallen by \$120 per ton and aluminum output has been cut by 10% to reduce supply. That might also lead PRC's government to raise prices on water and natural gas, as they still are far below what would be considered market value. In natural gas particularly, the NDRC raised prices and will adjust them annually with raise rate not to exceed 8%. Price control over coal sold to state-owned power plants has also been removed, eventually raising the price of electric power in the future.

Consumption

Low inflation and rising incomes result in increased consumption, especially in rural areas where incomes increased by 12% in both 2004 and 2005. The Chinese Academy of Social Sciences expects consumption growth to slightly cut off in the near

⁵ PRC: People's Republic of China

term. Moreover, urban consumption is expected to slow, as rural consumption picks up. The Chinese consumption rate is expected to increase from 58% in 2002 to 65% by 2010 and 71% by 2020 which is a typical rate for OECD⁶ countries (*BNP*). This means that China has enormous growth potential for consumer goods. This in turn has an effect on the growth in demand for both the import of raw materials and the export of manufactured goods, and suggests that demand will continue to grow at a healthy rate.

Output

Output has remained strong during 2005, as capacity created by recent investments started producing. The NDRC⁷ has published a list with 11 sectors overproducing, including cement, steel, coal and textiles. However, market forces take action aiming in lower production prices and higher margins, as noted above.

Foreign Exchange Reserves

During 2005 PRC's foreign exchange reserves had gone up by 34.3% compared to those of 2004. It is expected for those reserves to continue grow during 2006. The binding between the Chinese and the US economy can be seen in the distribution of Chinese foreign exchange reserves. 70% of PRC's foreign exchange reserves are held in US Treasury Bonds. In order not to cause any instability, the Chinese government will try to diversify its US dollar holding gradually. That is expected to be done, as PRC seeks better returns on these reserves.

Taxation

Revenue from taxes continues to grow steadily. 2005 has been a record year for tax collection, as agencies collected \$382bn, 20% more than in 2004. This amount does not include Customs duties and agricultural taxes, which are gradually phased out over the past years. \$205.4bn has been collected from value-added and sales taxes, increased by 18.2% and accounting for half of the increase shown in total revenue. Domestic and

⁶ OECD: Organization for Economic Co-operation and Development

⁷ NDRC is the National Development and Reform Commission of PRC

FIE⁸ and individuals contributed \$94.3bn in income taxes, up by 32%. Customs revenue got up by 11.26%, even import tariffs were lowered.

Labor and Employment Issues

One of the main problems for the PRC financial agencies is future pension liabilities, as funds paid for future pensions are used to cover current pension expenses. A reform has been announced to create incentives for Chinese workers to stay in work more years, and to include self-employed and other workers in the welfare system. During 2005, PRC paid \$49bn to 43 million retirees. The minister of Labor and Social Security Liu Yongfu stated that even though “average Chinese live 25 years in retirement, there is enough money to cover only 10 of those”.

The first National Economic Census indicated the private and service sectors to be the top sources of employment. Wholesale, retail and catering provide for roughly one third of new jobs. Consumer goods distribution accounts for 24% of service sector employment, employing 56 million. However, unemployment is still a concern. Urban unemployment is estimated to be near 12% (Goldman Sachs, Inc.), while the government states an unemployment rate of 4.2% for 2004.

Labor conditions are also a concern. Medium and small size private companies do not follow the rules and regulations on labor. Many do not sign contracts with workers, or do not pay health insurance, pension, and disability and unemployment funds required by the law, pressing even more the problematic welfare system.

Foreign Direct Investment

China experienced a tremendous foreign direct investment growth during 2004, utilizing slightly over \$60bn. For 2005, this growth slightly decreased by .5%, still remaining over \$60bn. Regarding WTO Commitments – especially those of trading goods and services – China has fulfilled most of them. Banking also shows activity, in anticipation of mandated openings. As a result, FDI has been spread over a larger number of industries over 2005.

⁸ FIE: Foreign Investment Enterprises

The most attractive FDI areas for 2005 were high tech industries and banking. High tech investments include Microsoft Corp., Google Inc. and Yahoo! Inc – with the latter spending over a \$1bn to acquire 40% of Alibaba.com, China's largest e-commerce company.

China's WTO commitments seem to be extremely favorable to the banking sector. By the end of 2006, China is expected to remove any non-prudential⁹ restriction on non-domestic banks. Along with increasing FDI, the banking sector is being transformed to one of the largest industries for investment. Foreign banks seem to be satisfied with China's fulfillment of WTO obligations. The government allowed for them to expand into seven new cities, and also lowered the minimum operating capital for a branch using the RMB by \$12.4 million. 173 foreign banks are currently doing business in China, with \$84.5bn in assets.

The main problems for foreign banks in China are that they cannot provide service to individuals and cannot develop an extensive branch network. These issues are expected to be resolved by December 2006. As a result, many banks follow a strategy of buying stakes of local banks to enter the Chinese market. Such transactions include Bank of America Corporation acquiring 9% of China Construction Bank, and the Royal Bank of Scotland acquiring the Bank of China. Both transactions exceeded \$3bn.

Venture capital went through a confusing year through 2005. New rules were released in order to avoid having Chinese individuals using foreign investments to evade taxes. However these rules created a mess, as both the preferred deal structure and Chinese companies listed overseas involve establishment of offshore companies by Chinese nationals. During November 2005, these rules were cancelled, thus allowing for residents to use investment vehicles in Chinese based investments. This 11 month confusion had an impact whose severance cannot be yet materialized. However this rule

⁹ "Non-prudential" rules encompass regulations about the institution's business operations, and as such do not have the ultimate aim of protecting the entire financial system. These rules tend to be easier to administer because government authorities do not have to take responsibility for the financial soundness of the organization. These issues include, among others, the formation and operation of micro lending institutions; consumer protection; fraud and financial crimes prevention; credit information services; interest rate policies; limitations on foreign ownership, management, and sources of capital; tax and accounting issues; and a variety of cross-cutting issues surrounding transformations from one institutional type to another. – Source: http://microfinancegateway.org/resource_centers/reg_sup/basics#2

reversal is perceived as a step forward, which will increase investors' confidence and allow for venture capital investments to continue.

During 2005, the amount of utilized FDI dropped slightly. However contracted FDI, rose about 24% compared to 2004 figures, to \$167bn. Nearly 40,000 new foreign-investment enterprises have been approved, 1.17% more than 2004. Reasons for the decrease in utilized FDI are considered to be the aforementioned venture capital mess, currency uncertainty, land and labor increased costs.

Table 1 FDI by Investor Jan. - Nov. 2005

Country/Region of Origin	Amount Invested (US\$)
Hong Kong	\$15.34 billion
Virgin Islands	\$8.20 billion
Japan	\$5.96 billion
South Korea	\$4.32 billion
United States	\$2.74 billion
Singapore	\$1.99 billion
Taiwan	\$1.88 billion
Cayman Islands	\$1.70 billion
Germany	\$1.44 billion
Western Samoa	\$1.26 billion
Source: PRC Ministry of Commerce	

The top-10 of FDI origins is shown in the table above. Hong Kong is still the primary investor in China, with the US taking the 5th place. The presence of the tax heavens, such as the British Virgin Islands, is conceived to be a result of roundtrip investments, Chinese funds coming back as FDI. It is also interesting to see that Japan became the 3rd FDI origin, during a year of heavy anti-Japanese protests in China.

The United States, as in 2004, in the 5th place. However the utilized FDI inflow is \$2.74bn decreased about 25% from \$3.94bn in 2004. This decrease is consistent with the general decrease inflow for China. The cumulative US investments in China totaled \$15bn. Comparing this number to the \$952bn investments in the EU, \$217bn in Canada and \$80bn in Japan, investment in China is still low. However US investments rose steadily in a rate of 6% from 1995-2003, matching the rate of the EU and surpassing the rate of Japan.

Table 2 US FDI in the manufacturing sector

Manufacturing Industry Group	Growth Rate 00-04	Total Value (2004)
Transportation equipment	31%	\$1.83 billion
Chemicals	11%	\$1.64 billion
Computers and electronic products	25%	\$1.34 billion
Food	21%	\$593 million
Electrical equipment, appliances, and components	2%	\$493 million
Machinery	20%	\$455 million
Primary and fabricated materials	2%	\$149 million
Total	2%	\$8.22 billion
Source: US Government Accountability Office Report to Congressional Committees on China Trade, December 2005		

Most of the US investment is concentrated in manufacturing, as the Government Accountability Office report notes, with transportation equipment, computers and machinery accounting for more than 75% of \$8.22bn.

Trade Overview

The above mentioned FDI has transformed China to a key supplier to almost any country in the world. Growth and construction rate has also increased dramatically within China, increasing imports for raw material, as well as machinery components and finished goods.

The trend for imports and exports is affected by the Chinese policy of moving up the value chain. It is expected for imports to grow strongly for bulk products. However the Chinese will produce most of assemblies and components for products and will add value through technical and software innovation. It is also expected for factory customization capabilities to increase. That will affect the demand for more specialized logistics services, as products become more specialized.

Table 3 China's top partners (million)

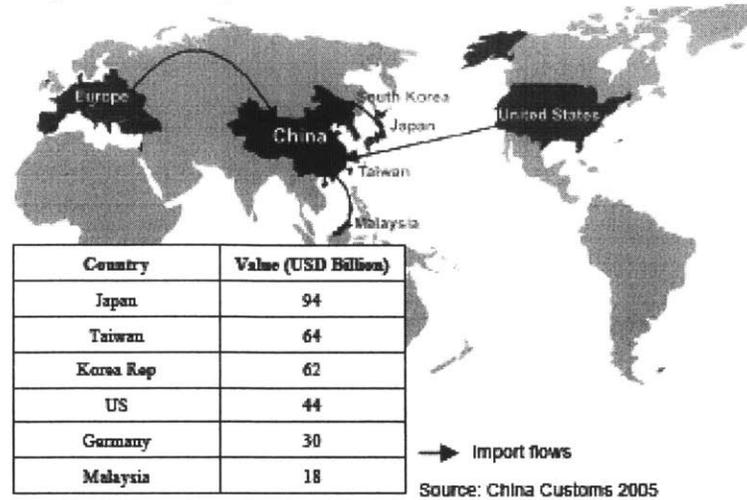
Rank 2005	Country/Region	Jan.-Nov. 2005	% Change*
1	United States	191,585.50	25.4
2	Japan	166,985.60	10.3
3	Hong Kong	120,484.60	20.7
4	South Korea	101,457.70	24.7
5	Taiwan	82,042.80	15.8
6	Germany	57,079.40	16.8
7	Singapore	29,618.20	24
8	Malaysia	27,525.60	15.6
9	Russia	26,529.70	37.3
10	The Netherlands	26,226.00	38.4
*Percent change over Jan.-Nov. 2004			
Source: PRC General Administration of Customs			

Trading partners remained the same as 2004, and are presented in the table above. However growth rates for most partners declined, as a result of the decrease in Chinese demand. The most interesting changes in the exporters and importers lists is the climb of Philippines in the top-10 import supplier list with the subsequent knock-out of Hong Kong, and Russia's break into China's top-10 export destinations.

China also pursued Free-Trade agreements, or special treatment for products. Products made in Hong Kong at least 30%, are eligible for no tariff when entering the mainland. FTA has been launched with Australia, and such negotiations are scheduled with New Zealand as well. China has also established FTA with Chile, which was the first nation of Latin America to do so. Both Australia and Chile have granted China Market Economy status, for purposes of evaluating trading disputes. South Korea has also granted China such status, becoming the largest East Asian economy to do so. However WTO economies can treat China as non-market¹⁰ economy until 2016.

¹⁰ Non-market economy is a country in which most major economic decisions are imposed by government and by central planning rather than by market forces

Top China import countries



Top China export countries

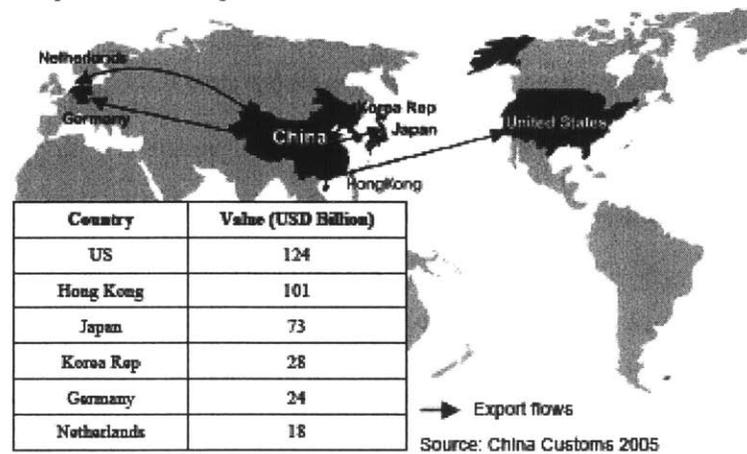


Figure 2 China's Top Import and Export Destinations – EFT Research 2006

Trade Surplus

China's trade surplus in 2005 rose to \$102bn, according to PRC press reports. This surplus is dramatically larger than those of 2001-2004, that averaged \$27.6bn surplus. The main factor to cause such an increase is considered to be the slowing import growth, as export growth was 6% less than that of the same period in 2004, according to customs' statistics.

This stagnation in imports was attributed to excess domestic capacity of sectors such as steel and low investment demand in construction, electronics and machinery. This

lowered demand is a result of government's involvement that tried to slow excess investment in such sectors during 2004. However, the 2001-04 balance is expected to be re-achieved as import growth tends to increase, as the aforementioned sectors seem to recover.

Imports

Table 4 China's top imports (million)

HS #	Commodity Description	Jan.-Nov. 2005	% Change*
85	Electrical machinery & equipment	156,237.70	21.5
84	Power generation equipment	86,943.50	4.5
27	Mineral fuel & oil	57,925.30	35.2
90	Optics & medical equipment	44,695.90	22
39	Plastics & articles thereof	30,356.00	19.8
28, 29	Inorganic & organic chemicals	30,149.10	19.2
72, 73	Iron & steel	29,583.30	13.8
26	Ores, slag & ash	23,539.00	51.2
74	Copper & articles thereof	11,824.20	25.5
87	Vehicles other than railway	10,915.50	-8.9
*Percent change over Jan.-Nov. 2004			
Source: PRC General Administration of Customs, China's Customs Statistics			

As analyzed above, import growth during the first half of 2005 was stagnated. Import growth was 17% during the first 11 months of 2005, 20% less than the same periods of 2003 and 2004. The most important imports for China are shown in the table above, along with the difference from 2004 same period. It can be seen that manufacture oriented products take the most of the imports' pie. As shown in the table above, Vehicle imports declined 8.9%, the only import facing a reduction in the top-10. That is a result of increased domestic car production and price competition that reduced demand for foreign cars, even though the import tariff was decreased by 30%.

However, lower import tariffs are not to play a significant role anymore, as China has accomplished most of its WTO mandated tariff reduction. The overall tariff for manufactured goods will be 9% this year, and the import tariff for agricultural products will be 15.2%

Exports

On the other hand, exports grew by 29.7% over the same 2004 period. China's exports reached \$686.6 million. That number is way above the expectations of the Ministry of Commerce of 15-18% annual growth. Even though this growth is lower for China's largest export categories such as electric power generation equipment, products of lower value such as footwear and toys heavily contributed to this growth.

Table 5 China's top exports (million)

HS #	Commodity Description	Jan.-Nov. 2005	% Change*
85	Electrical machinery & equipment	153,640.30	33
84	Power generation equipment**	134,705.40	27.9
61, 62	Apparel	59,995.80	20.5
72, 73	Iron & steel	31,218.30	45.5
90	Optics & medical equipment	22,828.10	56
94	Furniture	20,226.50	30.8
28, 29	Inorganic & organic chemicals	17,325.40	39.9
64	Footwear & parts thereof	17,171.90	26.1
95	Toys & games	17,017.80	26.2
39	Plastics & articles thereof	16,071.60	37.7
*Percent change over Jan.-Nov. 2004			
**This category includes a wide variety of products including computers, personal digital assistants, power tools, and appliances			
Source: PRC General Administration of Customs, China's Customs Statistics			

In the table above it can be seen that footwear and toys exports increased by 26.1% and 26.2% respectively, making them number 8 and 9 in the top-10.

An export category that is not mentioned in the table above is agricultural products. China is the world's fifth largest agricultural exporter. The two top importers for China's agricultural products are the EU and Japan. However, China might face some difficulties in exporting to those destinations that count for 45% of its exports. They both impose new regulations in safety and labeling of products. Japan sets new standards for chemical residues and the EU requires new labeling to show the food chain for animal products.

US – China Trade

Table 6 China's Trade with the US – Source: USITC, USDOC

Note: PRC exports reported on a FOB basis; imports on a CIF basis

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
US Exports	9.3	11.8	12	12.8	14.3	13.1	16.3	19.2	22.1	28.4	34.7	41.8
% change	5.7	26.9	1.7	6.7	10.9	-8	24.4	18.3	14.6	28.5	22.2	20.5
US Imports	41.4	48.5	54.4	65.8	75.1	87.8	107.6	109.4	133.5	163.3	210.5	243.5
% change	22.8	17.1	12.2	21	14.1	16.9	22.6	1.6	22	22.3	29	23.8
Total	50.7	60.3	66.4	78.6	89.4	100.9	123.9	128.6	155.6	191.7	245.2	285.3
% change	19.3	18.9	10.1	18.4	13.7	12.9	22.8	3.8	21	23.2	27.9	23.3
US Balance	-35.7	-36.7	-42.4	-53	-60.8	-74.7	-91.3	-90.2	-111.4	-134.9	-175.8	-201.7

The US-China trade for the January-November 2005 period expanded by 23.6%, reaching \$260bn. US imports were over \$220bn. Growth was evenly distributed amongst the major product categories imported as shown on the table above. The import of textile and apparel, following the expiration of textile quotas in the beginning of the year, grew by 59.7%.

Table 7 Top Imports from China - USTC, USDOC, and USBOF

HS #	Commodity Description	Jan.-Nov. 2005	% Change*
85	Electrical machinery & equipment	48,025.20	31.8
84	Power generation equipment	47,982.00	21
95	Toys & games	17,903.80	13
61, 62	Apparel	15,903.90	59.7
94	Furniture	15,521.20	18.3
64	Footwear & parts thereof	11,737.10	11.7
72, 73	Iron & Steel	6,765.70	33.9
39	Plastics & articles thereof	6,079.30	29.3
42	Leather & travel goods	5,800.50	9.2
87	Vehicles other than railway	3,842.10	24.4

US imports of Chinese steel rose by 33.9% over the same 2004. That resulted in complaints from the US steel pipe producers, as it caused market disruption and the US International Trade Commission voted to approve limits on Chinese steel imports. However this decision of ITC was overturned by the president just two months later, and proposed a dialogue with Beijing over steel trade, without having to resort to special acts by agencies like ITC.

Table 8 Top US Exports to China - USITC, USDOC

HS #	Commodity Description	Jan.-Nov. 2005	% Change*
85	Electrical machinery & equipment	6,011.10	8
84	Power generation equipment	5,715.30	2.5
88	Air & spacecraft	3,866.70	108.6
90	Optics & Medical equipment	2,130.30	13.2
39	Plastics & articles thereof	2,089.40	26.8
12	Oil seeds & oleaginous fruits	2,056.60	4.3
28, 29	Inorganic and organic chemicals	1,826.10	5.9
72, 73	Iron & Steel	1,710.60	40.4
52	Cotton	1,287.90	-4.9
47	Pulp and Paper	899.4	32

*Note: Percent change over Jan.-Nov. 2004

US exports to China rose by 19.6 %, driven in large part by aircraft exports, which rose 108.6 percent from January to November. This will be discussed in the second chapter as an effect of Logistics advance in China. Besides aircrafts, the US export list remained the same and China is still a large consumer of US raw materials. It is noticeable that exports of base metals, ore, slag, and ash rose more than 150%.

Trade of Services

The most recent statistics for US-China trade regarding the services sector are for 2004. For the first time China, which received \$7.2bn worth of service exports from the United States in 2004, became one of the top 10 export markets for US cross-border trade in services, although it still accounts for only 2.2 percent of US service exports worldwide. The 20.4 percent growth for 2004 is the highest growth rate in US cross-border service exports to China since 2000. US cross-border service imports from China reached \$5.6 billion.

While imports of travel, passenger fares, and other transportation services totaled roughly \$5 billion and made up the vast majority of US cross-border imports from China, the largest segment of US cross-border exports to China came from the provision of financial, telecom, education, and other business services. Exports of those services amounted to about \$3.4 billion, roughly 47 percent of total service exports. This is important to note because China has either just opened or has still to open various service sectors under its WTO commitments. For example, China is not scheduled to open its banking sector until December 2006, as mentioned in the banking section of this chapter.

If China fully implements its service commitments in accordance with the spirit of the WTO, US exports to China of the services in which it has a leading edge will likely increase at a more than healthy rate.

US service exports to China could also increase with better protection of foreign intellectual property rights. Data on cross-border trade in services include the payment of royalties and license fees, which US companies find difficult to collect in China. In 2004, royalties and license fees accounted for just 12 percent of US service exports to China, compared with more than 20 percent for US service exports to Japan and Europe. Year-on-year growth of royalties and license fees paid by China was just 10 percent and declined slightly from the previous year. Also, the Chinese government efforts to support the development of domestic industry standards and technologies, particularly in information technology and high-tech industries, could further limit the growth of licensing and royalty fees.

Trends and concerns in the Chinese Economy

Currency

2005 was expected for China to face an export slowdown, driven by China's modest currency revaluation. However this did not materialize. Analysts believe that PRC government will try to avoid further revaluating the RMB, in order to avoid pressure on the export sector. The Deutsche Bank expects RMB to strengthen by around 4% throughout 2006, based on current and future trend of China's trade surplus analyzed above. In general, it is believed that the government will allow for the RMB to appreciate as much as it is enough to avoid criticism, and PRC will try not to affect its economy, the economies of their trade partners and the economic relations with them.

Textile Trade

Since January 1st 2005, the global *Multi-fiber Arrangement*, imposing quotas in textile exporting economies, such as China, has expired. Consequently PRC has imposed tariffs to control export, as political pressure raised from most major textile importers, on

148 textile goods categories. Both the European Union and the United States of America have reached agreements with PRC to limit the annual export growth of textiles to those destinations. In the US particularly the agreement also increases the quota for 34 categories of textile and apparel, including products subject to US-safeguard quotas and products under safeguard investigation. The US textile industry was moderately satisfied with the agreement, however textile importers are not. As a result textile trade is a gray zone of US-China trade that may result in some tension.

Export – Import Restrictions

The PRC Ministry of Commerce issued a directive restricting export-processing of “energy intensive” goods. That is aiming to lower energy consumption on one hand, and on the other hand will let China move away from low-level processing activities. Import of raw materials for dyes, timber, animal skins, and waste copper will also be prohibited.

Tax unification

The current tax rate for corporations in PRC is 33%. However, this rate is adjusted for both domestic and foreign corporations. Domestic corporations’ tax rate is currently 23%, while foreign enterprises enjoy tax breaks that decrease the tax rate to just 11%. That caused domestic corporations to argue that this is penalizing domestic activity, resulting in tax unification procedures to take place during 2006 and the unified tax rate to be in effect in 2007. The unified rate is expected to be set close to 25%.

Tax relief incentives will also change in nature, moving toward industry based rather than geographically based criteria.

Operating Costs

One of the most concerning issues for companies in China, are human resources. Chinese managers of high labor skills are in short, while foreign companies spent much on training people just to see them quit to go to a domestic company, offering more competitive salaries.

Land is also a concern, as most concentration of both enterprises and skilled labor is spread along the coast, and that had led a rise of land price. Pearl River Delta for example produces 1/3 of China's export, in a region of less than 100km long, resulting in rising costs of labor and land for that region's export manufacturers. Power supply is also a problem, as concentration often leads to outages. That situation can be observed throughout China's east coast, where manufacture centers are concentrated.

Wages for the manufacturing sector rise steadily; however they are only 5% of those in the US or in Japan. The inland is currently facing massive infrastructure building activity, in order to be presented as more cost attractive destinations for new investors, giving them the capability to mitigate high coast costs.

Antimonopoly laws

The Antimonopoly Law in China is expected to be passed in late 2006. That will be the conclusion of a ten-year effort to establish such legislation. However, there are currently only drafts available, with no official version published yet.

Many believe that this law will be a protection law for domestic enterprises, as "public interest" exceptions are mentioned throughout drafts. This fact combined with the government's intention to protect the so called "National Champions", make foreign investors skeptical over healthy competition and free-market activity in China.

Outward and Inward FDI trends

2004 has been a significant year, in terms of investment activities in behalf of Chinese companies to the outer world. FDI outflows increased to \$1.8bn in 2004 from \$150 million in 2003. Chinese firms try to secure raw material for the country's industrialization process, thus they cooperate with countries in Latin America or Africa. An example of such activity is the deal of Shanghai Baosteel Group Corp. to build a plant in Brazil worth \$8bn, and China National Offshore Oil Corp. attempt to purchase the US based Unocal Corp. which failed. Another major purchase was that of IBM's personal computer division by Lenovo Group Ltd. and the acquisition of Maytag by Haier Co. Ltd.

As quality levels rise in Chinese firms and more capital is acquired, such activities should be expected in the following years. PRC government supports these activities as they help in countering the FOREX reserve problem and the trade surplus, mentioned above.

As of inward FDI, it is expected that Venture Capital investments will dramatically increase during 2006, as SAFE regulations have been resolved. Major firms are already setting up offices in Asia to commit such activities and tremendous amounts of funds are raised in the region. In the banking sector, financial institutions still look for stake in local banks, and investments in other parts of that industry such as securities are expected to take place. Finally, manufacturing is expected to remain a key destination of inward FDI.

Chapter 2 – Supply Chain and Containerized Trade

US- China Containerized Trade

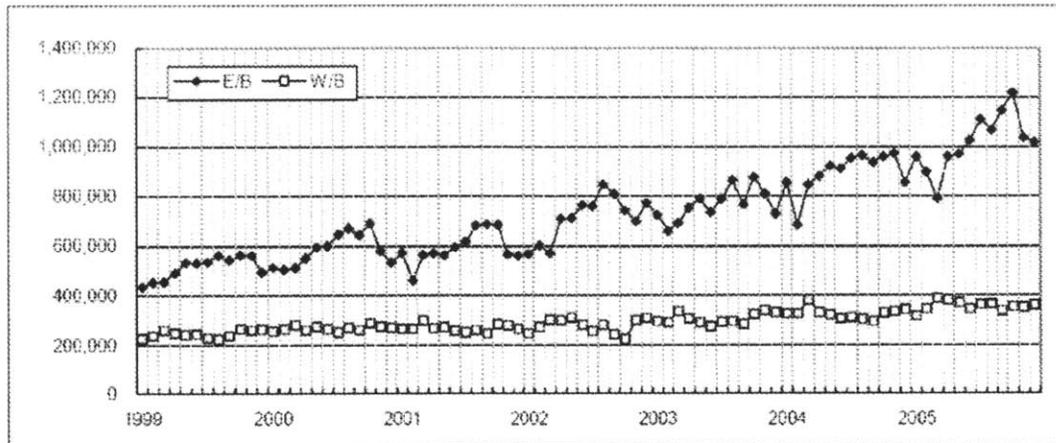


Figure 3 E/b vs. W/b Container traffic - Mitsui OSK Shipping Research

As shown in Chapter 1, trade activities between the US and China steadily increase. That fact has an immediate impact on the cargo that is transported from one country to the other, and especially on containerized cargo.

Most of the Chinese trade handled at U.S. ports is transported within intermodal containers. In 2003, approximately two-thirds of all exports to China were shipped in containers and more than 97 percent of Chinese imports were containerized (see Figure 3). Most of the containerized imports are finished consumer products destined to retailers in the United States; while many of our exports are raw materials used to drive China's industrialization, such as recyclable paper. China's huge trade imbalance with the United States and its high percentage of containerized cargo has also resulted in many empty intermodal containers remaining in the United States.

These containers are not allowed to stay, unless the importer pays a duty on them, but their value is still slightly higher than the cost to manufacture them. As a result, they slowly work their way out of the country, although there is still a need to store, manage, and eventually transport these excess containers. They have become a growing problem for ports and logistical managers in the United States.

Table 9 US - China and HK Containerized Cargo (source: MARAD)

US - China and HK Trade Overview (Containerized Cargo)								
	1997	1998	1999	2000	2001	2002	2003	2004
Total Chinese (CHN+HK)	2,955,478	3,342,544	3,904,467	4,730,182	5,181,323	6,328,909	7,274,704	8,803,889
		13%	17%	21%	10%	22%	15%	21%
China	1,835,555	2,135,659	2,520,191	3,414,946	3,895,018	4,813,570	5,655,895	7,351,341
		16%	18%	36%	14%	24%	17%	30%
Hong Kong	1,119,923	1,206,885	1,384,276	1,315,236	1,286,305	1,515,340	1,618,808	1,452,548
		8%	15%	-5%	-2%	18%	7%	-10%
US Import Trade								
	1997	1998	1999	2000	2001	2002	2003	2004
Total Chinese (CHN+HK)	2,107,817	2,569,547	3,085,971	3,749,627	4,041,101	5,124,499	5,739,241	7,099,418
		22%	20%	22%	8%	27%	12%	24%
China	1,477,199	1,770,099	2,065,031	2,787,710	3,080,271	3,926,439	4,447,235	5,960,627
		20%	17%	35%	10%	27%	13%	34%
Hong Kong	630,618	799,448	1,020,940	961,917	960,830	1,198,060	1,292,006	1,138,791
		27%	28%	-6%	0%	25%	8%	-12%
US Export Trade								
	1997	1998	1999	2000	2001	2002	2003	2004
Total Chinese (CHN+HK)	847,661	772,997	818,496	980,554	1,140,221	1,204,410	1,535,463	1,704,471
		-9%	6%	20%	16%	6%	27%	11%
China	358,356	365,560	455,160	627,236	814,747	887,131	1,208,661	1,390,714
		2%	25%	38%	30%	9%	36%	15%
Hong Kong	489,305	407,437	363,336	353,319	325,475	317,280	326,802	313,757
		-17%	-11%	-3%	-8%	-3%	3%	-4%

The above table examines the containerized cargo movement, since 1997 and the percentile change over each year. It includes both PRC and HK. It can be seen that US imported containers from PRC have quadrupled in a 7-year period from 1.5 million TEU¹¹ in 1997 to almost 6 million TEU in 2004.

The Far East/NA route trade faces a tremendous growth due to above mentioned activity. According to Drewry Shipping Container Market Review, slot capacity for the head haul direction has reached 14 million TEU in Q2 2004. That is an 8.5% increase in capacity, since 2003. All major carriers – to be presented on “Carriers and Services” section – are injecting new capacity in this trade, by either creating new routes or by adding new vessels into service.

The increased outsourcing activity and increased cargo traffic have a significant impact on both states’ infrastructure. Below, we discuss the current inefficiencies of PRC’s logistics sector in infrastructure and services along with future projects that will

¹¹ TEU Refers to Twenty Foot Equivalent Unit. The International Standards Organization has set its dimensions to 20ftx8ftx8ft.

provide for better supply chain management in PRC. We also discuss the problems implied on US West Coast ports, as these are the gateways for Chinese products, along with the hinterland infrastructure and possible alternatives to avoid further congestion and bottlenecks.

China's Supply Chain Infrastructure



Figure 4 - China's Transportation Network - Source: EFT Research 2006

Labor Force

Labor force skills and market size follow the pattern of region industrialization. Coastal zones have capital intensive patterns, while remote agricultural zones have labor-intensive ones. The first enjoy wages of about \$850, while workers in the agricultural

zones are paid only about \$290 per month. Of course, wages are far below what is paid in the US as the following table shows.

Table 10 Wage Costs - Source USCBC

	China	EU Low Cost	US
Hourly Average Wage	\$0.47	\$1.60	\$16.60
Added Costs (Benefits, Taxes)	52%	61%	26%
Total Wage	\$0.72	\$2.58	\$20.84

The significant difference in wages leads rural workers to move to more industrialized areas, either inland industrial zones or coastal ones. That is in line with the PRC transition from agricultural to industrial economy. However, possible inability of the government to provide jobs, might lead to instability. In order to avoid such implications, the PRC government keeps on supporting state-owned enterprises, despite their inefficiencies and low return on asset rate.

As the “one child” policy¹² is in effect, it is almost certain that the labor force will be aging overall, with implications to the pension system and labor availability in the forthcoming generations.

Regarding skills availability, there is no shortage for low-cost labor in China – that is the primary reason why companies do business in China. Furthermore, college graduates in China are now 2.52 million during 2005, up from 1.45 million back in 2002. The philosophy, however, implied by the educational system does not give incentives for innovation, personal advance or risk taking. This is a problem in business, where creativity and personal initiatives are of importance. Management staff and work force are very different in a worker-philosophy sense. Finally, as manufacturing has been the main goal for growth, there is lack of business English skills, making it hard for the service sector to advance.

¹² “China's one child policy was established by Chinese leader Deng Xiaoping in 1979 to limit communist China's population growth. Although designated a "temporary measure," it continues a quarter-century after its establishment. The policy limits couples to one child. Fines, pressures to abort a pregnancy, and even forced sterilization accompanied second or subsequent pregnancies”. Source: About.com

Infrastructure

Transport Mode	% Freight Carried	Average Distance Moved (Km)	Advantages	Disadvantages
Highway	14.40%	58	Highly flexible Plenty of capacity Competitive pricing Seamless door-to-door service options Good reliability and on-time arrivals Fast transit times Good equipment	Higher costs Pilferage Cargo damage Delays due to topping up with cargo
Rail	32.20%	768	Low prices Timetabled schedules Increased investment in equipment	Priority shipment system Old equipment Poor delivery record High level of cargo handling Poor co-ordination on cargo pick-ups and drop-offs Inadequate infrastructure Capacity constraints (rail and terminals)
Waterway	53.30%	1,855	Adequate capacity Cargo reservation system	Limited schedules Uncertainties associated with weather and navigation Relatively old ships and lack of specialist units
Air	0.10%	2,482	Fast transit times Excellent reliability	Limited capacity Very high costs

Source: MoC and Drewry Shipping Consultants Ltd

Figure 5 The Modal Split

As more enterprises move to inland China to exploit lower labor and land costs, the Chinese government is pressured to provide for the appropriate infrastructure to move both raw materials and finished goods. The costs implied by this lack of infrastructure, are a barrier for many firms. The main problem is lack of integration, making coordination of product movement practically impossible from the inland factories to coastal ports and terminals.

Thus, the logistics infrastructure has to be upgraded to serve more efficiently and to allow for supply chain planning. The PRC government faces logistics as a top-priority sector and is investing about 17% of PRC's GDP in transportation network improvement.

Most of the infrastructure investment has taken place on coastal and central cities and is focused on export of finished goods. There are three major areas of economic growth; the Yangtze River Delta, the Bohai Rim and the Pearl River Delta (Trade Development Council). However, in order for the inner parts of China to develop more sophisticated industrial bases, and for development to be more fairly distributed throughout the country, it is crucial for transportation networks to improve and for management for each mode of transportation to advance. Towards this sector's development the China Federation of Logistics and Purchase reports an \$88bn investment, primarily consisting of PRC's government initiatives.

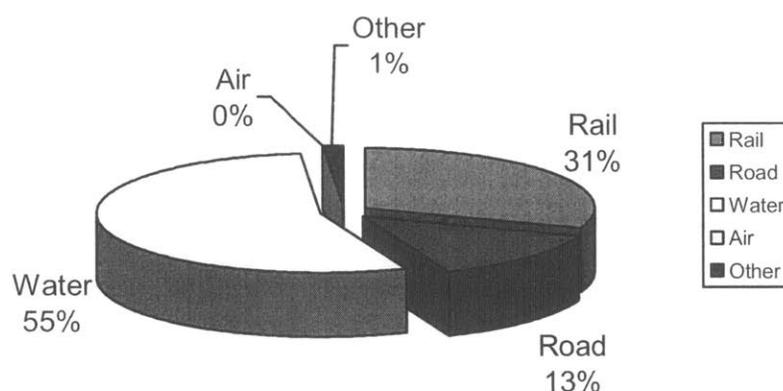


Figure 6 – Freight volumes by ton-kilometer - USDA Report

The overall transportation infrastructure of China is considered to be good for moving goods, but inadequate for complete logistics services. In the sections below the main transportation modes are presented along with investments in each mode.

Road and Rail Transportation

China has 1,809,858 kilometers of roadways, out of which 1,447,682 kilometers are paved. That is almost half the paved roadways length of the US. That by itself expresses the incompleteness of the transportation system. Adding to that, there is great difficulty in hiring trucks, as licensing is controlled by the provinces, using three levels of licenses; local, provincial and national. Furthermore there are inadequate trucks to serve the operations. There are no fleets of similar in size trucks, and the number of trucks is low as well, resulting in overloaded trucks leading to accidents and damaged goods.

For those that have outsourced their manufacturing activities to China, the surface transportation problems are translated into longer lead times and increase in supply chain complexity, as coordination is very difficult. It is estimated that the result of the aforementioned situation is that Chinese companies “hold an average 51 day Inventory – about six times the levels of European companies” (TNT, a 3PL Company). As a result, the coastal regions are preferred, even though doing business there is more expensive, yet more effective.

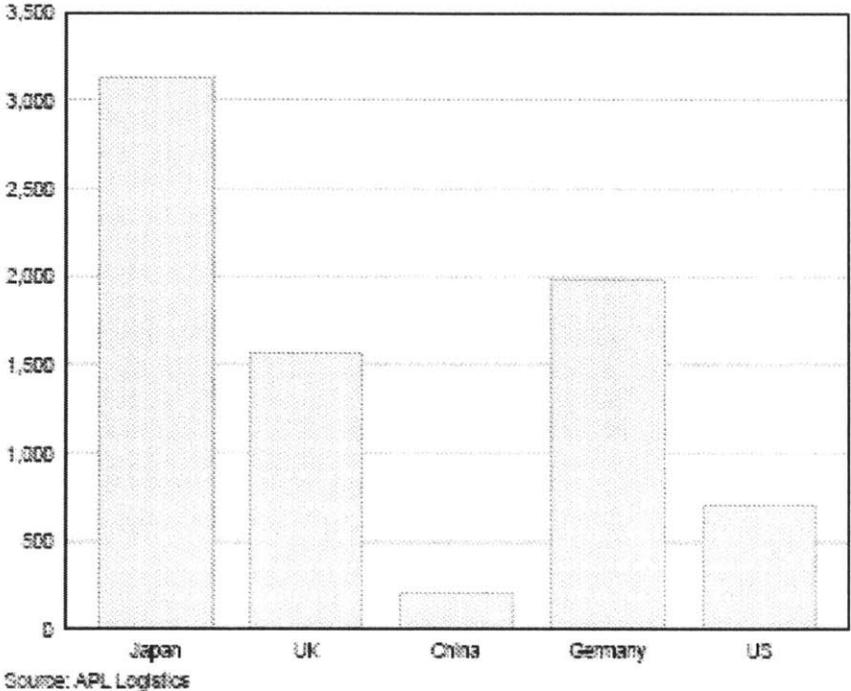


Figure 7 - Land Transportation Network Density Comparison (km/1000km²)

Regarding investments in highway infrastructure, the Ministry of Communications has recently announced a \$282bn investment in a new 34-highway system, seven of which start from Beijing. The proposed project will have a length of 85,000 kilometers and the goal is to connect all provincial cities of population of 200,000 or more. The significance of such investments can be stressed by the fact that 76% of Chinese domestic cargo travels by road.

Railroads are also in need of heavy improvement and expansion. Currently China has 71,898 kilometers of railroad, comparing to more than 230,000 kilometers of the US

railroads. The Ministry of Railways has created a subsidiary in order to coordinate an intermodal plan for the country and to protect the carload business, called the China Railway Container Transport Centre (CRCTC). The CRCTC has developed its own operations and has gone into joint ventures with global transportation providers such as Maersk Sealand and Canadian Pacific Railway. However, there is demand of about 280,000 railcars per month, when the system can only handle 100,000.

In order to meet demand the following strategies are currently under consideration. First the increase of train speed to 99mph. The second one also incorporates organizational changes and suggests that the system is divided into three tiers of terminals for the 1,600 rail network locations; 18 facilities to be transformed into advanced logistics centers under CRCTC management; 40 facilities for container handling stations responding to industry specialization requirements; and 160 freight stations to handle the rest of the carried volume. Future strategies also include separation of passenger and freight network, increased train size and double stack trains.

Currently, 100 TEU trains serve major ports infrequently, including ports such as Shanghai, Ningbo, Tianjin and Hong Kong. These ports focus on on-dock rail, as it will decrease delivery times for intercity movement, as cargo will not have to travel through heavily congested roadways.

Airways

Air transportation is the fastest growing sector of transportation in China. There are currently 489 airports in China. Boeing estimates that China will require 2,600 new airplanes in the next 20 years, mostly for passengers. However, only 0.01% of Chinese domestic cargo is shipped through air.

As China moves toward the production of higher value goods, it is expected that air-shipments will increase. Inward air-shipments will increase as well, as the people of China moving to the middle class will demand products to be imported.

Ports

Six of the twenty largest ports of the World are located in China. The table below shows their rank, throughput and percentage of gain for 2004.

Table 11 Chinese Ports World Rank - CI 2006

World Rank	Port Name	TEU Throughput	Gain
1	Hong Kong	21,984,000	8%
3	Shanghai	14,557,200	29%
4	Shenzhen	13,650,000	29%
14	Qingdao	5,139,700	21%
17	Ningbo	4,005,500	45%
18	Tianjin	3,814,000	26%

For the 18th consecutive year, China's container terminals recorded over 25% increase in throughput. China now accounts for 20% of global TEU (61.6m TEU) and 60% of total TEU in the Asia-Pacific, and Asia-Europe routes. However, Chinese ports are overflowing with containers, with Shanghai in the lead with an increase of 30% in handling each year since 2002. Shanghai's rise to become the world's largest port can be put into perspective. Rotterdam currently has a throughput of 350m tones/year, while Shanghai is expecting 370m by the end of this year with 14.5m TEU. With total container throughput in its ports reaching 48.6m TEU in 2003, China overtook the US for the first time to occupy the leading position in the world.

As stated above, the most significant areas for infrastructure investment are the Yangtze River Delta and the Pearl River Delta, especially for port and seaway projects. The Yangtze River connects the Sichuan Province to Shanghai, covering 2,400km. Deepwater ports such as Hong Kong and Yantian are located on the Pearl River Delta. Yantian is located in the city of Shenzhen, which provides low-cost labor and is near the industrialized Guangdong Province.

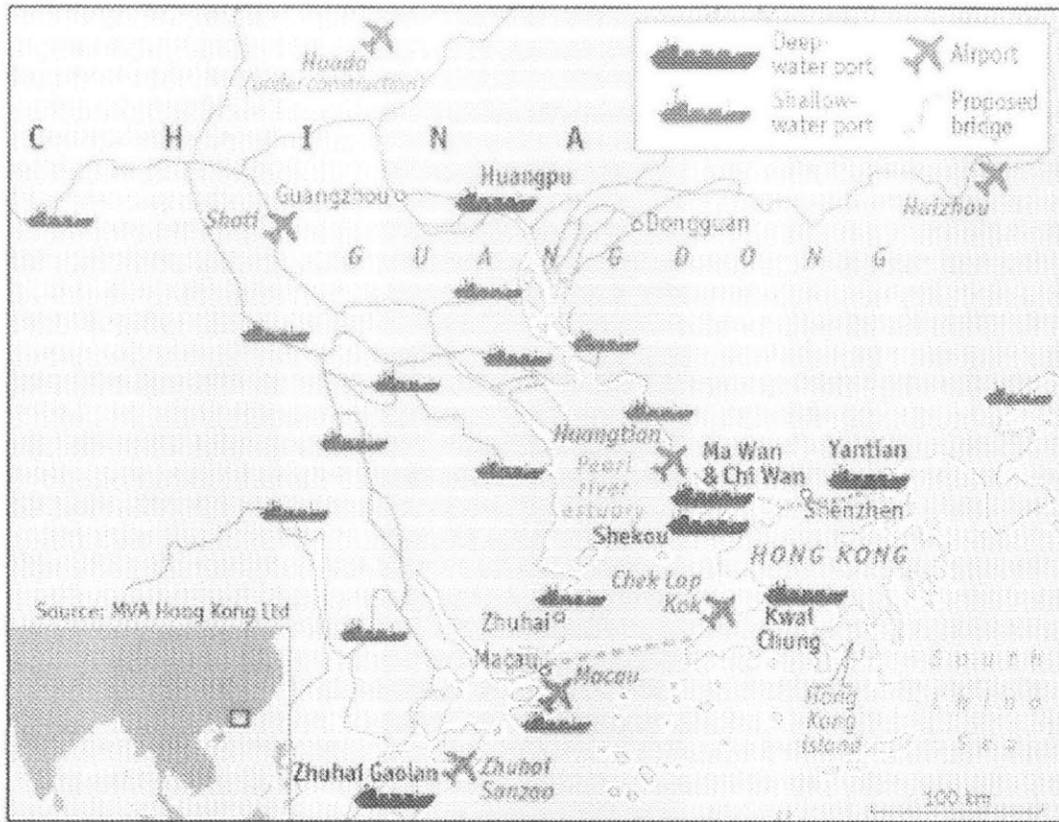


Figure 8 - “The Pearl River Delta: A New Workshop for the World,” The Economist (October 10, 2002)

Shanghai is the largest in-land port of China, as it handled 14.6 million TEU during 2004. However it faces problems to expand, as it has shallow waters and narrow channels leading to it. Build up mud is also a problem. Extra capacity of 700,000 TEU is added to Shanghai Port, in the Waigaoqiao terminal. The total cost of the investment is \$400 million and is expected to be covered by both state and private funds.

The most impressive investment takes place 20 miles outside the city of Shanghai, at an island called Yangshan. Total investment for the new port is estimated to reach \$12bn, giving the ability to handle 20 million TEU annually on its 33 berths. The island is connected to the city of Shanghai by a tunnel and a bridge.

Location	Shengsi (Zhejiang province) – approximately 40km from Shanghai
Cost	Rmb1.2 billion for first phase; Total development costs of Rmb13.2 billion
Schedule	First phase 2002-2010, with final completion in 2020
Cargo-handling facilities	First phase: five berths 2002-2010, with 50 berths on final completion in 2020
Depth alongside	15/16m
Storage capacity	N/A
Equipment	20/25 ship-to-shore gantry cranes at first phase
Container throughput	2/2.5 million teu in 2005, 15 million teu on completion
Special features	Construction of six-lane highway bridge linking Shengsi with Lu Chao Gang Development of Lu Chao Gang as fully-fledged logistics centre Ability to perform water-to-water transshipment role
Ownership/operations	Shanghai Port Authority – operating concessions/equity will probably be awarded on a terminal-by-terminal basis

Source: Drewry Shipping Consultants Ltd

Figure 9 - YangShan project

River ports are also expanding their activities by building new terminals to handle capacity. Logistics parks are also built and marketing efforts to attract cargo are used. These ports are heavily dependent on river navigability and bank size constraints. Currently the main problems with barge river transportation are long waiting times, and infrequent service. River transportation is used by Chinese companies only.

Hong Kong port is implementing an information system to link all those with interest in logistics operations, such as shippers, banks, the government, customs etc. This development is expected to save more than \$1bn. Moreover, Hong Kong just started operating a new Container Terminal (CT9), adding over 2.5 million TEU handling capacity. Discussion about building CT10 has already begun, yet with some executives believing that will never happen.

Shenzhen port plans to add 16 vessel berths over the next three years implement an information system for terminal management and double its capacity to 25 million TEU in the next 5 years.

New logistics parks at busy ports are not favored anymore. There is a turn toward flow control centers, such as APLL's¹³ near the port of Yantian in Shenzhen. This center offers on-site customs clearance, cross docking, product assembly and barcode scanning.

A final major problem for ports is their railroad infrastructure. As described above there is no on-dock rail facility in any existing terminal, forcing shippers to use trucks and congested highways.

Supporting Infrastructure

China is heavily investing in the facilities and the infrastructure needed to support reliable supply chains. That is an opportunity to develop value-add services and to reduce costs associated with transportation, the largest cost of producing in China.

Currently, the warehousing facilities are of inadequate capacity and are not suitable for high volume transportation and the use of high-level Supply Chain Management processes, such as JIT¹⁴. Transport links and Information technology are also inadequate in most of these facilities. Furthermore, many warehouses are old, offering little protection to the products stored there by forces of nature and of illegal activities such as copying or distributing without license and without paying royalties.

Communications are also a basic component of SCM. China is investing heavily in order to modernize current services and infrastructure across the country, and today most of provincial capitals are linked with fiber-optics cables. More than 250 million land lines were installed during 2003 – 20% of the global total. Almost 270 million cell phones were also online, making China the second cell phone using territory, right after the EU. Technology used in China is cutting-edge regarding SCM operations. However low-skilled labor cannot really interact with this technology, making it cost ineffective.

Value added Services

Value added services in China are favored by low labor cost. That is the key competitive advantage for logistics service providers to offer such services to their Chinese suppliers and their global customers. Physical value added services such as

¹³ APLL is American President Lines Logistics subsidiary

¹⁴ JIT refers to the Just In Time supply chain management process

customization, repackaging, stock and inventory management, can increase supply chain efficiency by almost 5% if provided before the product is exported. As a result those kinds of service are being increasingly offered. Information services as tracking, inventory control and monitoring, and reporting are also required for the complex Chinese logistics market. Both multinationals and domestic companies expect their logistics provider to offer such services and at the level dictated by the complexity of the supply chain.

The Logistics Market

The Chinese logistics market is fragmented, underdeveloped and serviced by poor infrastructure in both transportation and communication networks. With this situation, logistics account for 21% of the product cost, while in developed markets such as the US, account for roughly 10%. During 2004, 730,000 logistics enterprises operated in China, however only 3% of the market is 3PL.

Total logistics value in 2004, in terms of finished good value, was \$4.46 trillion, 30% more than 2003 with industrial products accounting for 85% of that value. The cost of logistics reached \$352bn. An amazing 57% is due to transportation costs, with 29% for inventory costs and 14% for management. In 2004 logistics accounted for 21.6% of China's GDP.

Table 12 Market access restrictions in logistics services (continued in next page)

Sector	Limitations on market access
Road	-Foreign majority stake of up to 75% in JVs currently permitted; wholly foreign-owned enterprises (WFOEs) permitted by 12/11/04 -CEPA allows WFOEs from 1/1/04
Rail	-From Jan 1, 2003, foreign majority stake permitted; WFOEs permitted from 1/1/06 -CEPA allows WFOEs from 1/1/04
Maritime	-Minority shares allowed in JVs, degree depends on sub-sector of maritime transport services -CEPA allows WFOEs from 1/1/04 in most areas, depending on sub-sector
Storage and warehousing	-WFOEs permitted by 12/11/04 -CEPA allows WFOEs from 1/1/04
Freight forwarding	-Foreign majority stake of up to 75% in JVs currently permitted; WFOEs permitted by 12/11/05 -CEPA allows WFOEs from 1/1/04

*CEPA agreements apply to “qualifying Hong Kong service suppliers,” which can be taken to include Hong Kong permanent residents and juridical persons such as corporations, trusts, partnerships, joint ventures, sole proprietorships or business associations organized under the relevant laws of the Hong Kong SAR.
 Source: US-China Business Council; Access Asia; Baker & McKenzie

Since China’s accession to the WTO, the logistics market has been gradually opened, allowing for foreign and domestic logistics enterprises to enter it. Market access restrictions are summarized in the table above. As of now 65% of the market refers to such enterprises, with state-owned enterprises accounting for the remainder 35%. The current landscape of logistics in China is summarized in the table below.

Table 13 China's Logistics Landscape

Category	Responsibilities	Examples	Position in China
1PL	Cargo controller owns/manages its own logistics services, ie trucking	SOEs	Strong In China, but will decline as outsourcing gathers pace
2PL	Capacity providers, eg ocean carriers, trucking companies, warehouse operators, barge companies, air freighters	Chang Jiang Shipping Co	Strong in China; bolting on different services and moving in to 3PL sector
3PL	Management of the supply chain on behalf of individual clients; operations sometimes supported with assets; greater reliance on information exchange	APLL, UPS, ST-Anda	Huge potential, with rapid development forecast in next five years
4PL	Logistics integrator, responsible for managing the logistics flow and drawing together the 3PLs, 2PLs, etc necessary for the supply chain solution; value-added logistics planning and consultancy services available	IBM	Strong potential as 3PL business catches on and more sophisticated products assembled/made in China

Source: Drewry Shipping Consultants Ltd

The usage of logistics services is quite distinct between multinational and domestic companies, driven by the requirements and the type of cargo these companies want to ship. Multinationals prefer to use international logistics companies for import/export operations, as they can provide global contracts and service commitment. On the other hand, domestic companies usually shipping bulk commodities prefer to do business with domestic Chinese companies, as they tend to have a better domestic network in service.

The trend in the Chinese market is consolidation. As foreign companies that need the infrastructure take part in building it in order to serve their needs, the Chinese companies will begin consolidating activities in order to exploit efficiently the given opportunities by infrastructure improvement. That might also lead to the establishment of a Global Chinese logistics provider.

Furthermore, rising demands for logistics service, favors the establishment of integrated 4PL¹⁵ and e-logistics services, with only one provider planning, managing and executing the supply chain from one end to another.

United States Logistics

The increase in trade with China has also affected the US side of the Pacific. Most of the cargo is shipped through West Coast ports that serve as the main gateways of Chinese products into the US market.

Table 14 TEU Traffic per US region – CI 2006

NA imports TEUs	2002	%	2003	%	2004	%
Far East – West Coast	1,526,051	66.7	1,496,081	65.1	1,611,278	65.4
Far East – East Coast	621,229	27.1	655,037	28.5	724,384	29.4
Far East – Gulf Coast	141,102	6.2	145,556	6.3	128,050	5.2
	2,288,382	100.0	2,296,674	100.0	2,463,712	100.0

West Coast ports, account for more than 65% of TEU imports from the Far East, outnumbering the roughly 30% of East Coast and 5% of Gulf Coast Ports. As a result they are more significant in the trade and logistics systems under examination. This section is focused on the West Coast and Gulf Coast ports and railroads supporting them.

Ports

Table 15 - Port Utilization (mTEU) - Source: Ocean Shipping Consultants, “World Containerport Outlook to 2015” (continued in next page)

<i>US Pacific south</i>	2002	2003	2004	2005	2010
Capacity	18.39	19.24	20.34	20.59	21.19
Demand	13.50	14.48	15.53	16.66	23.18

¹⁵ 4PL definition can be found on table 7

Utilization	73.4	75.3	76.4	80.9	109.4
China					
Capacity	55.19	57.82	62.09	64.74	75.04
Demand	52.02	56.77	61.32	66.03	89.39
Utilization	94.3	98.2	98.8	102.0	119.1

The problem with ports and congestion in China is also experienced in US ports and especially those located in southern California. The table above shows that in 2010 these ports will be operating over their limits.

There are several reasons that support the above prediction and stand as obstacles to further port development, including labor issues, congestion in supporting road and railroad networks, “not in my backyard” movements and land constraints.

As a result shippers and ocean carrier companies are exploring alternatives to avoid using those ports. Atlantic Coast ports, as the one in New York/New Jersey have benefited from the situation; however Gulf coast ports and Mexican ports are also gaining a role in port diversification strategies.

Before engaging such strategies, there are some factors that have to be considered, as West Coast ports still have the potential to improve.

First of all there are motivations for West Coast ports to improve their services. They should try to use current technology more efficiently. If they decide not to use new information technology, they should implement cargo handling technology and systems. Moreover they have to invest capital, through private investments or joint ventures with shippers. Finally they should find ways to overcome labor issues, both with longshoremen and trucker unions and give incentives for higher productivity of manual work. That will allow for greater handling performance to be achieved, despite the lack of land for physical expansion.

Second, West Coast ports also include ports in Oregon and Washington that have been the target for diverted cargo usually shipped through Southern California ports. That decreases congestion in California’s ports and allows for diversification strategies for shippers to be executed. That gives an advantage to West Coast as a total.

Third, East Coast ports are also facing expansion problems and congestion. If this situation worsens, it depletes any advantage these ports can offer to shippers.

Finally, as China moves its production to higher level products such as Cars and sophisticated electronic equipment, import patterns will change. Other countries such as India and Vietnam with huge populations and offering low-wage environments will increase their exports to lower level products. There are many discussions on India’s evolution into a manufacturing

center. As this seems to be the future, imports will increase further to both East and West Coast ports, making it even harder to handle incoming cargo

Southern California Ports

The region that welcomes most of the incoming TEU cargo is Southern California, and especially the Los Angeles/Long Beach terminals. In 2004 these ports are world rank 8 and 12 respectively, with 7,321,440 TEU for LA and 5,779,852 for Long Beach being handled. These two ports are the largest in terms of traffic in the United States, and NY/NJ Port Elizabeth completes the top-3 US rank with 4,478,480 TEU. California also hosts the fourth largest US container port in Oakland, handling over 2,000,000 TEU during 2004.

The main two ports of LA/LB, however, face some constraints on their development and their handling capacity can not expand to meet demand. The main obstacle is the lack of land to expand, leading to inadequate infrastructure to handle cargo. During the 2004 peak in TEU deployment, both the port authorities and rail operators were struggling to increase their capacity, without any plan and preparation to do so. That resulted in traffic congestion and unreliable transit times, messing up any schedule in deliveries.

That implied additional costs for shippers and receivers. Storage costs went up, increasing demurrage costs, and handling fees also increased as workers worked overtime. That has depleted any advantages offered by the combination of west coast proximity and hinterland services offered there, over other locations.

A containership calling at LA/LB in 2003 had an average capacity of 3,500 TEU, up from 2,900 back in 1999. These larger vessels spent more time loading and unloading inside the terminal to move larger quantities of cargo, resulting in larger requirements for storage space and berths. The orderbook for post-panamax containerships from 2005-2008 is about 140 vessels, with capacity over 7,500. That will further increase handling times and berth requirements, as well as improvements in port depth and crane size.

During the 2004 peak season, there were 94 vessels in the port of LA/LB simultaneously, up from 35-50 normal average. That led to vessels waiting outside the

port for 3 or more days before having a berth assigned. Shortage in longshoremen to operate equipment added 3-5 days in this delay. Adding low productivity compared to Asian ports, and labor resources as well as slow adaptation of new technology and low-utilization of current one, the turnaround times increased dramatically.

US employment laws and unionized workers add to this problem, as they do not allow for competitive operations and limit the capability of cargo handling, as workers work for 8 hours a day and in one shift. Moreover, the 16-hour shift for truckers, also adds to supporting infrastructure congestion, making labor issues a main factor that ports depend on for their success.

Northwest Pacific Ports

As expansion in LA/LB seems to be very difficult, container shipping lines are looking for alternatives to avoid the congestion. Northwest Pacific ports are considered as an attractive option. During the June-December 2004 period, 100 ships were diverted from LA/LB to such ports, because of the aforementioned problems in handling. However, the Marine Exchange of Southern California believes that almost 2,000 ships were rescheduled during the 2004 second half. Seattle experienced a 12.5% increase in container traffic, as opposed to 3.5% average decline of the past 5 years. Many operators, including APL, Mitsui OSK Lines, Hanjin and Grand Alliance have either rescheduled some containership to those ports, or increased capacity to routes serving them.

Other Options

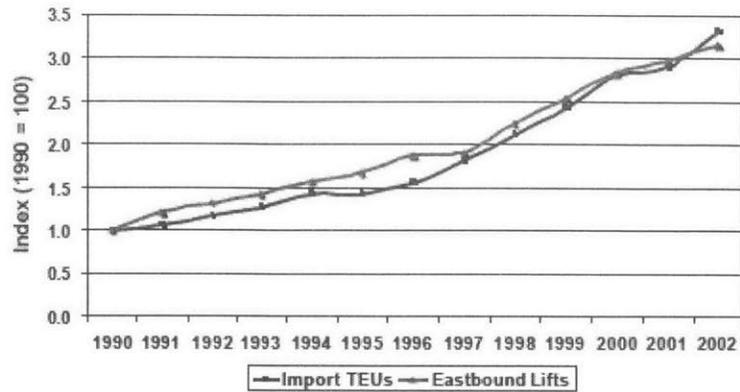
The current effort to reduce shipper risk and lower costs continues to produce new routes for Asian cargo headed to the United States. This is presently being done by shipping Asian cargo through the Suez Canal to the East Coast of the United States. Shippers are finding that the total shipping costs using this route are often competitive with a West Coast entry and unloading their cargo on the East Coast often brings the cargo closer to its final market.

In addition to the Suez and Panama Canal routes, there has also been an ongoing discussion about shipping Asian cargo on a Mexican land bridge. One proposal is to land the cargo at a Mexican port on the Pacific Ocean, then ship it by rail across the country to

another Mexican port on the Gulf Coast, where it would be reloaded onto ships and sent to its final destination. A second proposal is to land the cargo in Mexico and ship it by rail to a Texas port, where it can then be reloaded and shipped out. A third proposal and one that has generated a significant amount of support from West Texas communities (primarily Midland and Odessa, Texas) proposes landing the cargo at the Mexican Port of Topolobampo, which lies along Mexico's upper Pacific Coast and behind the Baja Peninsula. The containerized cargo would then be placed on rail cars and sent to Texas through Copper Canyon and the Sierra Madre mountain range. A significant limitation to this proposal, however, is that the rail tunnels along this route have insufficient clearance to permit double stack trains. Trucking the cargo is not a viable option because there is not a direct enough route to make it attractive. In addition to the Port of Topolobampo, two other Mexican ports have been identified as potential entry points for a Mexican land bridge to the United States; these are the Port of Manzanillo and the Port of Lazaro Cardenas.

Finally all water service from Far East through Panama Canal is also considered. However, the further growth of all-water service through the Canal is faced with several problems. The largest problem is that the canal is already operating at 95% capacity. Panama Canal officials have discussed constructing new locks that could accommodate ship widths of 19 containers across, as opposed to the current maximum width of 14 containers across. However, these locks would not be operational until at least 2012. Ships too large or too heavy to pass through the Canal must off-load all or some containers on the Pacific Coast and ship them on Panama Canal Railway Company trains, or by any other available means, to the Atlantic Coast. The rail transfer cost of one TEU is three times more than what it cost to move a container through the canal by ship. While the rail transfer service, which takes 50 minutes coast-to-coast, is currently operating near capacity, infrastructure investments will increase its capacity in coming years.

Railroads



Source: BST Associates, using STB/ICC, PIERS Data

Figure 10 Import TEU and E/b Lifts relation

Rail mode, has been the dominant way of transporting goods from the port of LA/LB to the Midwest and East of the US. Currently two major rail carriers dominate the land bridge service; The Union Pacific Railway Company and the Burlington North Santa Fe Railway. Moreover, the Alameda corridor, offers transportation from the ports to the downtown based intrastate railway system.

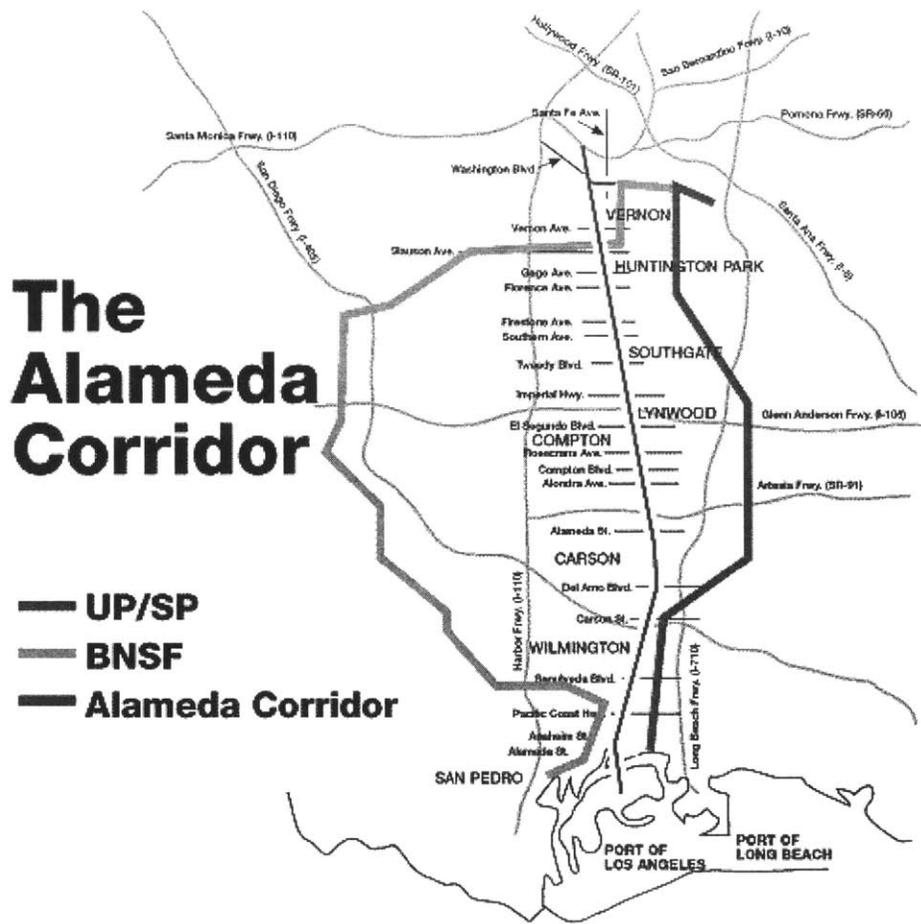


Figure 11 The Alameda Corridor - Source: UP Railway

*Alameda Corridor*¹⁶

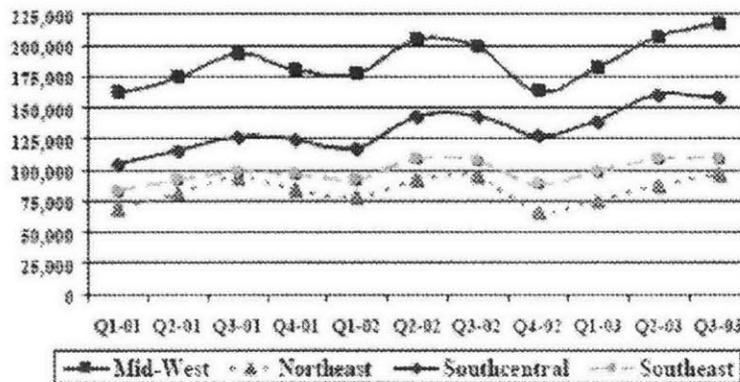
The cornerstone of the Port's intermodal train traffic network is the Alameda Corridor, a \$2.4 billion, 20-mile-long (32-kilometer-long) cargo expressway that opened in 2002. The Corridor serves as the primary connection for cargo-carrying train traffic moving between the ports of Los Angeles and Long Beach and the transcontinental rail network based near downtown Los Angeles. Construction of the Alameda Corridor constituted one of the largest public works projects in the nation, with three major components:

- North End Corridor - The Los Angeles River Bridge, which was dedicated in November 1998, replaced a single-rail track bridge with a three-track bridge; the

¹⁶ Information provided by LA/LB web site

Washington Boulevard/Santa Fe Avenue Grade Separation will separate train and vehicular traffic;

- Mid-Corridor Section - Freight trains will travel through a 10-mile-long (16-kilometer-long), 35-foot-deep (11-meter-deep) and 50-foot-wide (15-meter-wide) trench between State Route 91 and 25th Street in Los Angeles.
- South End Corridor - The Henry Ford Avenue Grade Separation Project will separate train and vehicular traffic while reconstructing sections of Henry Ford Avenue and the Terminal Island Freeway; the Compton Creek/Dominguez Channel Project will replace the existing single-rail track bridge over Compton Creek with a three-track bridge, and add a second three-track bridge over the Dominguez Channel. New traffic signals, left-turn pockets and pavement will be added north of State Route 91.



Source: BST Associates, using IANA Data

Figure 12 East bound container destination in TEU

Union Pacific Railroad - UP

UP operates 33,000 miles through 23 states across the western side of the country. Services include bulk transport, carload transportation of commodities such as steel and premium service, which typically refers to finished products in intermodal containers.

During 2004, container loads increased by 5%, while revenues from such service for UP increased by 8%, over 2003. International intermodal traffic – 54% of all container loads – experienced a 7% growth in volume and 9% in revenue.

In order to capture a greater market share and to be more able to compete with trucking services offered UP is expanding its premium service. Its Blue-Streak service which competes with trucks doubled over 2004. UP also increased the length of the trains by 5%, and double stacked more than 90% of all containers shipped along its rail network. Moreover, UP is trying to increase train speed and reduce transit time utilizing new techniques, in order to reduce train stoppages and optimize loading and scheduling.

Most of the UP routes involving Asian freight move along the Sunset Corridor to El Paso, and then to the appropriate route to reach Midwest and East Coast.

In January 2005, UP faced an unexpected disaster, as storms made it close 5 of the 6 routes it operates. That made shippers examine alternatives, as the main UP competitor, the Burlington Northern Santa Fe Railway and alternative maritime routes as discussed earlier.

Burlington Northern Santa Fe - BNSF

BNSF receives 39% of its revenue from international freight movement, and demand for its services is growing, due to problems of UP and general freight movement demand growth.

BNSF has increased the size of its trains by 10%, from 103 to 114 containers in 2004 and from 196 to 211 for stack trains.

The main route for BNSF is its Southern Transcontinental route, with 2,068 miles of double-tracked lines and 149 single-tracked, going from California to Chicago through Texas. It is expected in 2006 to have the whole route double tracked.

BNSF operates the Hobart intermodal facility in Los Angeles port along with other on-dock facilities in LA/LB. Tougher dwell times implemented, led to 24% increase in capacity, resulting in more than 10,000 slots monthly, and a decrease from 38 to 30 hours dwell time.

There are 3 types of trains used by BNSF; The S-Train, the Q-Train and the Z-Train. Service provided from each type is summarized in the table below

Table 16 BNSF Train Service – Source BNSF

<p>S-Train Low priority</p>	<p>Total 32 E/b from LA/LB 15 to Chicago from LB 9 to Chicago, 7 to Clovis, MN, 1 to Barbour’s Cut, TX from LA</p>
<p>Q-Train Medium priority</p>	<p>Total 36 E/b from Hobart 22 to Chicago 6 to Alliance, TX 6 to Birmingham, AL</p>
<p>Z-Train High priority (high speed, mostly UPS and domestic cargo)</p>	<p>35 E/b from LA/LB 8 to Alliance, TX 6 to Kansas City, KS 21 to Chicago, IL</p>

Concerns about outsourcing in China

Today, many US and multinational companies move primarily their manufacturing base to China. This decision is based in three major supporting reasons. First of all, cost reduction. Low cost labor is the main source of this reduction. Second, they have the ability to explore the huge potential offered by a new market of more than 1bn prospective customers. And third, to create revenue inflow, to balance their decreased profitability at home.

However manufacturing in and penetrating a new market, such as China, seems to be difficult, if some issues are not considered. A list of concerns about outsourcing in a new market, includes, but is not limited to, the following:

- Legal issues, such as establishment procedures.
- Bureaucracy and paperwork in the new country, and to bring your product back to your home country.
- Distance management issues and communication difficulties.
- Cultural differences and market characteristics.
- Labor costs, including training costs and cost from employees who will leave you to work for domestic companies offering higher salaries.
- Currency fluctuation
- Financial system and banking system stability
- Political stability and government interference in business

China is doing a good job in most of these areas, and common practice shows that most of these issues can be resolved. However they must be taken under consideration when a company decides to move to China.

Besides those concerns, the most important part of corporate activity that must be well planned is the supply chain. This is the factor that can increase costs if it is not used in an efficient manner, and can even cause problems if it is not protected.

To begin with, shipping costs are increased, along with the risk of shipping goods on a vessel. Nike lost 80,000 Air Maxes on a modern Pacific Ocean “shoe spill”. That also increases the complexity of the supply chain, thus making it difficult to coordinate

out-of-home and home operations. For example, if you produce a part in China and you use it in an assembly line in the US, coordinating the final production line is crucial. Port congestion on both sides of the Pacific, inadequate inland infrastructure and low labor productivity in the US, make that a headache for logistics managers.

Distance also increases the difficulty of controlling the manufacturing procedures, including quality control and inventory management. The above make the decisions on supply chain management crucial to the existence of outsourcing facilities, and the importance to understand the whole supply chain great.

A very important factor for success in China is the protection of intellectual property. Even though there are laws protecting such property, many companies fail to do so, as their supply chain strategy does not provide for it. This strategy should carefully examine two factors; the technologies and products that will be manufactured and sold in China and with whom to cooperate. That includes monitoring the vendors, securing manufacturing and warehousing facilities, and hiring employees with high ethical standards and respecting them. A McKinsey survey showed that “poorly performing companies (in intellectual property protection), by contrast, neglect employment contracts, and even background checks, in their haste to hire” (Meagan C. Dietz et al, 2005 No. 3).

Another concern for many executives is whether or not Chinese companies might become future global competitors. As the manufacturing base of China is improved using foreign investment, Chinese knowledge will also advance, allowing for Chinese manufacturers to provide customers with higher quality products. There are concerns that the same is to happen in other areas such as logistics, as discussed above.

Lately, many multinational firms also face the rage of anti-globalization activists. Activists blame those companies for exploiting low cost labor in ways other than just paying them with low-wages. They accuse them of creating jail-like environments, with facilities in very bad conditions, of forcing them to work 15 hours a day with breaks only for lunch and dinner, violating labor laws. Moreover most companies are accused of avoiding making contracts with workers, avoiding paying for insurance and other benefits. That also results in workers having no evidence of working in a company and

they cannot make any claims against their employers. This situation, called “sweatshop”, true or not, can cause problems in such companies, as there might be targets for boycotting in developed countries that respect human rights.

Concluding the above, going to China and staying there successfully can be a very difficult goal to achieve. There has been a lot of discussion regarding US manufacturing as more cost effective, since there are less shipping costs; however major supply chain changes must occur to allow for labor cost to lose its significance.

Chapter 3 – The Container Shipping Industry

Effect on Container Shipping

The recent surge in globalization and the relocation, or outsourcing, of industries from the US to China has raised the demand of shipping commodities. This in turn has pushed charter rates to the high levels shown in Figure 12. By early 2005, 3-5 year charters were still being booked at high rates. This essentially means that brokers are expecting the market to hold up at very high levels at least until the Olympic Games in 2008.

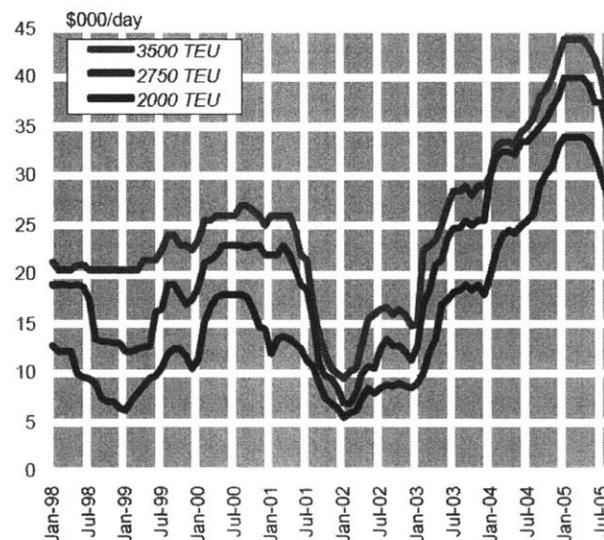


Figure 13 Freight Rates - Clarkson Market Report, Aug 2005

China's oceangoing fleet has a total capacity of 37m DWT placing the nation in 4th place in world ranking (up from 12th in 1978). World famous shipping companies such as COSCO, China Shipping, and Sinotrans have also emerged in China. The introduction of these companies from the east has pushed Asia to control 43% of the world's container fleet. This challenge to the traditional European shipping giants resulted in a decrease in rates from the highs that were seen during the price fixing years of the 90's.

As Figure 13 shows, charter rates have about doubled since 2000 when western economies, especially the US, were at the peak of their long term expansion. This time however, China's dynamism has single handedly driven up shipping rates with the European economy struggling, and the US economy starting to show renewed signs of vigor.

A combination of factors could be causing the beginning of the downturn in charter rates seen during 2005. Global trade growth is expected to increase by only 9% in 2005 as opposed to 14.2% in 2004 and Chinese export growth is expected to increase by 15% as opposed to 30% in 2004. There is reason to believe that the outlook is not as pessimistic as expected. Clarkson already reviewed their prediction for 2005 from 10 to 11% increase in global container shipments. For 2006, the prediction is maintained as a steady 10% increase. Figure 14 shows the effect of the supply of tonnage has on the market. The order-book spike in 2003 was in response to the high percentage of fleet scrappings and low orders. That combined with an economic upturn, spearheaded by the growth of the Chinese economy and made worse by port congestion in China and the US, probably resulted in the need to order more vessels.

Table 17 Containership Orderbook ('000 TEU) by Size and Year of Delivery

Teu Range	2004	2005	2006	2007	2008	Total	Current Fleet	% of Current Fleet
<500	0	0	0	0	0	0	138	0.2%
500-999	20	43	20	3	0	86	430	20.1%
1,000-1,499	11	36	29	4	0	80	608	13.2%
1,500-1,999	16	33	28	22	0	98	694	14.2%
2,000-2,499	28	36	5	0	0	69	613	11.3%
2,500-2,999	19	94	128	55	14	309	657	47.0%
3,000-3,999	23	18	49	45	7	142	956	14.9%
4,000-4,999	62	150	169	89	4	475	1,133	41.9%
5,000-5,999	97	202	79	51	0	429	776	55.4%
6,000-6,999	13	39	100	142	6	299	537	55.7%
7,000-7,999	45	53	79	31	24	232	206	112.9%
8,000+	57	191	471	210	24	954	48	1971.0%
Total	390	897	1,156	653	79	3,175	6,796	46.7%

Source: Drewry Shipping Consultants Ltd

The order-book for containerships over the next 3 years is impressive. 862 newbuildings are on order (46% of current tonnage). This should sound alarm bells in the industry which will soon be flooded with 3.3m TEU of over-capacity. By the end of

2007, the fleet will have 173 VLCS's (up from 34 in 2004) with another 77 post-panamax vessels adding on to this already inflated figure. Expectations for fleet increases are 10.2% for 2005 and 12.7% for 2006 (*Clarksons*). If container demand growth lags behind this figure, then it is very probable that the container market will face difficult times in the future.

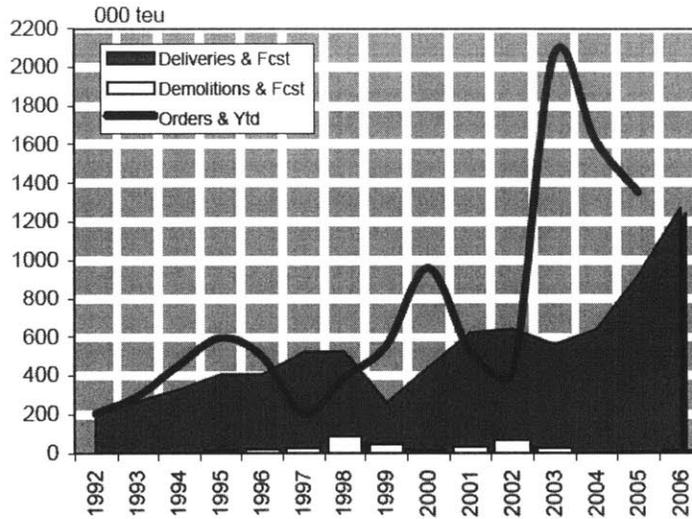


Figure 14 Orders and Scrappings for Containerships - Source: Ibid

The situation is made worse by the low number of scrappings, which are to occur during 2006. Since many vessels are committed in long term charters, the expected demolition rate for containerships is expected to be 0.25% for 2005.

The last factor affecting rates, will be the rate at which Chinese infrastructure will keep modernizing. If port congestion continues in the Pearl River Delta then charter rates will remain at relatively high levels. Of course, port congestion in LA/LB, possible lock downs by unions and other congestive factors will play a role as well. All these implications along with a pessimistic outlook for the containership market suggest that rates will probably drop in the future.

Table 18 Container Freight Rates - UNCTAD Maritime Review 2005

	Trans-Pacific		Europe-Asia		Transatlantic	
	Asia-US	US-Asia	Europe-Asia	Asia-Europe	US-Europe	Europe-US
2003						
First quarter	1 529	826	704	1 432	899	1 269
Change (%)	0	1.1	-1.1	9.8	6.6	4.4
Second quarter	1 717	861	762	1 570	924	1 400
Change (%)	12.3	4.2	8.2	9.6	2.8	10.3
Third quarter	1 968	834	777	1 629	817	1 426
Change (%)	14.6	-3.1	2	3.8	-11.6	1.9
Fourth quarter	1 892	810	754	1 662	834	1 469
Change (%)	-3.9	-2.9	-3	2	2	3
2004						
First quarter	1 850	802	733	1 686	778	1 437
Change (%)	-2.2	-1	-2.8	1.4	-6.7	-2.2
Second quarter	1 863	819	731	1 738	788	1 425
Change (%)	0.7	2.1	-0.3	3.1	1.3	-0.8
Third quarter	1 946	838	735	1 826	810	1 436
Change (%)	4.6	2.3	0.5	5.1	2.8	0.8
Fourth quarter	1 923	806	769	1 838	829	1 471
Change (%)	-1.1	-3.8	4.6	0.6	2.3	2.4
2005						
First quarter	186.7	800	801	1 795	854	1 514
Change (%)	-2.9	-0.7	4.2	-2.3	3	2.9

Notes: Information from six of the trades' major liner companies. All rates are all-in, including the inland intermodal portion, if relevant. All rates are average rates of all commodities carried by major carriers. Rates to and from the United States refer to the average for all three coasts. Rates to and from Europe refer to the average for northern and Mediterranean Europe. Rates to and from Asia refer to the whole of South-East Asia, East Asia and Japan/Republic of Korea.

Table 18 shows the history of freight rates in the three main routes for container cargo. For the transpacific journey, it is interesting to see that the price from US to Asia is only 800 when Asia to US is 1867. That is a result of larger demand for Asia to US hauls, and the impact of empty container backhaul to Asia.

Major Carriers and Services

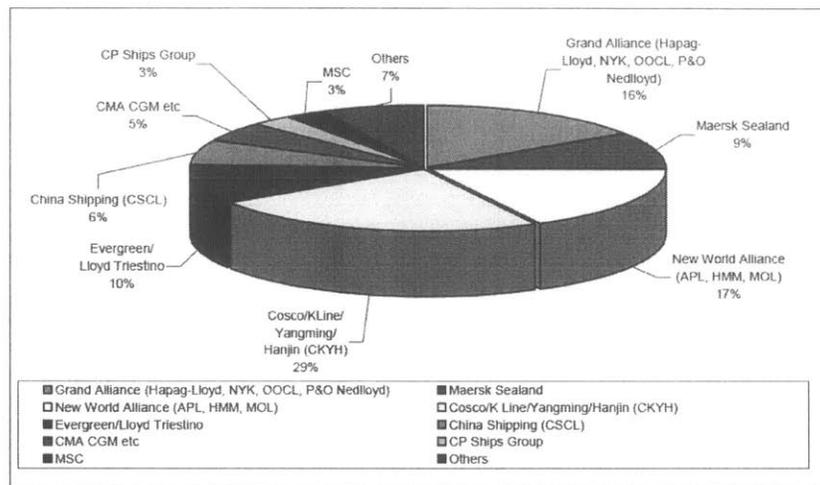


Figure 15 - Capacity Shares on the Transpacific Route (July 2004) - Drewry Shipping Consultants Ltd

Mergers, Acquisitions and Alliances

In order for shipping lines to cope with the increasing demand for capacity, the industry is experiencing heavy M&A¹⁷ and alliance activity. This allows for consolidation, giving those liners the opportunity to exploit economies of scale by consolidating cargo and using larger ships and less container boxes. Furthermore, these companies share the risk of capital intensive investments, while increasing market power and share.

Moreover they are also able to offer more scheduled routes from high-supply to high demand regions, such as the below discussed Far East – North America route, and offer higher level of services to potential shippers. The following figure shows this M&A and alliance activity evolution, from 1995 to 2003.

¹⁷ M&A refers to Mergers and Acquisitions

Source: compiled from BRS Alphaliner and Containerisation International.

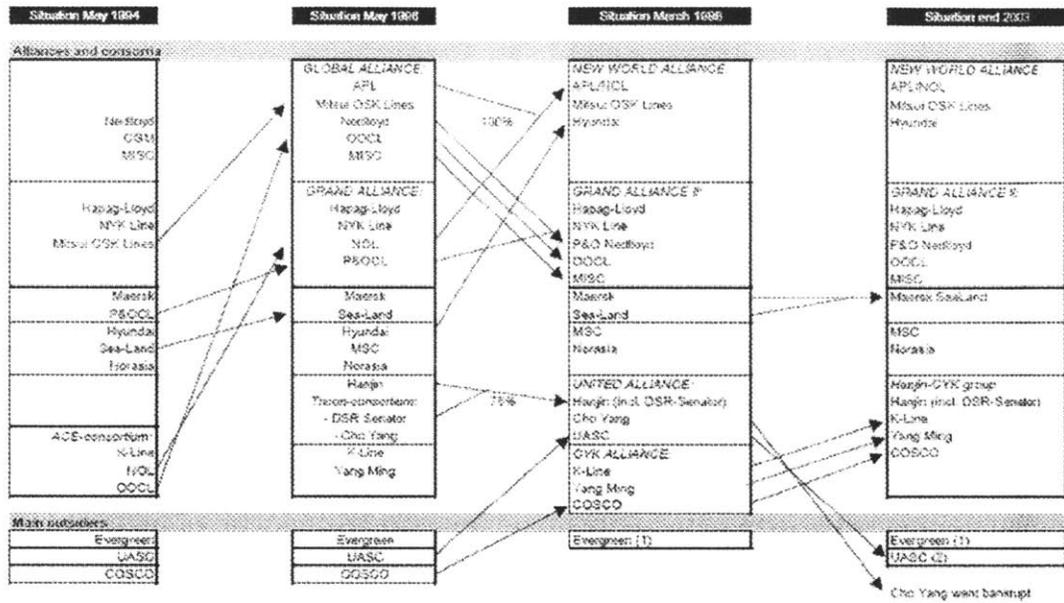


Figure 16 Alliance formation evolution

The table below shows the participation of liner companies in alliances.

Table 19 Participation in Alliances (early 2003) - CI 2005

Alliance	Number of ships in the alliance	Total fleet (number)	%	Slot capacity in the alliance (TEU)	Total slot capacity	%
Grand Alliance						
P&O	39	146	26.7	182 550	386 901	47.2
OOCL	24	50	48.0	119 391	156 016	76.5
Hapag Lloyd	24	38	63.2	115 449	141 717	81.5
NYK	24	67	35.8	96 436	167 001	57.7
MISC	4	32	12.5	16 622	49 808	33.4
Cosco/K-Line/Yangming Alliance						
Cosco	38	104	36.5	154 892	219 324	70.6
K-Line	31	58	53.4	135 205	174 945	77.3
Yangming	16	40	40.0	72 867	119 695	60.9
New World Alliance						
APL	39	76	51.3	177 100	240 237	73.7
Hyundai	18	31	58.1	99 158	121 890	81.4
Mitsui OSK	16	48	33.3	77 410	130 090	59.5
United Alliance						
Hanjin	32	52	61.5	139 205	201 005	69.3
Senator	28	32	87.5	97 566	104 895	93.0

As shown in the table below, these companies control more than 54% of the import/export activity.

Table 20 Major Carriers calling at US ports market power – Source CI 2005, MARAD

Shipping Line	Export	%	Import	%	Total	%
Maersk Sealand	940	12.7	1802	13.0	2,742	12.9
New World Alliance						
APL	408	5.5	934	6.7	1,342	6.3
Hyundai Merchant Marine	274	3.7	536	3.9	810	3.8
Mitsui OSK Lines	191	2.6	377	2.7	568	2.7
Subtotal	873	11.8	1,847	13.3	2,720	12.8
CKYH						
China Ocean Shipping	251	3.4	594	4.3	845	4.0
Hanjin Shipping	442	6.0	953	6.9	1,395	6.6
K-line	249	3.4	532	3.8	781	3.7
Yang Ming Line	267	3.6	459	3.3	726	3.4
Subtotal	1,209	16.4	2,538	18.3	3,747	17.6
Grand Alliance99						
P&O Nedlloyd	328	4.4	616	4.4	944	4.4
Orient Overseas Container Line	301	4.1	595	4.3	896	4.2
NYK Line	249	3.4	594	4.3	843	4.0
Hapag Lloyd	325	4.4	494	3.6	819	3.8
Subtotal	1,203	16.3	2,299	16.5	3,502	16.4
Grand Total of all Shipping Lines	7,389	100.0	13,899	100.0	21289	100.0

Far East to North America scheduled services offered by major carriers

The trade between the US and China is served by three types of service, depending on the seas and the Canals used through the journey:

- Transpacific refers to journeys across the Pacific Ocean from south, southeast and east Asia to the US.
- All water service refers to services that use either the Suez or Panama Canal. These services reach US East Coast ports and Gulf Coast ports.
- Around the World refers to services that travel through both Suez and Panama Canals, around the Capes or combination of Capes and Canals – in short, around the Globe.

The services offered for the Far East – North America route are presented below¹⁸. We present the origin and US ports served – days and direction follow in the parenthesis. A complete list of companies offering such service can be found in Appendix B. Details on schedules is available online at the website of the American Shipper Magazine for review only.

Maersk Sealand

Maersk Sealand offers a total of seven weekly services on the transpacific route. It also serves south Asian and US ports on the All-water services through Suez Canal.

<i>Service Name</i>	Maersk Sealand TP1	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Tacoma, WA (13E) • Oakland, CA (15E) • Honolulu, HI (20W) 	Weekly Service Slot Charter operation

Transpacific

<i>Service Name</i>	Maersk Sealand TP2	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Yokohama, Japan	<ul style="list-style-type: none"> • Los Angeles, CA (16E) • Tacoma, WA (20E) 	Weekly Service 5 Vessels 2,700 TEU Average Weekly Capacity

Transpacific

<i>Service Name</i>	Maersk Sealand TP3	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Kobe, Japan	<ul style="list-style-type: none"> • Miami, FL (32E) • Charleston, SC (33E) • Norfolk, VA (35E) • Port Elisabeth, NJ (37E) 	Weekly Service 7 Vessels 5,700 TEU Average Weekly Capacity

All water service through Panama Canal

¹⁸ Information based on carriers' websites and CI 2006

<i>Service Name</i>	Maersk Sealand TP5	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Dubai, UAE	<ul style="list-style-type: none"> • Oakland, CA (28E) • Los Angeles, CA (29E) 	Weekly Service 9 Vessels 4,500 TEU Average Weekly Capacity

<i>Service Name</i>	Maersk Sealand TP6	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Port Klang, Malaysia	<ul style="list-style-type: none"> • Los Angeles, CA (19E) 	Weekly Service 11 Vessels 6,600 TEU Average Weekly Capacity

Safmarine Container Lines NV, a Maersk Group Company, operates the transpacific leg of this around the world voyage

<i>Service Name</i>	Maersk Sealand TP7	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Miami, FL (25E) • Savannah, GA (26E) • Charleston, SC (28E) 	Weekly Service 4,500 Average Weekly Capacity

All water service through Panama Canal

<i>Service Name</i>	Maersk Sealand TP8	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Yantian, PRC	<ul style="list-style-type: none"> • Los Angeles, CA (15E) • Oakland, CA (17E) 	Weekly Service 5 Vessels 4,300 TEU Average Weekly Capacity

<i>Service Name</i>	Maersk Sealand TP9	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Ningbo, PRC	<ul style="list-style-type: none"> • Los Angeles, CA (15E) • Oakland, CA (17E) 	Weekly Service 5 Vessels 2,8700 TEU Average Weekly Capacity

<i>Service Name</i>	Maersk Sealand Canadian Transpacific	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Koahsiung, Taiwan	<ul style="list-style-type: none"> • Tacoma, WA (14E) 	Weekly Service 350 TEU Average Weekly Capacity

<i>Service Name</i>	Maersk Sealand Suez Express Service	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Tanjung Peliepas, Malaysia	<ul style="list-style-type: none"> • Charleston, SC (22W) • Norfolk, VA (24W) • Port Elizabeth, NJ (26W) 	Weekly Service 7 Vessels 5,700 TEU Average Weekly Capacity
<i>All water service through Suez Canal</i>		

New World Alliance

New World Alliance serves the Far East – North America route with 10 weekly Services. CNY and NYX are serving east coast ports through Panama Canal.

<i>Service Name</i>	New World Alliance PS1	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Singapore	<ul style="list-style-type: none"> • Seattle, WA (16E) • Oakland, CA (21E) 	Weekly 6 Vessels 4,500 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	New World Alliance PS2	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Los Angeles, CA (13E) • Oakland, CA (17E) 	Weekly 5 Vessels 5,100 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	New World Alliance PS3	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Shanghai, PRC	<ul style="list-style-type: none"> • Los Angeles, CA (15E) • Seattle, WA (17E) 	Weekly 5 Vessels 4,600 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	New World Alliance GCX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Xingang, PRC	<ul style="list-style-type: none"> • Los Angeles, CA (14E) • Oakland, CA (18E) 	Weekly 5 Vessels 3,300 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	New World Alliance PSW	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Long Beach, CA (14E) 	Weekly 5 Vessels 6,500 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	New World Alliance PNW	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Tacoma, WA (14E) • Seattle, WA (15E) 	Weekly 5 Vessels 4,600 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	New World Alliance PCX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Xingang, PRC	<ul style="list-style-type: none"> • Oakland, CA (11E) 	Weekly Service
<i>Transpacific</i>		

<i>Service Name</i>	New World Alliance CNY	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Chiwan, PRC	<ul style="list-style-type: none"> • Miami, FL (26E) • Savannah, GA (28E) • Charleston, SC (29E) • New York, NY (31E) 	Weekly Service
<i>All water through Panama Canal</i>		

<i>Service Name</i>	New World Alliance NYX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Shanghai, PRC	<ul style="list-style-type: none"> • New York, NY (26E) • Norfolk, VA (28E) • Savannah, GA (30E) • Miami, FL (32E) 	Weekly 9 Vessels 4,800 Weekly Average Capacity
<i>All water through Panama Canal</i>		

<i>Service Name</i>	New World Alliance SAX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Laem Chabang, Thailand	<ul style="list-style-type: none"> • Los Angeles, CA (17E) 	Weekly 6 Vessels 5,600 Weekly Average Capacity
<i>Transpacific</i>		

CKYH Alliance

CKYH offers 13 weekly scheduled services, including transpacific, all-water through both canals and around the world services.

<i>Service Name</i>	<i>CKYH Alliance PSW-1</i>	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Long Beach, CA (12) • Oakland, CA (16) 	Weekly 12 Vessels 5,600 Weekly Average Capacity
<i>Around the globe</i>		
<i>Service Name</i>	<i>CKYH Alliance PSW-2</i>	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong	<ul style="list-style-type: none"> • Los Angeles, CA (13) • Oakland, CA (18) 	Weekly 5 Vessels 4,000 Weekly Average Capacity
<i>Transpacific</i>		
<i>Service Name</i>	<i>CKYH Alliance PSW-3</i>	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Shanghai	<ul style="list-style-type: none"> • Long Beach, CA (9) • Oakland, CA (12) 	Weekly 3,600 Weekly Average Capacity
<i>Transpacific</i>		
<i>Service Name</i>	<i>CKYH Alliance PSW-4</i>	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Ningbo, PRC	<ul style="list-style-type: none"> • Los Angeles, CA (13) • Oakland, CA (16) 	Weekly 6 Vessels 3,400 Weekly Average Capacity
<i>Transpacific</i>		
<i>Service Name</i>	<i>CKYH Alliance HJ-PDE</i>	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Long Beach, CA (WB only)	<ul style="list-style-type: none"> • Seattle, WA 	Weekly 5,600 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	CKYH Alliance HJ-PDS	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Le Havre, France	<ul style="list-style-type: none"> • Long Beach, CA (9 from Tokyo E) 	Weekly 4,700 Weekly Average Capacity
<i>Europe to US Eastbound</i>		

<i>Service Name</i>	CKYH Alliance CEN	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Qingdao, PRC	<ul style="list-style-type: none"> • Los Angeles, CA (12) • Oakland, CA (15) 	Weekly 3,400 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	CKYH Alliance AWE-1	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • New York, NY (23) • Norfolk, VA (25) • Savannah, GA (27) 	Weekly 8 Vessels 4,000 Weekly Average Capacity
<i>All water through Panama Canal</i>		

<i>Service Name</i>	CKYH Alliance AWE-2	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Charleston, SC (21) • New York, NY (23) • Boston, MA (25) 	Weekly 3,800 Weekly Average Capacity
<i>All water through Panama Canal</i>		

<i>Service Name</i>	CKYH Alliance AWE-3	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Busan, South Korea	<ul style="list-style-type: none"> • Savannah, GA (21) • New York, NY (23) • Wilmington, DE (25) 	Weekly 3,600 Weekly Average Capacity
<i>All water through Panama Canal</i>		

<i>Service Name</i>	CKYH Alliance AWE-4	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong	<ul style="list-style-type: none"> • New York, NY (22) • Norfolk, VA (24) • Savannah, GA (26) 	Weekly 3,700 Weekly Average Capacity
<i>All water through Panama Canal</i>		

<i>Service Name</i>	CKYH Alliance PNW	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Shanghai, PRC	<ul style="list-style-type: none"> • Tacoma, WA (14) 	Weekly 4,000 Weekly Average Capacity

Transpacific

<i>Service Name</i>	CKYH Alliance PNW	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Koahsiung, Taiwan	<ul style="list-style-type: none"> • Seattle, WA (11) • Portland, OR (13) 	Weekly 5 Vessels 4,000 Weekly Average Capacity

Transpacific

The Grand Alliance

<i>Service Name</i>	The Grand Alliance PNW	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Singapore	<ul style="list-style-type: none"> • Seattle, WA (21E) 	Weekly 6 Vessels 5,600 Weekly Average Capacity

Transpacific Service

<i>Service Name</i>	The Grand Alliance ECN	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Busan, South Korea	<ul style="list-style-type: none"> • New York, NY (28E) • Norfolk, VA (31) 	Weekly 8 Vessels 4,100 Weekly Average Capacity

All water through Panama Canal

<i>Service Name</i>	The Grand Alliance PAX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Koahsiung, Taiwan	<ul style="list-style-type: none"> • Seattle, WA (15E) • Oakland, CA (18E) • Long Beach, CA (19E) • Savannah, GA (30E) • Norfolk, VA (32E) • New York, NY (33E) 	Weekly 10 Vessels 6,700 Weekly Average Capacity

Transpacific and All water through Panama Canal

<i>Service Name</i>	The Grand Alliance ECS	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Busan, South Korea	<ul style="list-style-type: none"> • Savannah, GA (29) • Charleston, SC (31) 	Weekly 10 Vessels 3,300 Weekly Average Capacity
<i>All water through Panama Canal</i>		

<i>Service Name</i>	The Grand Alliance JCX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Shanghai, PRC	<ul style="list-style-type: none"> • Oakland, CA (13E) • Los Angeles, CA (15E) 	Weekly 6 Vessels 3,300 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	The Grand Alliance CKX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Ningbo, PRC	<ul style="list-style-type: none"> • Long Beach, CA (15E) • Seattle, WA (21) 	Weekly 5 Vessels 5,500 Weekly Average Capacity
<i>Transpacific</i>		

<i>Service Name</i>	The Grand Alliance SSX	
<i>Origin</i>	<i>US Ports Served</i>	<i>Notes on Service</i>
Hong Kong, PRC	<ul style="list-style-type: none"> • Long Beach, CA (12E) 	Weekly 7,900 Weekly Average Capacity
<i>Transpacific</i>		

Chapter 4 – New Balance in China



Abstract

New Balance, one of the largest athletic shoe manufacturers, started outsourcing its manufacturing activities to Taiwan and China. Mr. Horace Chang was the one of the top suppliers for New Balance and also had an exclusive distribution agreement for the Chinese market. He ended up selling unauthorized New Balance Classics for a third of New Balance's price. What went wrong? How did a partner become a rival? What should be noticed and arranged in exclusive agreements in order to protect intellectual property effectively. This case study takes a look at the matter of intellectual property protection, as a strategic supply chain issue.

Company Background

New Balance is a Boston, MA based athletic apparel company. New Balance manufactures footwear and athletic shoes for men, women and children. Footwear is designed for all sports-activities such as running, walking, tennis, basketball and kids sports. Its market consists of 120 countries, in all six continents. Subsidiaries are located in the UK, France, Germany, Sweden, Hong Kong, Singapore, Australia, New Zealand, Mexico, Canada, Japan and South Africa.



Figure 17 New Balance Arch Company Store¹⁹

New Balance began its activities as an orthopedic shoe manufacturer, back in 1906. William Riley was then the founder of “New Balance Arch Company”, which produced custom-made orthopedic arch for pain relief and orthopedic foot problem correction. In 1930, NBAC was the first to produce a running spike.

In 1956, the company was sold to Paul Kidd and in 1961 NBAC was the first to produce a running shoe with a rippled rubber sole and in multiple widths. Athletes turned to NBAC to design custom shoes, due to NBAC’s expertise in handcrafting specialized footwear²⁰. James S Davis purchased the company in 1972. It was under his ownership when it was named “New Balance Athletic Shoe”.

Since then, New Balance has turned into a \$1.5bn company employing over 2,500. Through these years, New Balance has maintained the principles it was founded upon: extensive width sizing, commitment to domestic manufacturing, and leadership in technological innovation²¹.

Commitment to domestic manufacturing

One factor that makes New Balance unique is that they “remain committed to domestic manufacturing, owning and operating five manufacturing facilities in the US

¹⁹ All photos in this chapter are © copyrighted by New Balance – <http://www.newbalance.com>

²⁰ New Balance Fact Sheet – www.newbalance.com

²¹ Ibid.

and one in the UK”²². The “made in the USA” logo, does not appear only on New Balance’s shoes, but to their manufacturing and social strategy as well.

For an athletic shoe to be assembled, the labor cost accounts only for 15%. New Balance claims that despite higher labor costs in the US, improved automated manufacturing and skilled workforce allow for a pair of shoes to be turned out in 24 minutes, compared to 3 hours needed in a Far East factory.

That allows New Balance to quickly serve their USA customers. “We can fill orders in 24-72 hours with distribution centers on the East and West coasts. [...] this quick-to-market advantage is why we make shoes in the UK for Europe”²³. This strategy implies higher inventory levels in domestic warehouses. The flexibility offered to retail stores, however, is of great importance, making such costs insignificant.



Figure 18 Inside a US based New Balance factory

Making shoes at home also shortens their supply chain and decreases transportation costs and costs associated with importing products and increases the job positions offered in the United States. However, domestic production accounts only for 25% of New Balance’s total production. As any major athletic shoe company, New Balance manufactures in China 70% of its global output, or 35 million pairs. Low labor cost and decreasing shipping costs are the main reason for this transition. Moreover, New Balance wants to exploit the opportunities given by the Beijing Olympic Games in 2008. “By 2008, China can be the 2nd or 3rd largest market outside the US”²⁴.

²² New Balance - “Domestic Manufacturing: The New Balance Way”, www.newbalance.com

²³ Ibid

²⁴ Peoples Daily Online – “New Balance shoots for second in China”

“New Balance for \$60 or New Barlun for \$20?”

Even though manufacturing in China and penetrating the Chinese market seems very promising for a giant as New Balance, their first move there back in 1990s hid a surprise.

In order to begin their activities in the South East region of Asia, New Balance made a contract with Taiwanese Mr. Horace Chang, who was one of the top suppliers for New Balance for many years, first in Taiwan and later in China. In 1995 New Balance decided to increase production for global sales and to sell New Balance shoes in China’s domestic market. Chang was named “official sales partner in China”, and held an exclusive distribution agreement with New Balance, apart from the manufacturing agreement he already had.



Figure 19 Assistant Secretary of Commerce with both products²⁵

During 1998, Mr. Chang sold 58,000 pairs in China and in 1999 he announced that he could sell 250,000 pairs. However these referred to low-end shoes, the Classics, with little technological innovation and targeting the low-performance customer. Such a strategy conflicted with New Balance’s strategy for increasing their market share and gaining the second position in the industry, after Nike and take over Reebok and Adidas. New Balance wanted Mr. Chang to decrease Classics’ production for China and increase the production of more expensive models. That was announced to Mr. Chang when he had already increased production and opened retail stores and outlets in China to prepare

²⁵ Embassy of the United States of America in Beijing Archives

for such increase. As a result, Chang was stuck with a huge inventory of New Balance Classics that New Balance did not want him to sell.

As a result, Mr. Chang started selling these shoes domestically and later on started exporting to Japan- a major market for New Balance and especially the retro must have Classics – for \$20 when the same shoe was priced \$60 by New Balance. Moreover he increased the production to 460,000 pairs and decided to developed designs that New Balance had rejected it self.

That would create a major problem for New Balance, as he could flood the market with unauthorized New Balance Classics. New Balance tried to purchase all Mr. Chang's inventory for \$10 each, but he declined. Mr. Chang created a new brand, his "New Barlun" enterprise, and promoted it also as "the brand from the U.S.A.". The choice of the name, despite any intention to use the N and B letters, was also selected because it sounds like New Balance, made it difficult for Chinese customs' agents to tell the difference and block the unauthorized exports. Finally, he also used the dating system of New Balance – all his shoes had the '1999' mark, when he was still authorized – making it harder to tell the difference between authorized genuine New Balances and New Barlun's, even for New Balance itself.

Mr. Chang has not been the only incident of counterfeiting for New Balance products. There is also a company that sells itself as Niu Ba Lan²⁶, and many Chinese think that is the same as they cannot tell the difference. These guys also use Chinese characters that mean nothing, just sound like New Balance. They have copied everything, including stores' style, advertisements and even call themselves a US company.

Cost of fight against copies

Of course, New Balance reacted to the situation. First of all they completely depleted any relationship with Mr. Chang and shifted production to other Chinese factories. Furthermore, New Balance started a giant legal struggle and changed their perception of fighting against counterfeits.

²⁶ BusinessWeek Online: "New Balance: The Cost of Copies"

New Balance says that it is hard to evaluate the lost revenue. The most costly activity is legal fight. New Balance has spent over \$1m for ongoing counterfeiting, most of which is in China. They also closed a factory in Argentina, as a reaction to counterfeiting problems in that region.

The loss cannot be measured only in monetary terms. The most significant is that you might lose your brand name and reputation overnight, if you do not handle the matter efficiently. New Balance wants to do the New Barlun case a poster-boy case of the worst part of China²⁷. New Balance has prosecuted Mr. Chang, but they also prosecute dealers in the US and Japan that sell those products as original New Balance shoes. “Our first line of attack is the factories, but if the product shows up in the market, if they don’t pull it off the market, we go after them. We go after the retailers”²⁸.

Now, New Balance has hired private investigators that go onsite and try to find fake shoes in China, by pretending to be New Balance buyers. Moreover they have implemented a safety measure, with tags embedded to fabric. This technology uses nanoparticles that can be detected only with special equipment. The tagging and scanning system cost \$350,000 to New Balance and was provided by GenuOne. They also monitor auction sites for fakes, using GenuNet, a software mobile data mining tool that reports below-suggested prices and unauthorized dealers.

The most important for New Balance is to hit copies right in the factory. If the shoes reach the market it is difficult to locate them as they spread into many locations, sometimes even unknown. Moreover, if the market is flooded with fakes, customers are reluctant to buying your products even from the factory store, hitting both your reputation and your market share.

Structuring a deal in China

New Balance’s case has raised the question of how companies should structure their deals with Chinese factories to protect their intellectual property. In their legal fight against counterfeiting, New Balance has many supporters, mostly firms outsourcing in

²⁷ Ibid

²⁸ Ibid

China and many Chinese authorities that try to create a safer environment for foreigners to invest in.

The weird part of the story is that the whole thing began as a cooperation which went along pretty nice. Problems began when strategic issues not arranged in the primary contract were of different importance for the two partners. Was this a fault of Mr. Chang alone, or should New Balance think twice before entering such a deal?

Mr. Chang was legally the exclusive distributor and one of the top manufacturers. New Balance should not mix those actions, in order to prevent losing control. He also disclosed to the headquarters the potential in China and was encouraged to increase production. He also invested in retail stores, expanding production capacity, inventory and he was also in a binding distribution agreement. Can he solely be blamed for what happened?

New Balance should study deeper the conditions of manufacturing in China. The distribution agreement should have a detailed plan for Mr. Chang's activities. Without targeting specific segments in China, Mr. Chang was left free to decide. Moreover Mr. Chang turned into a store owner, as he had no access to the high-level, high value stores, and he wanted to sell low-level classics.

New Balance should expect different pricing, as this happens in global markets, as for example Chinese have an average household income of \$900 and cannot afford to pay \$60 or more for a pair of shoes. They also gave Mr. Chang the obligation to expand retail sales in China, but only an informal caution of not producing too many low-end products.

New Balance's lawyer said that "The Company was naïve in the way it structured its relationship with Mr. Chang"²⁹.

Intellectual property protection

The global problem of counterfeiting and pirated product is a market of \$600bn. China accounts for 60% of it. CDs, DVDs, shoes even computers are copied without permission, manufactured illegally and exported around the globe. This situation puts tension in the relationship of Beijing and Washington, as mostly US corporations

²⁹ Wall Street Journal of 12/19/02

outsource their activities to China. The Chinese government assures that copyright protection is a very important matter for them, and will do anything it takes, but that cannot be done overnight³⁰.

New Balance believes that the answer to fakes is education. “Education of the consumer on what the real New Balance is, a product based on technology, and help them make the differentiation between New Balance and counterfeits”³¹. However, this implies that counterfeits will be able to reach the market and be sold on the shelves of retail stores.

As shown above, companies going to China, frequently underestimate the significance of protecting their intellectual property by means other than litigation. The structure of the deals for outsourcing should leave no space for contractors to decide on their own. New Barlun is an example of such a deal.

Moreover, companies should be careful on deciding what kind of technology to reveal and outsource. First of all they should register trademarks and patents. They should also define functions to be performed by each contractor and use a different contractor in each link of the supply chain, in order to minimize information disclosed to each one.

A background check of the suppliers and the way business is done with them may save time and money as it could reveal any problematic situations they might be into previously. Employees should also be selected carefully, as they might be dangerous in providing competitors or even turn into competitors. High ethical standards and education should be preferred; it is a premium that is definitely worth paying for, in order not to be in constant fear of something going wrong.

Protection of intellectual property is mainly a matter of strategy. Legislation is only there to help fight against those that steal intellectual property, after they steal it. Companies should carefully plan their expansion in such regions where even if there is a law, it is hard to enforce, thus making it appealing for contractors to get involved in such illegal actions.

³⁰ CNN.com – Eunice Yoon, *US Shoemaker faces Chinese ‘gall factor’*

³¹ Ibid

Other problems in the go-to-China process

Besides the intellectual property protection problems, New Balance has been accused of exploiting the workers in its factories. A recent report³² by the NLC & CLW shows that New Balance constantly violates laws regarding children labor, working conditions, insurance and contract laws, and in general in using the Li Kai Di Company factory in China.

This is the bad face of outsourcing activities in low labor-cost areas. New Balance has answered to these allegations with its “New Balance: Overseas Manufacturing” press release (exhibit 1).

Table 21 Wage Compared in Li Kai and the US³³

Basic Wage	
574 RMB per month / 176 regular working hours	
RMB	U.S.
3.26 per hour	\$0.40 per hour
26.09 per day (8 hrs)	\$3.22 per day (8 hrs)
132.46 per week (40 hrs)	\$16.22 per week (40 hrs)
\$74 per month	\$70.78 per month
6.888 per year	\$649.32 per year

Such allegations may have significant impact on sales in the home country. Activists and worker unions usually try to boycott sales and ask customers to press the company to comply with local labor laws and regulations and treat workers in these regions fairly. Nike has faced similar allegations and boycott efforts by activists dropped their sales globally.

Going back to China

The Olympic Games of 2008 in Beijing are the most significant event for the global athletic community. The real struggle however is the split of the sponsor and sales pie by athletic apparel and footwear companies. New Balance is ready to take place in such a competition.

³² New Balance Goes to China: A Rare Glimpse Inside the Emerging New Corporate World Order
A Special Joint report by The National Labor Committee & China Labor Watch, February 2006

³³ Ibid

Jim Davis, chairman and CEO of New Balance believes that by 2008 New Balance will be the No 2 athletic shoe brand in the Olympic Games. China as a market will hopefully “be the second or third largest market outside the US” as J. Davis said, as a comment about sales in China.

For the Chinese branch of New Balance the Chang incident is just something unhappy that happened – even if it halted their activities in China – and New Balance re-launched its operations in the region during 2004. Now the company owns 8 factories in China, out of 15 in total. They also plan to expand from 100 retail stores today to 300 stores during 2006, as they recognize the change in size of the middle class and the increased demand for better products.

*Exhibit 1*³⁴



New Balance: Overseas Manufacturing

New Balance has long been committed to USA manufacturing. While we have expanded our domestic manufacturing capabilities substantially since 1995, adding more than 500 full-time jobs, we have not been able to meet the increasing demand for our product through domestic manufacturing alone. In order to continue to satisfy increasing customer demand, we have needed to utilize overseas sub-contracted facilities. We have continued to ramp up our domestic facilities, including a recent expansion of our Lawrence distribution center, with a consistent and focused goal on increasing our U.S. production.

New Balance brand shoes are currently manufactured in our own factories in the United States and the United Kingdom, as well as in sub-contracted factories in China and Vietnam. In all factories and offices around the world, New Balance cares about its workers.

As a U.S.-based company, we recognize that it is more difficult to monitor overseas facilities, which is why we turned to the third-party monitoring organization Verité. This independent non-profit agency monitors conditions in our sub-contracted factories and provides us with regular reports. We carefully review these reports and make any changes necessary based on their findings.

New Balance has established long-standing relationships with many of our overseas suppliers. With a shared foundation of trust and understanding, we have been able to make significant progress. We employ a local senior-level Compliance Manager in China and five factory-based compliance specialists in China and Vietnam, and many of our own U.S.-based associates travel regularly to the overseas facilities. It is obviously difficult to have as much control over these facilities as we have over our own U.S. facilities; however we feel we do the best job possible to ensure that workers everywhere are treated fairly.

Updated 6/05

³⁴ All exhibits are © of New Balance and can be found in the “Media Relations” link under “About Us” of <http://www.newbalance.com>

Exhibit 2



New Balance... a Commitment to U.S.A. Manufacturing

Many New Balance brand shoes are produced in one of six United States factories. While most of the footwear industry has moved its production overseas to take advantage of low labor costs and generally cheaper production costs, we continue to make many of our shoes in the United States and have expanded production substantially. Since 1995, we have increased our manufacturing jobs by 45%. We at New Balance are proud to provide jobs to the U.S. workforce, and proud of our well educated, high quality associates who can compete with anyone in the world. Through their hard work, we are able to make many of our models of shoes in the United States despite the competition from lower cost imports.

Unfortunately, we are not able to obtain all materials and components that are needed for these shoes in the United States. In some cases, they are simply not available. In other situations, economic and quality considerations dictate foreign sourcing. However, New Balance remains committed to providing jobs for American workers and to supporting domestic manufacturers and suppliers where possible.

The Federal Trade Commission has attempted to determine what it means to say a product is "made in" the United States. While this seems like a simple question, the answer is not always obvious given the global nature of the economy. We believe most consumers think "Made in USA" means that real manufacturing jobs were provided to U.S. workers in order to make that product. The shoes produced in our U.S. factories are made by U.S. workers using both U.S. and imported materials. Where the level of domestic value is at least 70%, we have labeled the shoe "Made in USA." Where it falls below that level, we have qualified it as containing both domestic and imported materials. This determination is based in part on a survey of consumers conducted by the FTC. The Federal Trade Commission's analysis of the Made in USA issue can be found on the Internet at FTC's web site www.ftc.gov, or for a copy write to New Balance Athletic Shoe, Inc. Brighton Landing, 20 Guest St., Boston, MA 02135-2088 Attention: Corporate Communications.

New Balance has proven that high quality, width-sized athletic footwear can be made by Americans for discriminating consumers and we are proud of this fact.

For more information about New Balance products, visit our web site at www.newbalance.com or call 1-800-253-SHOE.

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Updated 6/05

Exhibit 3



Domestic Manufacturing: The New Balance Way

New Balance is unique in many ways. We don't endorse athletes, we make shoes in multiple widths, we put function before fashion, and we remain committed to domestic manufacturing, owning and operating five manufacturing facilities in the United States (two in Massachusetts and three in Maine) and one in the United Kingdom.

Modular Manufacturing

But our uniqueness doesn't stop there. Once inside one of our factories, you'll see teaming areas of cross functionally trained associates. Back in the late 1980's we switched from traditional assembly line production to modular team manufacturing. A unique style of manufacturing, associates "bump" one another through the process by moving back and forth from one task to another, to make up for the fact that some tasks take longer than others. This provides workers with more variety in their day-to-day job, a higher skill base than overseas shoemakers, and a greater (team) rate of productivity. Due to the teamwork required to make shoes in this type of environment, we look for associates who work well with others, are flexible, and are willing to try new things.

Labor Costs

Many people are surprised that we make shoes in the United States due to the high cost of labor. But most people don't realize that labor actually only accounts for about 15% of the total cost of producing a shoe. Despite higher labor costs in the USA, New Balance has been able to offset the cost elsewhere and keep manufacturing in the States by continually improving and automating the manufacturing process. The combination of teamwork and technology allows New Balance to turn out a pair of shoes in 24 minutes vs. 3 hours overseas. We continue to invest heavily in new technology, equipment, and training for our associates.

Skilled Workforce

Because much of the machinery is so technologically advanced, our workers need to be skilled. Many associates, especially those in our Maine facilities, come from the shoe making industry or have family members who worked in shoe plants. Regardless of their previous experience, all associates go through extensive training upon hire and workers are continuously trained throughout their careers. We are proud of our skilled workers and that they can compete with anyone around the globe.

Associate Involvement

We encourage our associates to share their knowledge when it comes to improving processes and finding better, more efficient ways of making shoes. Our manufacturing facilities have implemented Associate Involvement Programs to further encourage empowerment and involvement. Five-minute meetings are held daily in all plants and 360 degree communication (manager/associate and vice-versa) is emphasized, as associate input is invaluable.

Quick to Market

By making shoes here we can better service our USA customers. We can fill orders in 24-72 hours with distribution centers on the East and West coasts. We also assume more of the (inventory) risk by holding product in our own warehouses, offering the retailer the flexibility of ordering when he needs replenishment. These fill-in orders are shipped within 72 hours. This quick-to-market advantage is why we make shoes in the United Kingdom for Europe.

Expansion

In addition to five NB-owned and operated facilities in the US, a sixth facility in California, owned by one of our foreign suppliers, assembles shoes exclusively for New Balance. We also added 109,000 square feet to our Lawrence distribution center in 2001. Despite these expansions, domestic manufacturing capacity has not been able to keep up with overall demand and we have had to continue to rely on sub-contracted overseas factories. Overall domestic manufacturing jobs and production has increased significantly. Since 1995 we have added more than 500 manufacturing and distribution center jobs in the USA, representing a 45% increase in employment. Currently, domestic production accounts for 25% of our overall production, with our ongoing goal to increase our domestic production.

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Updated 6/05

Chapter 5 - Nike Inc: Terminals and Supply Chain Flexibility



Abstract

Nike is manufacturing all of its products outside the US. In fact, the largest market is also away from the US. Supply chain efficiency and flexibility is of the essence for such operations to be executed. In order to diversify risk implied by ocean shipping, Nike's strategy is to divert cargo through less congested ports, having the ability to fulfill orders even when ports are closed.

Nike Background

Nike began operations in 1964, as a free time imported shoe selling business by Phil Knight, called BRS. Knight strategy was back then to sell quality shoes for athletes manufactured in low labor cost regions. Initial investment for this business was \$1,000.³⁵

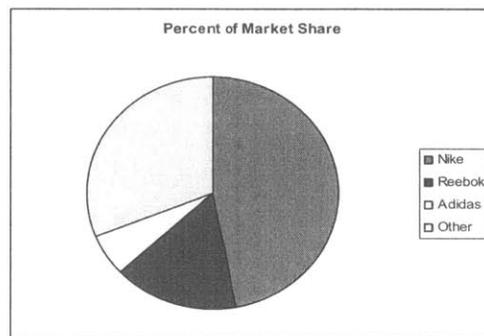


Figure 20 Market share in apparel industry - Source: Nike Report Syracuse University

Today Nike has evolved into the largest player in the athletic apparel industry, with global revenues exceeding \$12bn and net earnings of almost \$1bn³⁶. Its market share in the apparel industry is 47%, far from the 16% of the second player Reebok.

³⁵ Information combined from case studies "Nike In China" of HBS and "Nike – Channel Conflict" of GSB Stanford University.

³⁶ John Isbell presentation: "Satisfying the needs of the port's client". Pie Charts, also from this presentation, present sourcing activities amongst regions

The headquarters of this giant are located in Beaverton, OR. The United States market is the largest market for Nike; however, 63% of sales are outside the US. Footwear is the dominant division in sales for Nike, accounting for 53% of sales. Sales are summarized in the table below.

Table 22 - Nike's Sales 2005 - Source Nikebiz.com

Nike 2005 Sales					
<i>Region</i>	<i>\$ Million</i>	<i>% of Total</i>	<i>Division</i>	<i>\$ Million</i>	<i>% of Total</i>
Americas					
United States	5,129.3	37			
Other	695.8	5	Footwear	7,299.7	53
Europe/Middle East/Africa	4,281.6	31	Apparel	3,879.4	28
Asia Pacific	1,897.3	14	Equipment	824.9	6
Other	1,735.7	13	Other	1,735.7	13
Total	13,739.7	100	Total	13,739.7	100

Nike is considered to be a manufacturing company. However the most significant operation for Nike is marketing. Nike spends tremendous amounts of money to make the swoosh logo the most recognizable logo around the globe, surpassed only by Nike's Jump-man logo used in Michael Jordan's product line!

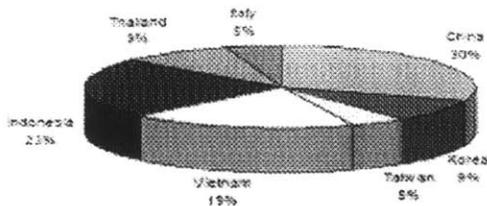
Nike uses contracts with athletes in order to promote its products by creating player oriented product lines. Michael Jordan, Tiger Woods, Kobe Bryant and other fancy names are on Nike's advertisement campaign roster. Soccer teams like Manchester United also have contracts with Nike for their uniforms and jerseys. More than 10% of annual revenues are used for marketing and advertising purposes – that sums up to more than \$1bn. Nike's strategy is to make high tech athletic apparel and footwear part of everybody's everyday life. They brought basketball shoes out of the court and that is what they now try to do with soccer shoes.

Through time, Nike has dominated the market of athletic apparel. This domination created a 'monopoly' and now Nike is in the position of creating fashion and stimulating demand. And it is really good at this.

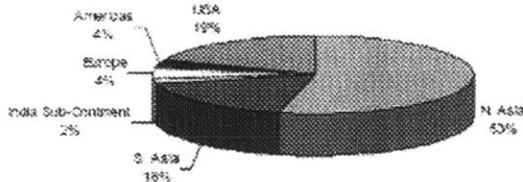
Nike Channels

As mentioned above, Nike started as a company selling athletic shoes made in

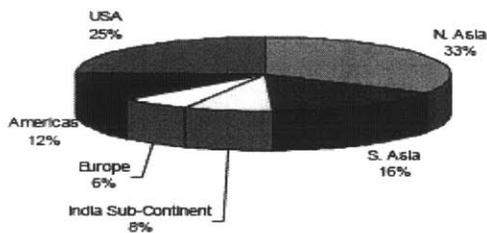
Footwear Factories



Equipment Factories



Apparel Factories



low labor cost countries. That is the strategy in manufacturing today as well. Nike produces all its footwear products overseas in places as China, Vietnam, Taiwan and South America. Only 25% of apparel and 19% of equipment is made in the United States. All factories are contract factories, no Nike-owned facilities³⁷.

Manufacturing partners are engaged in long term relationships targeting on high quality production and on time shipment, to satisfy Nike's supply chain strategy. The only thing that is 100% made in USA is design generation and management.

When products arrive in the US they are transported to Nike's distribution facilities in Wilsonville, OR

and Memphis, TN. Apparel is only distributed by the Memphis center. Nike also delivers to 30 distribution facilities of its major retailers³⁸. These retailers are expected to place orders 9 months in advance.

The finished products reach the market through retail stores, Internet stores or NIKETowns. Nike e-shop is Nike's internet shop, offering the complete product line, some "internet specials", and NikeID – the ability to make your own show. NIKETown stores are wholly owned by Nike, selling almost every product line Nike produces and

³⁷ Ibid.

³⁸ Ibid.

are historically located to high-traffic regions. In 1999 Nike operated 13 of those NIKETown stores.

As a result, the supply chain that Nike has to manage is really complex, with many-to-many relations between suppliers, retailers, carriers and distribution centers that have to be coordinated in order for the whole chain to remain efficient, and achieve the goal of 5 inventory turns per year.

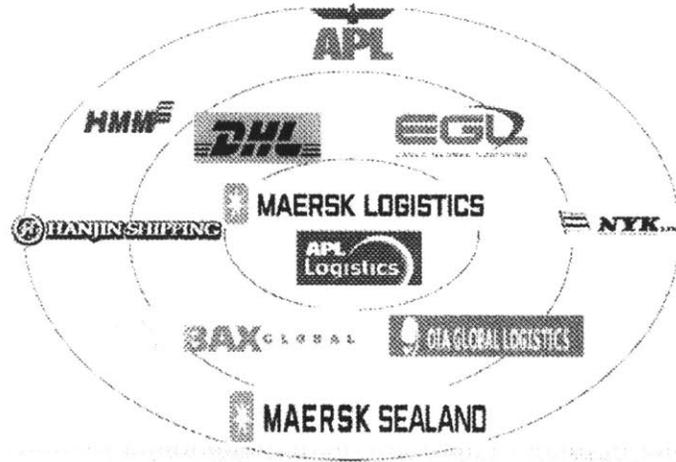


Figure 21 Nike's Supply Chain partners

In order for products to move along the supply chain, Nike uses a diversified set of logistics providers. The above figure³⁹ shows from the center towards outer circles, the 3PL, express parcel and shipping companies that Nike works with for overseas operations.

“APL Logistics and Maersk Logistics are the two consolidators that are responsible for handling the cargo from the factory, receiving the freight, loading the containers, communicating to destinations in planning shipment deliveries, collecting documents from the factory and forwarding them to the destination”⁴⁰. Supply chain management is done in-house as there is the expertise needed to perform such operations. That is also a result of the strategy for shipping directly to retailers distribution centers, as there is a great need for communication with them about dates and products and Nike wants to fully control this procedure.

³⁹ Ibid

⁴⁰ Leslie Hansen Harps, “From tactical to strategic: 3PL Continuum”, July 2004. Available online http://www.inboundlogistics.com/articles/features/0704_feature01.shtml

During the 25 years of Nike's outsourcing activities, the main concern was how to organize cargo movement, consolidate it efficiently and effectively for on-time deliveries with low cost. Most time was spent to organize factory-to-port and port-to-distribution center operations for finished goods. However, in 2002, another factor came in to add in this complexity. "Until 2002, [container] terminals were mostly invisible to the shipper, especially intermodal shippers"⁴¹. Terminals became a headache for shippers around the world. What changed this perception regarding terminals' significance for supply chain management during 2002?

West Coast Ports

The two largest container terminals of the United States are located in Los Angeles, CA and Long Beach, CA. These two terminals served more than 13 million TEU during 2004 showing a 15% increase since 2003. It is expected that in 2015 both ports will be operating above their capacity, causing congestion and adding delays to shipments.

Port operations are heavily based on manual operations, making workforce a real force in determining the level of service of those operations and overall efficiency of the terminal. In the United States, port labor is also heavily unionized and laws regulate the duration of work, the level of productivity and usage of innovative technology to increase it, and the working environment of the whole industry. The union for terminal workers is International Longshore and Warehouse Union (ILWU). The Local 13 division is the one responsible for southern California terminal workers.

October 2002 was the month to show the power of unionized labor and the impact of strikes on ports in the supply chain.

A change in technology proposed by the Pacific Maritime Association, that would have data sent from shipping lines to PMA rather than from ILWU workers, along with unsuccessful discussions on new contracts, made the ILWU react. "The ILWU instructed its members to engage in what the ILWU terms a safety program, in part to pressure the

⁴¹ John Isbell presentation: "Satisfying the needs of the port's client". Pie Charts also from this presentation

PMA in negotiations – dropping productivity about 60%. The PMA responded with economic pressure by locking out the bargaining unit⁴². As a result, West Coast ports were shut down. From September 26th to October 7th, nothing could move in or out from those ports.

Tens of containerships with cargo for the holiday shopping season were anchored outside ports. Plants were also impacted due to lack of parts to complete products.

The estimated loss for the US economy is about “\$1bn a day and essentially choke off trade between the United States and Asia”⁴³.

Congestion created by large volume and narrow handling capacity, along with labor based problems, and forced shippers to explore solutions that would allow for a flexible supply chain to be in place.

Port Diversification

Port diversification refers to the strategy of having goods designated to one market and goods produced in a manufacturing center received and sent through multiple ports. Utilizing such a strategy allows for higher level of service, since congested ports can be avoided; or unanticipated incidents such as a strike, natural disaster or other factor shutting down the port can have less impact on the supply chain.

Nike moved 80,000 TEU during 2004. The United States was the destination for 22,000 of them. For Nike delivering on time is of the essence and deliveries should not be jeopardized by port inefficiency. The 10-day lockout in 2002 gave food for thought to supply chain managers in Nike, in order to design their supply chain in order to be able to react to such incidents. 2004 was also a year of great congestion for Southern California ports.

⁴² Report to the President: Submitted by the President's Board of Inquiry on the Work Stoppage in the West Coast Ports. <http://www.whitehouse.gov/news/releases/2002/10/20021008-2.html>

⁴³ CNNMoney.com, “Port lockout continues as sides dig in”. Online: <http://money.cnn.com/2002/09/30/news/economy/ports/index.htm>



Figure 22 US Port Utilization by Nike

Nike began utilizing port diversification long ago. The gains from such a strategy are huge. When others were stuck in LA/LB waiting for either the strike to finish, or waiting for other delayed vessels to unload, Nike by diverting cargo to northwestern ports, had its product delivered to most locations. Other locations were supported by stock in the distribution centers and the overall impact of the strike was minimal.

During 2004 high congestion period, Nike increased the amount of cargo diverted to Tacoma and Seattle ports, in the northwest. These ports account for 47% of the cargo compared to 39% of LA/LB. A comparison of those ports is shown in the table below. The location of the Oregon distribution center also favors such an action, and gave Nike the ability to fulfill orders while there was no impact to retailers.

Table 23 Port traffic and growth - CI 2006

Port	TEU 04'	TEU 03'	% growth
Seattle	1,775,858	1,486,465	19%
Tacoma	1,797,560	1,738,068	3%
Long Beach	5,779,852	4,658,124	24%
Los Angeles	7,321,440	7,178,940	2%

However there was an impact for Nike. They had to use more team drivers to move cargo to the inner side of the country, and airfreight for key products launches through the nation. Moreover it increased the communicated date with carriers to better

monitor deliveries. Finally, Nike decided to reform the delivery strategy for the future as congestion problems seemed not to be resolved during 2005⁴⁴.

The same port diversification strategy is followed by Nike on the other side of the Pacific. Nike used to ship its cargo through the port of Hong Kong. That is what most manufacturers used to do back in 1999.

Nike following APL Logistics recommendation, now ships their products through the port of Mawei, a river port located near Nike's Fuzhou factory and consolidation center. This port serves all ocean carriers used by Nike. Cargo however still goes through Hong Kong to travel to US. However, the Mawei – HK journey is not Nike's responsibility anymore as shipment is Mawei FOB, saving \$1,600 per container. HK steep labor and terminal handling charges are also not paid by Nike. Moreover, Nike tries to consolidate more and more cargo in Fuzhou as savings potential is great⁴⁵.

It can be seen that port diversification can offer the shipper both flexibility in designing the supply chain and lower costs. Moreover shifts risks from the shipper to the carrier and lowers risk of total supply chain failure. As congestion in ports tends to be a significant issue for supply chain planners, strategies as port diversification and cargo diversion are more favorable.

Other problems moving to China

Nike first moved its manufacturing outsourcing activities to China back in 1981. However there have been significant outsourcing activities in other low labor cost countries such as Taiwan, which accounted for 86% of shoe production for Nike⁴⁶. Phil Knight noticed that "China is the toughest place in the world to do business"⁴⁷. The problems faced back then, and still dominate the problem list of moving to China were⁴⁸:

- Bureaucracy was a problem for entering China, as everything had to be communicated to many agencies and ministries, and decisions took some time to be made and forced.

⁴⁴ John Isbell presentation: "Satisfying the needs of the port's client"

⁴⁵ Global Logistics & Supply Chain Strategies online, "Nike Eliminates Its Hong Kong Headaches"

⁴⁶ HBS Case Study 9-386-065, "Nike in China"

⁴⁷ Ibid.

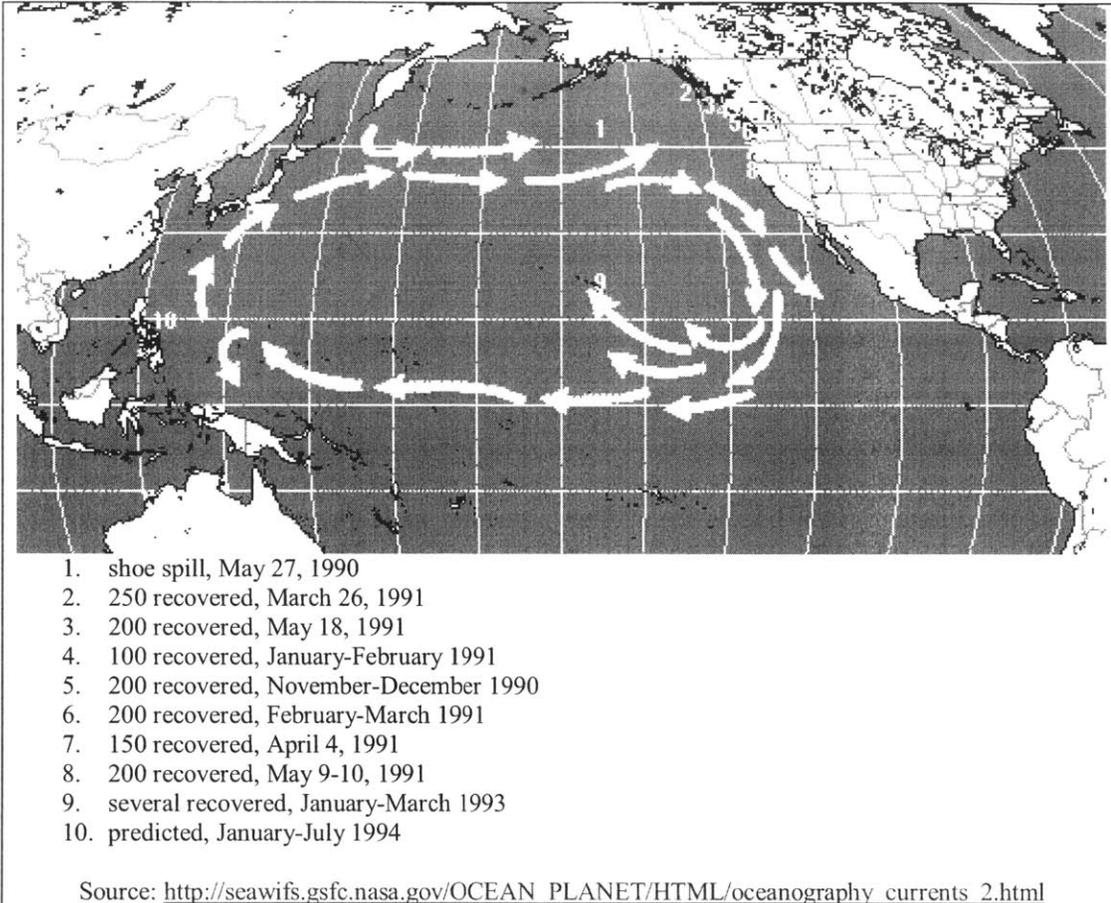
⁴⁸ Summarized information from HBS Case Study 9-386-065

- Technology transfer to China, due to antiquated techniques and machinery used there for footwear manufacturing.
- Lack of materials that could be sourced locally, thus increasing import costs
- Chinese B-grade production accounted for 20% of total production, while Nike's policy allowed only 3-5% of B-grade shoes to be produced.
- Quick response and production flexibility was very difficult to achieve due to low motivation for workers and management and nature of decision making procedures.
- Staff expatriation was also a difficult since most staff did not speak Chinese and no Chinese staff spoke English.

These unanticipated difficulties in entering China made forecasts regarding output capacity completely wrong. Only a third of the forecasted output was reached by 1984. Most companies still face such problems, even though the Chinese have made a great progress in converting their centralized economy to a market economy.

Another issues that is related to Nike's activities in China, has to do with an ocean carrier that carried Nike shoes in containers and had an accident. In this accident some TEUs fell off the containership resulting in a spill; the first shoe spill of the naval history, with almost 80,000 Nike shoes floating in the Pacific Ocean. Shoes are still recovered ashore in pacific coast beaches. The map below shows regions that have recovered shoes since the shoe spill. Besides the funny side of the story, this resulted in a disruption of the supply chain and caused delays in deliveries, something that is unacceptable as Nike's delivery strategy states. It also raised environmental issues regarding sea environment distraction, and underlined the added risks of extensive ocean carrier usage.

Table 24 Nike Shoe Spill development



The New Balance incident analyzed in Chapter 4 is not an isolated incident of intellectual property theft and fake product sale. China accounted for 66% of fake products confiscated by US Customs during 2003. The table below shows the 2003 situation with major US trading partners.

Table 25 United States Customs Seizure Statistics 2003

Trading Partner	Value in US dollars	Per cent of total
China	\$62,468,018	66%
Hong Kong	\$8,236,507	9%
Korea	\$3,219,268	3%
Pakistan	\$2,010,465	2%
Mexico	\$1,966,929	2%
Canada	\$1, 189,160	1%

Nike also faces the threat of fake sales. Recently there has been legal action against an internet seller. Nike demands \$24,000 as compensation. Internet is a major shelter for sellers of fakes, and Nike has initiated an investigation on its own to find and go after such sellers. Furthermore, there has been significant activity of confiscating Nike's shoes in Europe; in both Italy and Germany there have been 2 container-loads worth more than €2 million. However, Nike has done better than New Balance in IP protection within its own supply chain, as there is no incident where partners sell both authorized and unauthorized products.

Nike is the main target of activists and allegations for unethically exploiting cheap labor. The country of most activity against Nike is the United States, with many protests against Nike and the academia studying Nike as the first to exploit sweatshops. Consumers also boycotted Nike's sales through their organizations. However, Nike claims that there are no sweatshops used, since they are against the code of conduct of the company. Reports from both Chinese and US agencies seem to prove the opposite.

Chapter 6 - Conclusions

China's accession into the World Trade Organization in 2001 made it a very attractive destination for outsourcing manufacturing activities. Large multinationals have moved the largest part of their manufacturing base there, in order to exploit low labor costs.

However, outsourcing is not an easy process to perform successfully. The economy is not completely a market driven economy, thus restricting the benefits of competition. The complex public sector and state's interference in any commercial activity slows and restricts the procedure of establishing relationships with factories, manufacturers and local authorities.

Another obstacle in moving to China is supply chain infrastructure. The problems presented in Chapter 2 are a real headache for shippers and for potential shippers. Especially with the proposed shift to higher value production, transportation infrastructure gains a more significant role. The PRC government makes significant progress in construction of new infrastructure; however, PRC has a long road to go in order to meet demand for safer, more efficient logistics networks. New investments in ports and container handling facilities signify a great progress and help keep port utilization under 100%. The new Yangshan port is expected to relieve Shanghai and offer shippers larger throughput and less turnover times for the 9,500+ TEU ships serving this port. The importance of ports is underlined by Nike's strategy to use more than a single port to export and import finished goods. A delay in a port has a chain effect in the entire distribution network, and having a way to avoid such incidents is very important and valuable.

Intellectual property is also a great issue in outsourcing. New Balance's adventure underlines the significance of this problem, and the amounts lost because of fake sales are huge. The main reason that intellectual property cannot be easily protected is the lack of strategy to protect it in a country with low-morale workers and almost no market-based culture. Companies should wisely decide what to outsource and to whom in order to protect their ideas and technology and not face "New Barlun" of their products.

Concluding the above, there are many aspects regarding a company's strategy that must be designed and executed well in every detail in order for outsourced manufacturing activities to offer gains. Low labor cost is a major attractiveness for those activities; however, risks implied by the remote location as well as the difference in culture and economic nature can hide traps that might create severe problems and deplete any gains offered by cheap labor. Supply chain managers should take all factors involved in such a decision seriously to avoid such problems. China is a great pool for cheap labor and manufacturing activities; however, it can turn into a deep ocean if someone doesn't treat it correctly.

Appendix A - Indices

Table Index

Table 1 FDI by Investor Jan. - Nov. 2005	17
Table 2 US FDI in the manufacturing sector.....	18
Table 3 China's top partners (million).....	19
Table 4 China's top imports (million)	21
Table 5 China's top exports (million).....	22
Table 6 China's Trade with the US – Source: USITC, USDOC	23
Table 7 Top Imports from China - USTC, USDOC, and USBOF.....	23
Table 8 Top US Exports to China - USITC, USDOC.....	24
Table 9 US - China and HK Containerized Cargo (source: MARAD).....	30
Table 10 Wage Costs - Source USCBC	32
Table 11 Chinese Ports World Rank - CI 2006	37
Table 12 Market access restrictions in logistics services (continued in next page).....	41
Table 13 China's Logistics Landscape	42
Table 14 TEU Traffic per US region – CI 2006	43
Table 15 - Port Utilization (mTEU) - Source: Ocean Shipping Consultants, “World Containerport Outlook to 2015” (continued in next page)	43
Table 16 BNSF Train Service – Source BNSF.....	52
Table 17 Containership Orderbook ('000 TEU) by Size and Year of Delivery.....	58
Table 18 Container Freight Rates - UNCTAD Maritime Review 2005.....	60
Table 19 Participation in Alliances (early 2003) - CI 2005.....	62
Table 20 Major Carriers calling at US ports market power – Source CI 2005, MARAD	63
Table 21 Wage Compared in Li Kai and the US	81
Table 22 - Nike's Sales 2005 - Source Nikebiz.com.....	88
Table 23 Port traffic and growth - CI 2006	93
Table 24 Nike Shoe Spill development	96
Table 25 United States Customs Seizure Statistics 2003	96

Figure Index

Figure 1 - China - Main Economic Indicators - Source: USCBC, Fairplay	11
Figure 2 China's Top Import and Export Destinations – EFT Research 2006	20
Figure 3 E/b vs. W/b Container traffic - Mitsui OSK Shipping Research	29
Figure 4 - China's Transportation Network - Source: EFT Research 2006.....	31
Figure 5 The Modal Split.....	33
Figure 6 – Freight volumes by ton-kilometer - USDA Report.....	34
Figure 7 - Land Transportation Network Density Comparison (km/'000km ²)	35
Figure 8 - “The Pearl River Delta: A New Workshop for the World,” The Economist (October 10, 2002)	38
Figure 9 - YangShan project.....	39

Figure 10 Import TEU and E/b Lifts relation	48
Figure 11 The Alameda Corridor - Source: UP Railway	49
Figure 12 East bound container destination in TEU	50
Figure 13 Freight Rates - Clarkson Market Report, Aug 2005	57
Figure 14 Orders and Scrappings for Containerships - Source: Ibid	59
Figure 15 - Capacity Shares on the Transpacific Route (July 2004) - Drewry Shipping Consultants Ltd	61
Figure 16 Alliance formation evolution	62
Figure 17 New Balance Arch Company Store.....	74
Figure 18 Inside a US based New Balance factory.....	75
Figure 19 Assistant Secretary of Commerce with both products	76
Figure 20 Market share in apparel industry - Source: Nike Report Syracuse University .	87
Figure 21 Nike's Supply Chain partners.....	90
Figure 22 US Port Utilization by Nike.....	93

Appendix B – Companies offering Scheduled Routes from the Far East to China

All information provided in this Appendix has been derived by Containerization International 2006.

- Ampac Consortium (Hamburg Sud and CCNI)
- ANL Container Liny Pty Ltd
- APL Ltd.
- China Shipping Container Lines Co Ltd.
- CMA CGM SA
- Compania Chilena de Navegacion Interocceanica SA
- Compania Sud Americana de Vapores
- Cosco Container Lines
- Cosco/Hanjin/K-Line/Yang Ming Alliance (CHKY)
- CP Ships
- Evergreen Marine Corp (Taiwan) Ltd.
- Far Eastern Shipping Co.
- Gold Star Line Ltd
- Grand Alliance (Hapag-Lloyd, MISC, NYK, OOCL, PONL)
- Great Western Steamship Co.
- Hamburg Sudamerikanische Dampfschiffarts-Gesselschaft KG
- Hanjin Shipping Co. Ltd
- Hapag-Lloyd Container Linie GmbH
- Hatsu Marine Ltd
- Hyundai Merchant Marine Co Ltd
- Indotrans Asia
- Industrial Maritime Carriers Worldwide LLC
- Kawasaki Kisen Kaisha Ltd
- Lloyd Triestino di Navigazione SpA
- Maersk Sealand
- Maruba SCA
- Mediterranean Shipping Co SA
- Mitsui OSK Lines Ltd
- New World Alliance (APL, HMM, MOL)
- Norasia Container Lines Ltd
- NYK Line
- Orient Overseas Container Line (OOCL)
- P&O Nedlloyd Ltd
- Pacific International Lines Pte Ltd
- Philippines, Micronesia & Orient Navigation Co

- Safmarine Container Lines NV
- Seaboard International Shipping Co Ltd
- Senator Lines GmbH
- Sinotrans Container Lines Co Ltd
- US Lines
- Wan Hai Lines Ltd
- Westwood Shipping Lines Inc
- Yang Ming Marine Transport Corp
- Zim Integrated Shipping Services Ltd

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