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**"A Collaboration between the National University of Singapore and the Georgia Institute of Technology"**

**The Institute of Logistics and Transportation**
**China Communications & Transportation Association (CCTA)**
**Beijing, China**

# 2002 China Logistics Provider Survey

## Results and Findings

**January 2003**

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# Acknowledgements

This study is funded by The Logistics Institute – Asia Pacific. We would like to thank Professor John Langley from The Logistics Institute of the Georgia Institute of Technology for providing critical help in the design and implementation of this survey. We are most grateful to the 29 logistics companies who participated in the *2002 China Logistics Provider Survey*. We thank our friends from industry who arranged our visits to their companies and shared their industrial insights with us. Special thanks go to Jane Zhao from ST-Anda, Steve Huang from Danzas AEI (China), Mathew Li from TNT Logistics (China) and Xiong Ying from Kerry BHL Logistics, for their invaluable inputs in the design of the survey questionnaire. We thank Paul Goldsman and John Vande Vate from the Georgia Institute of Technology for making various improvements to this report.

# Executive Summary

The more than two decades of economic reform and transition to market economy has brought China unprecedented economic expansion. China is now the world's largest manufacturing base, and is closing in on becoming the world's largest market. To a large extent, the further growth of China's economy will hinge on the ability of logistics service providers to offer cost-effective and efficient supply chain management. With the economic expansion and China's accession into WTO, the logistics industry in China is set to take off. But how far will it go?

We have already witnessed a rapid transition in the logistics industry in China, from an industry dominated by a few big state-owned enterprises (SOEs) as recently as a decade ago, to the emergence of domestic and foreign third party logistics (3PL) service providers, as well as lots of small-scale local service providers which sometimes consist of two people with one truck. The word "logistics" now pops up everywhere on billboards and in daily newspapers, and is one of the hottest words in China. The infrastructure in China has improved dramatically. New modern facilities such as airports, ports, highways, logistics parks and warehouses are being built at a record setting pace. Companies have invested extensively in information technologies and software. But while these are without a doubt important signs for the future of China's logistics industry, it will be governed by many other important factors, most of which cannot be grasped by the casual observer. To better understand the future of China's logistics industry requires a deeper look into various key components of the industry. These include: corporate structure, finance, services, operations, management, information technology, customer relations and policy issues. Unfortunately, although there have been several reports and studies on China logistics, many of them are limited in scope, and virtually none is supported by reliable first-hand data.

It was with the aim of addressing the aforementioned inadequacies that this ***2002 China Logistics Provider Survey*** was conceived. The survey was conducted between July and November of 2002, jointly by The Logistics Institute—Asia Pacific, a collaboration between the National University of Singapore and the Georgia Institute of Technology, and the Institute of Logistics and Transportation, a unit of China Communications & Transportation Association.

In this survey we targeted important questions in the areas of management, service offerings, operations, information technology, customer relations, partnerships, WTO challenges and policy issues. These questions were directly answered by high-level executives in 33 leading logistics companies in China (25 domestic and 8 foreign). The results of the survey provide comprehensive first-hand information about China's logistics industry. It should be pointed out that before conducting this survey we also interviewed executives of many leading logistics companies in China. The survey results often corroborated what we had learned from the interviews. While the survey results have confirmed many existing notions, they have also unveiled a few surprises – one case in point is that, contrary to the common perception of Chinese domestic logistics

companies having an advantage in domestic transportation network coverage, the foreign joint ventures in fact have a slight edge within China!

Overall, the survey results show that both domestic and foreign joint ventures regard China as a market with huge growth potential. Virtually all surveyed companies offer total logistics solutions in addition to many traditional logistics services, such as warehousing and transportation. Most of the companies have already built extensive domestic networks, especially in Eastern China, and all of them have plans for future expansion. Road transportation is the preferred mode in China, but surprisingly and contrary to the established notion, most survey companies do employ inter-modal transportation. The majority of the surveyed companies outsources transportation, but retains tight management control over operations. Overall, warehousing is still at an early stage of development, with rudimentary facilities and limited use of modern information technology. The electronic products and household appliances sectors have accounted for the highest portion of revenues by logistics companies. The electronic products market is also regarded as having the highest potential growth. When it comes to future challenges, there exists a marked difference between domestic and foreign companies. Domestic companies are most concerned with the limited resources available for future expansion, while foreign companies list policy restrictions and regulations as their biggest challenges. Although a surprisingly large percentage of employees in the surveyed companies have college equivalent or higher education, both domestic and foreign companies agree that a shortage of logistics professionals and executives is one of the major concerns.

It should be pointed out that we have deliberately refrained from analyzing our findings beyond the basic statistical and matter-of-fact kind in this report, as our objective at this time is to organize and present what the survey has found. More in-depth analysis will come in the future.

## Study Objectives and Methodology

Between July 2002 and November 2002, The Logistics Institute—Asia Pacific (TLI-AP, a collaboration between the National University of Singapore and the Georgia Institute of Technology) and the Institute of Logistics and Transportation (a unit of China Communications & Transportation Association) jointly conducted a focused survey study of major logistics service providers in China. The survey targeted leading logistics service providers in mainland China, companies with sizeable revenues and comprehensive geographical reach. Altogether 35 companies were selected, with 26 Chinese companies and 9 foreign joint ventures (JVs). The chosen Chinese companies include 16 large stated owned enterprises (SOEs) that have traditionally been involved in the logistics business and 10 non-SOEs that are new entrants to the China logistics industry but have already built considerable reputations. The 9 foreign joint ventures include most foreign companies that are engaged in land-based logistics services in China, and are all top-named multinational corporations in the global logistics industry.

The targeted approach is based on close relationships with the companies surveyed. High-level executives in the companies were contacted before the survey questionnaires were sent. This way we could make sure both that the right questions were asked and that the questionnaire would be filled out by the right executive in the company. Companies were sent two versions of the survey questionnaire, one in English and the other a Chinese translation. During the data collection process, communications with the particular individuals were constant and assistance was provided to clarify any issues on the questionnaire. As a result, 29 companies returned a nearly 100% completed questionnaire, 4 returned a partially completed questionnaire, and only 2 did not return the questionnaire.

By focusing on the major logistics service providers in China, the survey achieves the following objectives:

- Gain an insider's view into the China logistics industry. Although there have been several studies on the current state and future development of the logistics industry in China, some of them are based on general industry surveys and most use rough estimates based on empirical rules applicable in other countries, notably the U.S. But we are not aware of any study that is backed by reliable first-hand data collected in a comprehensive survey such as ours. As a result there is a general lack of reliable and in-depth understanding of the logistics industry in China. The information gathered from this survey will be a big step in filling this glaring gap.

- Understand the size of the operations of these major logistics companies as well as how they are managed. This leads to a more accurate picture of the true magnitude of China's logistics industry and industry norms in management practices.

- Overview the logistics services offered by these major companies to document what logistics services are available in China. Find what industry sectors these major companies are focusing on and where the demand for logistics services in China is.

- Examine the extent for which information technologies are used by major logistics companies, and how these companies plan to further invest in information technologies.

- Investigate how major logistics companies manage relations with their customers, and how they structure service contracts.

- Investigate how major companies manage their relations with their business partners and competitors. See how they plan their strategy for future growth.

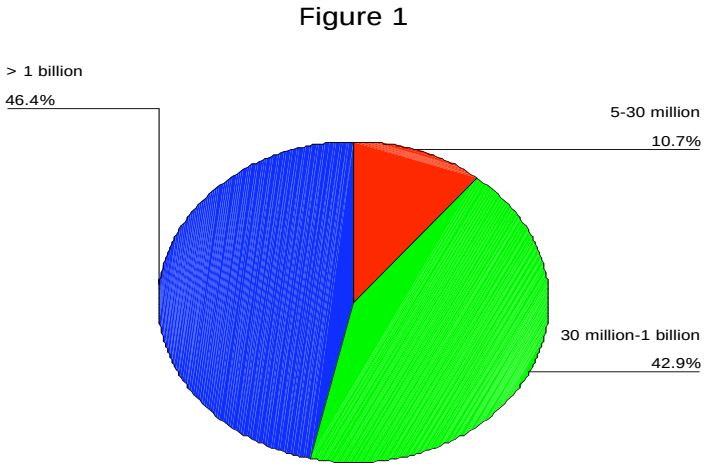
- Know the challenges logistics companies face and opportunities they see in the industry. Understand their concerns in post WTO China and their perception of the future for China's logistics industry.

## Profile of the Surveyed Companies

The respondents representing the 29 companies have the central characteristic of being big in many dimensions, specifically:

- Over 89%, including all six foreign joint ventures, have total assets over 30 million RMB (US$3.6 million), and about 46.4% have more than 1 billion RMB (US$120.8 million) in total assets (cf. Figure 1).

**Figure 1 Company groups by total assets in RMB**

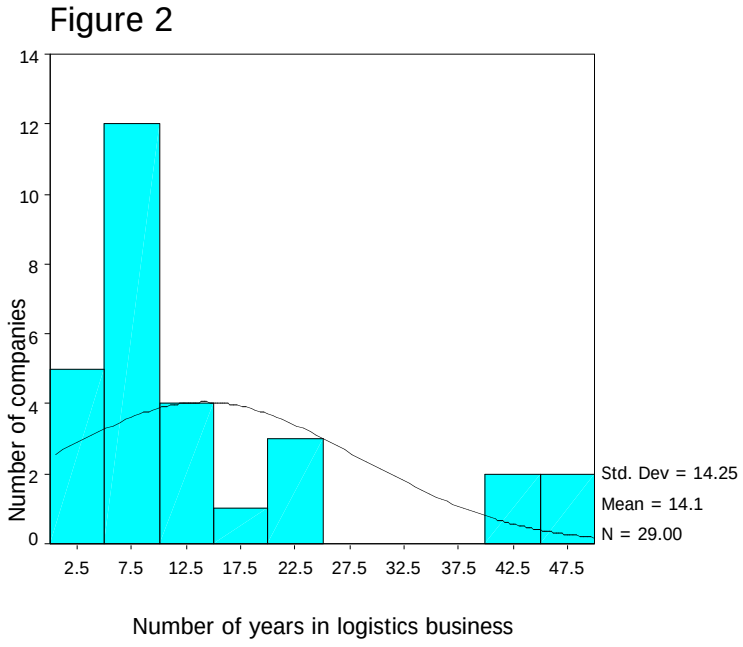


- The average number of employees in these companies is close to 5,000, with over half having more than 1,000. The largest has more than 40,000 employees. Here the difference between the foreign joint ventures and the SOEs is significant. A foreign joint venture typically has a few hundred employees while an SOE typically has thousands of employees.

- In terms of revenue, three quarters of the companies reported over 100 million RMB (US$12 million) in fiscal year 2001. Because the foreign joint venture companies included their parent company in this estimate, they all reported disproportionately higher revenue figures.

- In terms of number of years operating in logistics in China, there are two respondents with 50 years, two with 40 years, and over 58% entered less than 10 years, with the average being 14 years. The foreign joint venture companies have operated around 11-17 years, while there is large variation among the Chinese companies. Some SOEs have been engaged in some form of logistics related operations since the command economy era, while others are new entrants with less than 5 years of operating experience in logistics.

**Figure 2 Company groups by number of years in logistics business**



## Summary of Key Findings

- The biggest challenge facing China's logistics industry is to generate demand. Many manufacturing companies, especially the SOEs, are not used to the practice of outsourcing logistics operations. The shortage of logistics professionals and executives is another major concern for both the Chinese and foreign companies. Foreign joint ventures also face an additional challenge in policy restrictions and regulations.

- The reported average revenue growth rate is 31% for 1999, 35% for 2000 and 55% for 2001. More interestingly, the estimated average revenue growth rates for years 2002, 2003 and 2004 are all around 50%. The growth estimates are similar for the Chinese companies and the foreign joint ventures, indicating that there is a general overall optimism for growth in China's logistics industry.

- The growth in the number of employees of a company is negatively correlated to the number of employees a company has, in a rather striking way. Smaller companies (those with hundreds of employees) indicated strong growth between 2000 and 2002, often doubling or tripling their number of employees, whereas big companies (those with thousands of employees) indicated flat growth or even decline in the number of employees.

- Companies' networks are most extensive in Eastern and Northern China and least extensive in the Northwest. In terms of regional distribution centers (RDCs), 89.7% of the companies have RDCs in Eastern China and 86.2% have RDCs in Northern China. This finding is consistent with the fact that Northern China is the traditional manufacturing base in China and home to several of the largest SOEs in steel, auto and other heavy industries, whereas Eastern China is the most economically developed region in China and has emerged as the manufacturing base for electronics and consumer products.

- Most of the surveyed companies are able to provide a wide range of services from acting as an insurance agent to offering a total logistics solution. Around 86% state that they offer total logistics solutions to their clients. More than 85% provide traditional services, such as warehousing, distribution, and transportation. However, only 31% of the companies offer logistics related financial services.

- The electronic products and household appliances sectors account for the highest portion of revenues generated by the surveyed companies.

- Companies see the greatest market potential in the electronics, computer and telecommunication industries. Close behind are household appliances and fast-moving consumer products industries. These industries will be given the greatest emphasis by companies in signing up new clients.

- Road is the favored transportation mode of the surveyed companies. It accounts for 62% of the total transportation of all surveyed firms (in terms of volume of goods). Although rail is the second most popular mode within our company sample, it accounts for only about 15.5% of transportation. Inter-modal transportation is surprisingly common in China. The results show that 83% of the companies practice inter-modal transportation at various levels.

- On average, IT expenditures account for 9.6% of the companies' annual operating cost. It is interesting to note that domestic companies tend to spend a larger portion of their revenue on IT development than foreign joint ventures. The average IT expenditure for domestic companies is 10.4% of revenue, versus 5.8% for foreign joint ventures.

- In terms of competitive factors, companies identify quality of service as the most important, followed by service customization, one-stop service, and price of service. In addition, on-time delivery is deemed the most relevant factor for meeting service level in a contract.

- Most of the companies have contract-based business with their clients and the most common contract length is one to two years.

- Around 62% of the companies contract out transportation, while only 32% contract out warehousing. More than half of the transportation contracts are short term (at most one year).

- 76% of the companies have formed partnerships with other logistics companies, while59% have formed partnership with IT companies.

# Detailed Analysis

### *1. Managing A Logistics Company in China*

Mainland China, with its enormous landmass, diverse geographical features and cultural and economical differences varying from province to province, is an imposing challenge for any logistics company. Since regional differences play a strong role in logistics development, we divided China into 6 traditional regions: East[1], North[2], Mid-South[3], Northeast[4], Southwest[5], and Northwest[6]. We asked the respondents to report their network operations within each of the regions. With a few exceptions, most companies have some coverage in all geographical regions of China. While we expected the networks to be most extensive in the East and North and least extensive in the Northwest and Southwest (cf. Table 1), we found that the gap is not as large as anticipated (4.31 for East vs. 3.45 for Southwest, for example, with 5 representing the most extensive coverage).

**Table 1 Extensiveness of company network in different geographic regions**

| Geographic Regions | Average Rating (1-5) |
|---|---|
| Eastern China | 4.31 |
| Northern China | 4.24 |
| Mid-South | 3.79 |
| Northeast | 3.86 |
| Southwest | 3.45 |
| Northwest | 3.07 |

[1] Anhui, Fujian, Jiansu, Jiangxi, Shandong, Shanghai, Zhejiang
[2] Beijing, Hebei, Neimeng, Shangxi, Tianjin
[3] Guangdong, Henan, Hubei, Hunan, Guangxi, Hainan
[4] Heilongjiang, Jilin, Liaoning
[5] Chongqing, Guizhou, Sichuan, Xizang, Yunnan
[6] Gansu, Ningxia, Qinghai, Shan'xi, Xinjiang

**Figure 3 A map of China**


In addition, we also asked the companies to rate their network operations on the 6 continents of the world: Asia, North America, Europe, Australia, Africa, and Latin America. As expected, foreign joint ventures reported better international networks on all 6 continents, most likely as a result of their multinational parent ownership and international partners. Chinese domestic companies are more narrowly focused on domestic operations.

There has been a general notion in China that foreign joint ventures have a better international presence, giving them a strong edge in gaining international customers, while Chinese domestic companies hold some advantage within China. Surprisingly, our survey results contradict this notion. Foreign joint ventures even have a slight edge within China!

The regional operations of the surveyed companies maintain some degree of freedom from their central headquarters. While some decisions such as IT investments are highly centralized, most of the regional operations have substantial freedom in other decisions such as signing up new customers and choosing partners.

Almost all companies view infrastructure, cost, and proximity to industrial parks and access to the market as key factors in deciding the location of regional distribution centers (RDCs). The survey results indicate a strong correlation between the number of RDCs a company has in a region and how extensively it covers that region. Nearly 90% of the companies surveyed have RDCs in the East and the North (cf. Table 2). However, only 60% and 70% of the companies respectively have RDCs in the Northwest and the Southwest.

**Table 2 Locations of regional distribution centers**

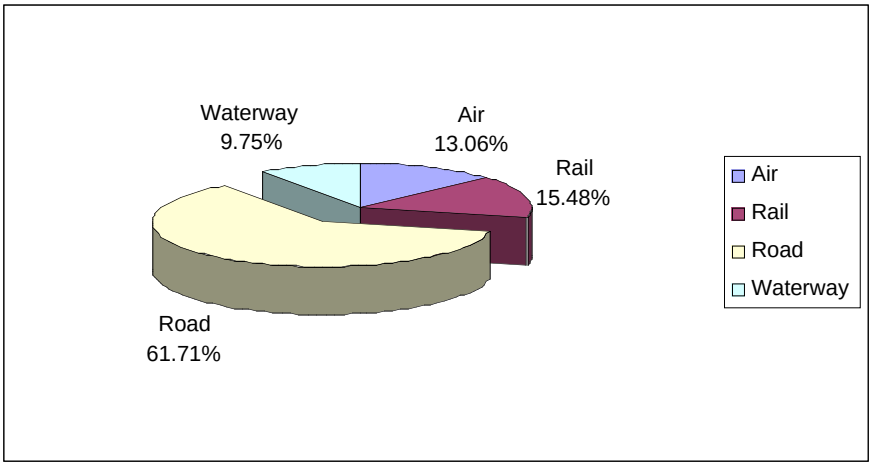
| Geographic Regions | Number and (%) of the companies having RDCs in the region |
|---|---|
| Eastern China | 26 (89.7%) |
| Northern China | 25 (86.2%) |
| Mid-South | 24 (82.8%) |
| Northeast | 21 (72.4%) |
| Southwest | 20 (69.0%) |
| Northwest | 17 (58.6%) |

Our survey results show that most of the warehouses in China are not storied-shelf type. In fact, for over half of the companies surveyed, storied-shelf warehouses constitute less than 10% of their warehouses, and only 20% of the companies have more than 50% of warehouses of storied-shelf type. Bungalow and open storage yards are still the dominant type of warehouses in China, perhaps because they are more cost effective and for the most part adequate. As expected, foreign joint ventures use more storied-shelf warehouses on the whole.

The bulk of transportation is over the roads (cf. Figure 4). Rail accounts for only about 15% of total transportation (measured by volume of goods shipped). This is consistent with what we had learned from interviews with company executives, who view rail service as being inefficient and unreliable. Foreign joint ventures use rail even less (about 8%).

We saw many reports bemoaning the lack of inter-modal capabilities in China. Nevertheless, our survey shows that the majority of companies surveyed (85%) employ some form of inter-modal transportation.

**Figure 4 Breakdown of transportation mode**




### *2. Third-Party Logistics Services Offered to Customers in China*

For an overview of logistics services offered to customers in China, we asked the respondents about their service offerings. Most companies surveyed offer total logistics solutions as well as just about every conceivable traditional logistics service. This is consistent with what we had learned in our interviews, as companies view one-stop and value added services as key ingredients to survival in the future. As far-fetched as it may sound, 62.1% of the companies offer express shipping service (cf. Table 3). However, it is still traditional services such as freight forwarding, transportation, warehousing and distribution that account for most of their revenues. In fact, more than 75% of the companies list one of the above four services as their top revenue generator.

**Table 3 Logistics service offerings**

| Services | Number and (%) of companies offering the service |
|---|---|
| Warehousing | 27 (93.1%) |
| Distribution | 26 (89.7%) |
| Transportation | 25 (86.2%) |
| Total logistics solution | 25 (86.2%) |
| Insurance agent | 23 (79.3%) |
| Consolidation | 22 (75.9%) |
| Custom clearance | 22 (75.9%) |
| Freight forwarding | 22 (75.9%) |
| IT-Support | 22 (75.9%) |
| Inventory management | 22 (75.9%) |
| Order management | 21 (72.4%) |
| Packaging and repackaging | 20 (69%) |
| Import/Export | 19 (65.5%) |
| Express shipping | 18 (62.1%) |
| Assembly and installation | 16 (55.2%) |
| Financial services | 9 (31%) |

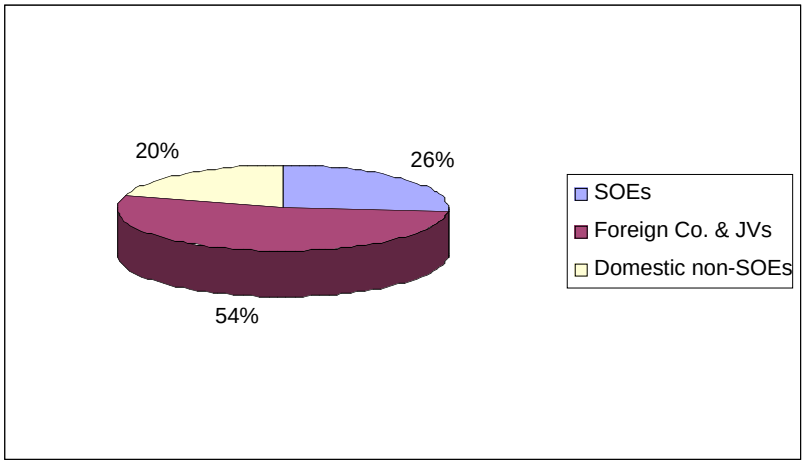
Customers in electronics, household appliances, and food and beverage account for the largest share of revenues of the companies surveyed (cf. Table 4). These are all moderately fast moving and highly competitive consumer products. Surprisingly, textile & apparel do not seem to generate much revenue. 30% of the companies generate 20% or more of their revenues from electronics and computer products, for example, but only one company earns 20% of its revenue from textile and apparel. The situation is unlikely to change substantially in the future, as more companies will focus on electronics (80% of surveyed companies), household appliances (70%) and fast moving consumer products (60%).

**Table 4 Revenue contribution of different industry sectors**

| Industry Sector | Average revenue contribution (in %) |
|---|---|
| Electronic Products, computer and Telecommunication | 15.92 |
| Household Appliance | 15.35 |
| Automotive & Parts | 9.65 |
| Fast-moving Consumer Products | 9.65 |
| Food and Beverage | 9.40 |
| Industrial Machinery and Equipment | 6.00 |
| Textile & Apparel | 4.58 |
| Furniture | 4.06 |
| Pharmaceutical | 5.85 |
| Others | 16.69 |

We had learned from our interviews that foreign joint ventures typically do not have many SOE customers. This survey confirms it. On average, only 10% of their customers are SOEs. But even domestic companies do not have many SOE customers. On the whole, less than 27% of the customers are SOEs (cf. Figure 5), and more than 50% of the companies have 20% or fewer customers that are SOEs. Nevertheless, ownership is not a concern for virtually all of the companies in selecting a future customer.

**Figure 5 Breakdown of customer type**




The geographical breakdown of customers is interesting. One salient fact is that foreign joint ventures do not generate much revenue from customers outside the East, North and Mid-South. They generate very little from even the Northeast, an industrial base in China

(cf. Figure 6). Domestic companies, on the other hand, generate more revenue from the Northeast, although the East, North and Mid-South are still the top three revenue generating regions (cf. Figure 7). This reflects perhaps the fact that much of the manufacturing in China is concentrated in the East, North and Mid-South, while there is a high concentration of SOE heavy industries in the Northeast. The East accounts for, as expected, the largest share of revenues for all foreign joint ventures, but 40% of the domestic companies generate as much or more revenue from a region other than the East.

Overall, few companies generate much revenue from the Southwest and the Northwest regions. This is consistent with what we had learned from our interviews. Many companies subsidize their operations in these two regions from revenues generated elsewhere.

**Figure 6 Geographic breakdown of customer locations in terms of revenue (JVs)**

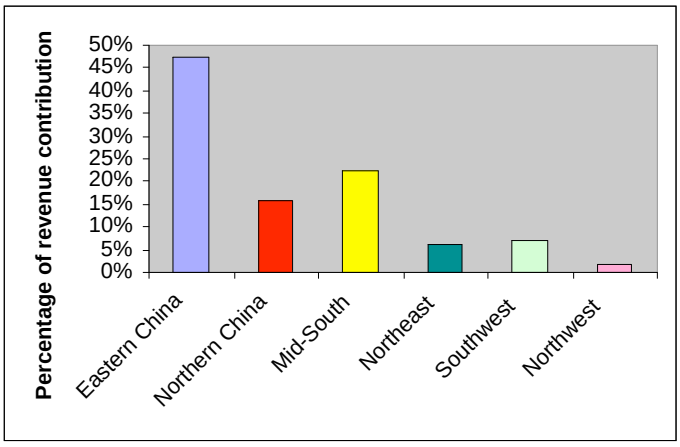
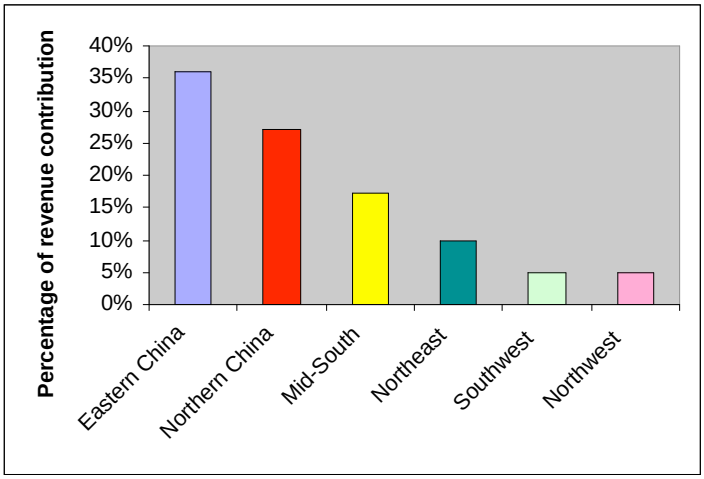



**Figure 7 Geographic breakdown of customer locations in terms of revenue (Domestic companies)**



### *3. Applications of Information Technologies*

There is a saying in the logistics industry that logistics services are information services. Indeed, the logistics industry in more developed nations invests heavily in information technologies (IT). The gap is being felt by Chinese logistics companies. In our interviews, executives from domestic companies often expressed the view that they must catch up with foreign joint ventures on IT in order to stay competitive in today's economy. The survey results corroborate this sense of urgency.

We see that some companies report spending as much as 30% of their operating revenues on IT development. In comparison, foreign joint ventures spend less than 6%. This is a clear indication that domestic companies are trying to catch up, while foreign joint ventures already have IT from the parent company.

All companies consider IT to be very important, and have invested in IT in one form or another. Almost 80% of the companies use a warehouse management system (WMS) and the remaining 20% plan to use WMS in two years. Over 90% of them have a company intranet, or plan to have it in two years. For tracking shipments, over 85% of them have or plan to have GPS in two years. We did find it surprising that only about 50% of the companies employ bar coding (cf. Table 5).

**Table 5 Usage of information systems**

| Information System | % of companies currently using it | % of companies planning to use it in next two years |
|---|---|---|
| Company Internet | 89.7% | 3.4% |
| Warehousing Management System (WMS) | 79.3% | 17.2% |
| Electronic Data Interchange (EDI) | 65.5% | 27.6% |
| Transportation Management System (TMS) | 62.1% | 27.6% |
| Virtual Private Networks (VPN) | 58.6% | 17.2% |
| Bar-Coding | 48.3% | 37.9% |
| Global Positioning System (GPS) | 48.3% | 37.9% |
| Decision Support System (DSS) | 27.6% | 41.4% |
| Enterprise Resource Planning (ERP) | 27.6% | 41.4% |
| Automatic Vehicle Identification (AVI) | 20.7% | 27.6% |
| Mobile Data Communication System | 20.7% | 34.5% |
| Automated Guided Vehicle System (AGV) | 3.4% | 37.9% |

Given the importance companies have placed on IT, it is not surprising that in selecting an IT technology or product, companies place reliability and customer service as the most important factors, above cost and flexibility. Interestingly, although as expected the joint ventures use IT technology from the headquarters of their international partners, they do sometimes use products developed by Chinese companies. But only one of the joint ventures bought anything from the international commercial market. Domestic companies, by comparison, are more willing to buy software from the international commercial market.

### *4. Managing Customer Relations*

Managing customer relations is important for any business in any country, but it is especially so in China, where it is known that personal relations and *"guanxi"* are more important than contracts. Nearly 97% of all surveyed companies have stated either "good" or "very good" relationships with their customers. Most of the companies have contract-based business with customers. However, almost 14% (more often foreign joint ventures) do have single-transaction customers. The most favored contract length is one to two years -- a choice for more than 85% and 60% of the joint ventures and domestic companies, respectively. For foreign joint ventures, the second most frequently chosen contract length is either less than one year, or two to three years. For domestic firms, it is longer than three years, or less than one year.

Price of service, integration of service (one-stop service), service customization, and quality of service are the four major competitive factors for the 3PL business. We asked companies to rate these factors in terms of importance. The findings show that companies view quality of service as the most important competitive factor, while, somewhat surprisingly, they rate price competitiveness as the least important among the four factors (cf. table 6). 50% of all firms (domestic and joint ventures) agree that service pricing is somewhat important whereas the other three factors are very important.

**Table 6 Importance of competitive factors**

| Competitive factor | Average Rating (1-5) |
|---|---|
| Quality of service | 4.86 |
| Customization of service | 4.45 |
| Integration of service | 4.45 |
| Price of service | 3.93 |

As logistics service providers, 90% of the companies surveyed believe that 3PL services have had an "at least somewhat significant" impact on their customers' business in the areas of operational efficiency, customer satisfaction and overall supply chain improvement. Around 65% of the 3PL firms also see an "at least somewhat significant" reduction in their customers' costs.

The average sentiment of the foreign joint ventures on whether customers have felt significant cost impacts is much higher (4.5 out of 5, where 5 represents a "high impact") than that of the domestic firms (3.65 out of 5). On average, foreign joint ventures believe that they have made higher impacts on their customers' operational efficiency, while interestingly enough, domestic firms think that they do better in the area of customer satisfaction (cf. Table 6).

**Table 7 Aspects of business affected by using 3PL service**

| Aspect of business affected by using 3PL service | Average rating by JVs | Average rating by domestic companies |
|---|---|---|
| Cost | 4.5 | 3.65 |
| Efficiency | 4.83 | 4.26 |
| Customer satisfaction | 4.17 | 4.48 |
| Supply chain improvement | 4.33 | 4.35 |

In terms of quality of service, the majority of the respondents (over 60%) view on-time delivery, responsiveness to customer claims, damage rate, and order lead time to be the most relevant attributes. More than 86% of the respondents view the first three attributes as being particularly relevant. A remarkable fact is that 100% of the foreign joint ventures believe that on-time delivery is a very relevant factor in gauging service level while only 91.3% of the Chinese companies believe so. Only about 28% of the respondents view inventory replenishment rate as a relevant attribute to service level (cf. Table 7). Two respondents wrote that the capability of providing alternative service solutions and a company's reputation could be relevant to service level as well.

**Table 8 Service attributes in a contract**

| Service attribute in a contract | % of companies selecting the factor |
|---|---|
| On-time delivery rate | 93.1% |
| Responsiveness to customers claim | 89.7% |
| Damage rate | 86.2% |
| Order lead time | 65.5% |
| Inventory replenishment rate | 27.6% |

Common complaints reported by customers of both foreign joint ventures and Chinese companies include: non-performance in service level commitments, lack of global network, unsatisfactory transition during implementation stage, lack of national and global networks, inability to form meaningful and trusting relationships, and lack of continuous improvements in IT, knowledge-based skills and other offerings. Specifically, for foreign joint ventures, more than 71% (vs. around 22% of the domestic firms) experience complaints about not being able to meet the service level to which they had

previously committed. The second most common complaint against foreign joint ventures is the lack of continuous, ongoing improvements and achievements in offerings. For domestic firms, the most common complaint is the lack of global and national networks, followed by the inability to meet committed service levels.

Only one foreign joint venture received customer complaints regarding not being able to reduce the client's time and effort spent on logistics. On the other hand, only Chinese companies receive complaints from their customers on issues such as cost reductions not materializing, cost "creep-up" and price increases once the relationship has been established, and not keeping up with advances in IT.

In the event of lost or damaged goods, 62% of the respondents reported that the client's cargo insurance would cover the losses, and 55.2% of them reported that their own cargo insurance would pay. In cases where no cargo insurance is bought, the attitudes towards the responsibility for losses differ: 65.2% of the Chinese companies and only 16.7% of foreign joint ventures would leave the responsibility of paying for losses to their customers. A little more than a third of respondents also reported that the responsibility for lost/damaged goods depends on negotiations with the customer. Surprisingly, none of the JVs choose this option.

**Table 9 Party paying for losses in case of goods damage**

| Party paying for losses in case of goods damage | % of domestic companies selecting the choice | % of JVs selecting the choice |
|---|---|---|
| My cargo insurance | 56.5% | 50% |
| Client's cargo insurance | 65.2% | 50% |
| Client (in case no insurance) | 65.2% | 16.7% |
| Myself (in case no insurance) | 13.0% | 33.3% |
| Depends on negotiation with the client | 43.5% | 0% |

### *5. Managing Partner Relations*

In addition to managing customer relations, the issue of managing partner relations is also important. Most of the respondents reported having partnerships with other logistics companies. The prevalence of partnerships is not surprising, since the use of contract transportation services can be viewed as a partnership.

The survey results show that 62% of companies contract out their trucking operations. It is generally noted that there is excess trucking capacity in China today, and companies are taking advantage of it. The level to which companies outsource trucking operations, however, varies greatly, from 10% to 100%. Almost all companies maintain some in-house transportation capacity for flexibility and quality of service. Half of the contracts

for trucking services are short-term contracts (not more than one year) and about 25% are long-term contracts (longer than one year). The remaining 25% of trucking services are performed with no contract in place, another indication of the ample supply of transportation capacity on the spot market.

Among the companies that outsource trucking operations, only 22% do not manage the operations of the outsourced trucking operations in any way. The great majority (72% ) makes truck routing decisions on part or all of the assignments. The same percentage of companies monitor truck drivers in some way, such as employing GPS systems or having truck drivers call a monitoring station at various points. This degree of involvement indicates both a quality concern and the fact that managing transportation partners is one of the main activities of the logistics providers.

By comparison, most companies surveyed (over 67%) do not contract out their warehouse operations. Only two of the companies contracted out more than 10% of their warehouse operations. It is clear that most companies value warehouse operations as part of their core logistics activities.

### *6. Training for Long Term Success*

In terms of education levels, about 36% of the employees in both Chinese and foreign joint venture companies have achieved at most a senior middle school education level. About 45% of the employees in Chinese companies and just over 55% in foreign joint ventures have received higher education (university/college/polytechnics), figures that far exceeded our expectation. Even more surprising is that close to 18% of employees in Chinese companies have advanced post-graduate degrees; the figure is only 8% for foreign joint ventures. Also very interesting is the contrast between companies with more than 1,000 employees and those with fewer. In the first group, we see a higher concentration at the lower end of education scale: about 46% of employees are senior middle school graduates, 50% are university/college/polytechnics level graduates, and 4% are advanced post-graduates; whereas for the second group, the percentages are respectively 31%, 44%, and 24% (cf. Table 8). This reflects the fact that the big SOEs have an older and so generally less well educated workforce.

**Table 10 Employees' educational level**

| Education level | Average % of employees at the level (> 1000 employees) | Average % of employees at the level (≤ 1000 employees) |
|---|---|---|
| Senior middle school or below | 46% | 31% |
| University/College/Polytechnics | 50% | 44% |
| Post-graduate | 4% | 24% |

In terms of on-the-job training, about 93% of the respondents reported some training for senior level managers and front-line workers. Almost all companies (96.6%) have training programs for middle level managers. An interesting finding is that training for employees at different levels of the company is provided by different training providers, e.g. for front-line workers, about 90% of the companies surveyed use resources within their department for training, whereas only 27.6% of the companies use department resources for training senior management. For senior management training, more than 55% of the companies use commercial training firms.

## *7. Challenges, Opportunities, and Future Directions*

Third party logistics is a new and developing industry in China. As pointed out in various reports, there are great opportunities in the industry, but in the meantime, third party logistics users and service providers face more than teething problems on the path to future glory. After consulting with executives experienced in the industry, we listed the following major problems encountered by logistics companies in China and asked the respondents to indicate their impact on business operations:

a. Policy restrictions
b. Transportation control
c. Lack of efficient channels to raise capital
d. Reputation crisis in China business environment
e. Low efficiency of transportation and warehousing operations
f. Insufficient infrastructure
g. Regional differences
h. Unreasonable taxation
i. Local protectionism
j. Lack of market regulation
k. Shortage of logistics professionals
l. Lack of IT application in general business environment
m. Clients' lack of experience in using 3PLs
n. Clients' mentality of "small and complete" systems
o. Price cutting pressure
p. Lack of coordination along the supply chain

Not surprisingly almost all returned questionnaires indicate all of these are major problems. Still among them, clients' lack of experience in using 3PLs and client's performances for "small and complete" systems, are ranked as the most serious problems facing the China logistics industry. This is consistent with our discussions with several companies before and during the study. The number one complaint often regards the difficulty encountered trying to interest Chinese companies in outsourcing their logistics operations. As indicated earlier, 54% of the customers of the respondents are foreign companies and joint ventures.

Other more critical issues include policy restrictions and a shortage of logistics professionals. As expected, policy restrictions are particularly felt as the biggest problem

by foreign joint ventures (all of them give it a 5, the highest score). The biggest policy issue is the fees and charges for road transportation, especially the highway tolls for container trucks. The shortage of logistics professionals is a problem shared by everybody in the industry. Since logistics is just being recognized in China as a profession, the lack of experienced people is going to be a problem for the China logistics industry for some time to come. This explains why logistics training courses are so popular in China.

Despite the many problems hindering the growth of the China logistics industry, over two-thirds of the respondents, including all of the foreign joint ventures, reported having strategic plans to significantly expand their operations in China. This may be part of the phenomenon of huge foreign direct investments (FDI) in China, making it almost on par with the United States as the most popular FDI destination. Those companies having expansion plans intend to grow mostly through mergers and acquisitions. This could signal a big shakeout in the China logistics industry in the coming years. Many companies (over 80% of the respondents) also favor establishing strategic alliances with relevant parties.

In terms of market demand growth, the respondents foresee most potential in the electronic products, computer and telecommunication industries, as well as the automotive and auto parts industries (ranked 4.75 and 4.54, respectively, on a scale of 1 to 5). Both Chinese companies and foreign joint ventures see the same opportunities in these industries. This is consistent with the trend that China is becoming one of the most important manufacturing bases in the global economy for electronic products and computer and telecommunication equipment. The automotive industry is also furiously taking off in China as the population begins to attain a level of wealth where a family car becomes affordable and necessary.

On the whole, the respondents strongly believe that “logistics represents a strategic, competitive advantage for companies in China” (ranked 4.31 on a scale of 1 to 5). They also agree that “3PLs should provide a broad, comprehensive set of service offerings” (ranked 4.41), realize that “having the ‘right software’ is a major competitive advantage for a 3PL” (ranked 4.38), and that “3PLs should take leadership in information technology development” (ranked 4.17).

When asked to name the three most important things the company will do to stay competitive in China, all of the foreign joint venture companies list network expansion; others issues mentioned include improving customer service and investing in information technology solutions. For the Chinese companies, the more pressing issue is to improve professionalism of the workforce, others include investing in information technology solutions and other modern logistics technologies. No Chinese company mentioned building a worldwide network to serve global multinational corporations, so it seems that Chinese logistics companies will in the foreseeable future cede big clients with global logistics needs to foreign joint ventures.

When asked to name the three largest barriers impeding efficient and effective operations in China in the post-WTO period, all of the foreign joint ventures list policy and regulation; other issues mentioned include the lack of a skilled labor force and slowly developing infrastructure. For the Chinese companies, the most frequently mentioned barrier is the shortage of experienced executives; others include the difficulty in competing against the established brand names of foreign joint ventures, and limited financial resources for expansion and investments. Interestingly, several Chinese respondents listed lack of trust in business dealings as a concern. This reflects a sociological debate going on in China about general lack of trust, while the country and people are undergoing tumultuous economic and cultural change. The old system is being dismantled, but the new one is not yet certain in its structure and substance.

## Conclusions

China's logistics industry is growing along with China's manufacturing industry. The logistics industry can provide a broad, comprehensive set of service offerings to enhance strategic competitive advantages for companies in China. Chinese and multinational logistics companies all eye the promising opportunities. The foreign players bring advanced management professionalism and modern information technologies. The Chinese companies have the inherent advantages of a long presence and established customer relationships. Mergers and acquisitions will soon shake up the industry for its long term good. The biggest hurdles on the road to future glory are, on the supply side, the shortage of experienced executives and trained manpower for the emerging industry and, on the demand side, the lack of enthusiasm among Chinese manufacturing companies for outsourcing their logistics operations.

# About the Institutes/Organizations

**The Logistics Institute – Asia Pacific (TLI-AP)**

The Logistics Institute-Asia Pacific (TLI-AP) (http://www.tliap.nus.edu.sg) is a collaboration between the National University of Singapore and the Georgia Institute of Technology for research and educational programs in global logistics. TLI-AP is modeled after The Logistics Institute (TLI) at Georgia Tech (http://www.tli.gatech.edu), which has received widespread industry recognition as one of the premier institutes for education and research in logistics. Supported by five leading government agencies in Singapore, TLI-AP was founded in November 1998. Since its establishment, TLI-AP has been working to provide logistics expertise that meets the needs of industries across the world, focusing on global logistics, information technology, industrial engineering, and supply chain management. The institute will continue to play its vital role in the Asia Pacific region to nurture logistics excellence in industry, research and education.

**China Communications and Transportation Association (CCTA) and**
**The Institute of Logistics and Transportation (ILT-Beijing)**

China Communications and Transportation Association (CCTA) is a social and economic organization approved by the State Development & Planning Commission and jointly established by various departments from ministries of railway, transportation, posts and telecommunications, civil aviation, petroleum pipeline and others.

The Institute of Logistics and Transportation, Beijing (ILT-Beijing) (http://www.iltchina.com) was founded in June 2001 as a research institute of CCTA. It is supported by a number of departments including State Development & Planning Commission and State Economic and Trade Commission. Main activities of ILT-Beijing include conducting research in developing strategies, policies, regulations, standardizations, layouts, and information systems for logistics and transportation in China; providing consultations for logistics and transportation enterprises; and offering professional logistics training and education. The Institute has a committee of leading experts in economics, logistics and transportation.

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Professor Wang Derong has been with China Communications & Transportation Association (CCTA) since 1989. He has served as a vice president and the secretary-general, and he is currently the executive president of CCTA. Professor Wang is the president of the Institute of Logistics & Transportation, Beijing (ILT, Beijing). He is also a vice president of China Logistics & Procurement Association and an honorary fellow of the International Institute of Logistics & Transportation. He is a former president and chief engineer of Comprehensive Transportation Institute of State Economic Commission (now State Developing & Planning Commission).

Professor Wang's primary research fields include China's communications and transportation development strategy and planning as well as economic and technical policies, major transportation construction projects, development and operation for international container transportation, China's logistics development strategy, planning, and policy. Over the last 20 years, he has undertaken more than 100 research projects

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Professor Wang has been a professor at Tongji University, Nankai University, Northern Jiaotong University, Beijing Spaceflight and Aviation University and Southwestern Jiaotong University, where he supervised a number of Ph.D. and Master's students. In 1991, Professor Wang was a member of the first group of experts recognized for exceptional contributions to the nation, by the State Council. In 2002, he was named one of "Ten Figures of the Time in China's Logistics".

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