Logistics Barriers in ASEAN

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Logistics Barriers in ASEAN

Robert de Souza

Mark Goh

Sumeet Gupta

Luo Lei

The Logistics Institute – Asia Pacific

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ABSTRACT

ASEAN's objective is to establish a single market in the twelve identified priority sectors. Logistics is one of these sectors. Lloyd and Smith (2004), in their report on economic integration, define a single market in terms of the law of one price holding in all markets. They note that achieving this goal would require the elimination of both border and beyond-the-border measures that discriminate against foreign trade logistics. They also note that cross-border measures (regulatory processes that apply to both domestic and foreign providers and which may inhibit the integration of markets) should be eliminated.

Following the work of Lloyd and Smith, CIES (2006) we surveyed the existing international inventories of policy and other measures that impede the formation of a single market. We also reviewed the work on the use of survey and other methods to gain insight into the significance of these measures.

This study consists of implementing the specific activities proposed by CIES (2006) for the systematic investigation of the measures that affect integration in the logistics service sector. The goal is to systematically investigate how these measures influence effective door-to-door delivery of goods within ASEAN. The research method uses semi-structured interviews with the various stakeholders in the logistics supply chain, to identify the various trade barriers in ASEAN.

Inefficient customs procedures and inspections are considered to be the greatest barriers to logistics services in ASEAN, followed by barriers in land transportation.

INTRODUCTION

Based on USITC (2005), logistics services can be categorized as: (i) core freight, (ii) related freight, and (iii) non-core freight. Core freight logistics services include cargo handling, storage and warehousing, transport agency, and supporting and auxiliary transport services. Some logistics service providers focus on supply chain consulting such as global network design and distribution strategies, inventory forecasting and planning, product design strategies, information technology needs assessment, and vendor identification and management. Both transport management and supply chain consulting services are key services for the logistics sector and are defined as Tier 1 logistics services. Related freight logistics services include sub-sectors (maritime, inland waterways, air, rail, and road transport services) related to freight transport services as well as technical testing and analysis, postal and courier, customs brokerage, wholesale trade, and retail trade services. Multimodal freight transport is categorized as Tier 2 logistics service. This study focuses on the Tier 1 and Tier 2 services.

At the request of the ASEAN Secretariat, TLI-AP conducted this study to identify the barriers to free trade in logistics services in ASEAN. Beginning with a desk review of such barriers, semi-structured interviews were conducted with respondents that represent the various players in the logistics supply chain operating in ASEAN. The questionnaire, using a 6-point Likert scale, was framed to identify the existence of the barriers, and the significance of that barrier (6=critically significant) to free trade in logistics services.

Logistics services face a broad range of impediments in foreign markets. The barriers include customs, foreign investment, and mode-specific constraints. The feedback from the interviews suggests that the customs-related barriers represent the greatest impediment to free trade in the logistics services sector. Table 1, containing the major findings and pertinent recommendations, shows that customs procedures and inspections are the greatest impediments to free trade followed by land transportation regulations. Table 2 highlights the logistics quality indicators in ASEAN on a 10-point scale. The lower the value, the better is the logistics quality of that country, relative to the other countries in ASEAN. Using this rating, the outcome is as follows:

- Very good in logistics friendliness: Singapore
- Good in logistics friendliness : Brunei and Thailand
- Average in logistics friendliness: the Philippines, Cambodia, Vietnam, Myanmar, Laos and Malaysia
- Weak in logistics friendliness: Indonesia

Labelling this as 'A', B', 'C', and 'D' respectively, our study suggests that Singapore has an 'A' rating for logistics friendliness and therefore presents the least barriers to free trade in logistics services. Conversely, Indonesia with her 'D' level rating has the most barriers to free trade in logistics services within the ASEAN community. The caveat here is that the ratings are relative and depending on the cut-offs imposed, some of the countries with 'B' ratings can be relegated to a 'C'. This is a key limitation of our study.

Table 1: Major Findings and Recommendations

BARRIER	TYPE	RECOMMENDATION
CRITICALLY SIGNIFICANT (RATING= 6)		
Time consuming documentation requirements	Customs procedures and inspections	Adopt common EDI for ASEAN and all gateways (including payment) to enhance flow efficiency
Burdensome inspection requirements	Customs procedures and inspections	Adopt common inspection policy to reduce need for repeated inspection
Different classification of goods in different countries	Customs procedures and inspections	Install clear and transparent customs rules. Educate customs officers on proper classification
VERY SIGNIFICANT (RATING = 5)		
Limitation on equipment usage	Land transportation (Regulatory)	Allow common ASEAN certified trucks for cross-border transportation
Limitation on fleet size and hours of operation	Land transportation (Regulatory)	Allow common ASEAN certified trucks for in-country operations
Lack of border crossing coordination	Customs procedures and inspections	Have single ASEAN window for documentation
Inefficient inbound clearance process	Customs procedures and inspections	Have transparent customs regulations to enhance efficiency for both customs and shippers
MODERATELY SIGNIFICANT (RATING = 4)		
Foreign ownership regulations	Foreign Investment	Allow majority foreign ownership to help to improve infrastructure
Discriminatory licensing	Foreign Investment	Have same treatment for all firms
Cabotage regulations	Aviation specific (Regulatory)	Remove cabotage
Arbitrary independent rulings	Customs procedures and inspections	Make rules and regulations transparent
Volatility in border traffic	Customs procedures and inspections	Have 24 hours operation at borders
Multiple uncoordinated offices	Customs procedures and inspections	Have greater transparency in rules and regulations and integration of customs offices
Improper penalties	Customs procedures and inspections	Have greater transparency in customs procedures, rules and regulations

Table 2: Logistics Friendliness Indicators in ASEAN

LOGISTICS FRIENDLINESS INDICATORS	BRUNEI	CAMBODIA	INDONESIA	LAOS	MALAYSIA	MYANMAR	PHILIPPINES	SINGAPORE	THAILAND	VIETNAM
CUSTOMS PROCEDURES AND INSPECTIONS	1.69	1.92	2.53	1.83	1.91	2.00	1.88	1.29	1.97	1.80
MODE-SPECIFIC (REGULATORY) SCORE	1.11	1.23	1.36	1.20	1.34	1.27	1.30	1.23	1.21	1.30
MARITIME (REGULATORY) SCORE	1.14	1.23	1.50	NA	1.32	1.24	1.46	1.35	1.23	1.43
AVIATION (REGULATORY)SCORE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	1.00
LAND TRANSPORTATION (REGULATORY) SCORE	1.20	1.54	1.46	1.46	1.86	1.71	1.29	1.20	1.40	1.37
REGULATORY SCORE	**1.41**	**1.59**	**1.96**	**1.64**	**1.64**	**1.65**	**1.60**	**1.26**	**1.60**	**1.56**
LABOUR SCORE	1.11	1.46	1.51	1.46	1.51	1.46	1.40	1.11	1.54	1.46
CROSS-SECTORAL INVESTMENT SCORE	1.26	2.29	2.63	2.29	2.63	2.29	1.26	1.26	2.63	2.29
LICENSING AND TRANSPARENCY SCORE	1.63	1.63	2.06	1.69	2.17	1.54	1.46	1.20	1.86	1.71
FOREIGN INVESTMENT SCORE	**1.36**	**1.65**	**1.91**	**1.67**	**1.96**	**1.61**	**1.40**	**1.17**	**1.83**	**1.69**
MARITIME (INFRASTRUCTURE) SCORE	2.29	2.00	2.51	NA	1.71	1.83	2.51	1.46	1.83	2.69
AVIATION (INFRASTRUCTURE) SCORE	1.63	2.01	1.82	1.94	1.79	2.08	1.65	1.50	1.45	1.91
LAND TRANSPORTATION (INFRASTRUCTURE) SCORE	2.63	3.06	3.06	3.06	3.49	3.06	3.06	1.34	3.06	3.06
INFRASTRUCTURE SCORE	**1.96**	**2.12**	**2.19**	**2.13**	**1.95**	**2.10**	**2.10**	**1.47**	**1.75**	**2.30**
OVERALL SCORE	**1.50**	**1.72**	**2.03**	**1.75**	**1.75**	**1.74**	**1.69**	**1.29**	**1.66**	**1.72**
Logistics Friendliness classification	**B**	**C**	**D**	**C**	**C**	**C**	**C**	**A**	**B**	**C**

RESEARCH APPROACH AND DATA COLLECTION

In this study, we adopted both primary and secondary research for collecting data. As part of the secondary research, we conducted a thorough desk review of a number of studies for compiling the list of policies and performance measures that influence free trade in logistics services worldwide. We elicited data from various website, industry news, World Bank surveys, and previous related reports.

For the fieldwork, we conducted semi-structured interviews with various players in the logistics supply chain. We interviewed shippers, regulatory bodies, logistics trade associations as well as logistics service providers (both shipping agencies and freight forwarders) to gain a comprehensive understanding of the barriers to logistics services in ASEAN.

SURVEY QUESTIONNAIRE

To conduct the semi-structured interviews, we designed a questionnaire to guide the interview protocol.

For each question and country, we designed two sub-columns indicating E and S where 'E' = Yes/No question asking if the barrier indicated by the question exists in the country or not, and 'S' = significance of that barrier to that country if it exists. Respondents were also asked to indicate the significance of the barrier to free trade. For assigning the significance of the barrier to free trade and the influence of the barrier in a particular country, we used the same Likert-6 point scale (1 = insignificant, 6 = critically significant).

TRADE PERFORMANCE MEASURES

As each barrier would influence trade performance to a certain extent, we asked the respondents to identify the specific trade performance measure that would be influenced by the barrier. We identified five measures of trade performance as shown below:

- Total time of shipping
- Total cost of shipping
- Quality of shipment (related to efficiency of logistics services provided by the LSP)
- Trade volume (related to the total volume that could be shipped)
- Reliability of the shipment (related to damage and pilferage of goods in transit)

FIELDWORK

We interviewed respondents who represent various players in the logistics supply chain. We conducted face-to-face interviews with most of the respondents and teleconferences with some of the respondents. We also visited some of the countries to identify the trade barriers. The teleconferences were the most efficient and adequate source of information, and afforded flexibility for both the interviewer and the interviewee. The average duration of an interview was an hour.

The major sources of information about barriers were the LSPs and the shipping agencies. The shippers deal with the LSPs and hence do not face the logistics barriers directly. The industry associations were also a source of useful and unbiased information. Regulatory bodies and port operators were a useful source of information for the infrastructure related barriers that influence free trade. Our main focus was on interviewing non-asset and asset based LSPs who face such barriers directly as they deal with customs and face the regulatory authorities in respective countries. Table 3 reflects respondents interviewed with respect to a particular country; at least 1 in 5 respondents have either presence or experience in a developing location in ASEAN. Table 4 reflects respondents interviewed by their "position" in the logistics supply chain respectively.

Table 3: Respondents Interviewed by Country

Countries Represented	% of Respondents
Brunei	34
Cambodia	37
Indonesia	74
Laos	22
Malaysia	77
Myanmar	26
Philippines	57
Singapore	74
Thailand	77
Vietnam	60

Table 4: Respondents Interviewed by "Position" in Logistics Supply Chain

Position	% of Respondents
Trucking	11
Asset based LSP	31
Non-asset based LSP	34
Contract LSP	9
Regulatory bodies	3
Industry associations	17

CHALLENGES

We report some of the problems encountered when conducting the fieldwork. There are different types of companies along the supply chain with different foci on logistics. Therefore, not all the sections of the interview questionnaire could be applied to any one respondent. Some respondents were more forthcoming in answering certain portions of the interviews. We append some of the issues below.

- We found it difficult to assign the significance numbers to any country for any specific barrier. This results in difficulty in analysing the logistics friendliness indicators.
- The results we obtained from most respondents were specific to the respondents. This could result in response bias. Most firms would prefer to operate in tax free region and so on. But this may not be in the best interest of the country from a security and economic perspective.
- Many barriers are due to the practices of the LSPs. Also, the lack of infrastructure was raised by the respondents as a significant barrier to logistics services.
- We could not obtain specific data on clearance times and cost along the supply chain from the interviews for consistent sector perspective. There was a large variation among different respondents regarding such data.

LOGISTICS BARRIERS TO TRADE FACILITATION IN ASEAN

We created a database containing an inventory of the findings, based on the transcripts of the interview. Next, we divided the logistics barriers into six major segments as listed below:

- Customs related barriers
- Foreign investment related barriers (Foreign Equity, Licensing, Transparency and Labour related barriers)
- Maritime specific barriers (Regulatory and Infrastructure)
- Aviation specific barriers (Regulatory and Infrastructure)
- Land transportation specific barriers (Regulatory and Infrastructure)

TOP BARRIERS

We asked each respondent to indicate the top barriers that influence free trade. The list below summarizes the top barriers.

1. Customs

- Lack of clear and firm rules in customs
- Customs clearance including documentation and inspection takes long time
- Use of EDI does not include payments.
- ASEAN's "one stop service" or "single window service" needs to be improved.
- Inconsistent classification of product codes across ASEAN
- Single point of entry for customs
- No Customs working hours does not resolve urgent situations

2. Foreign Investment

- Lack of Foreign ownership in ASEAN, particularly transportation sector
- Diversity of Language problems

3. Mode-specific transportation

- Lack of a Open skies policy in aviation
- Border coordination between different countries for the landlocked and non landlocked ones.
- Weak, Under-developed sea and air ports in different countries

4. Other barriers

- Prevalence of facilitation. Money practices for swift trade logistics and cumbersome bureaucracy

INFLUENCE OF BARRIERS ON TRADE PERFORMANCE

As discussed earlier, trade performance can be measured in terms of the total time for shipping, total cost of shipping, quality of the shipment, trade volume, and reliability of the shipment. During the interviews, we specifically identified the trade performance measures that are specifically influenced by a trade barrier. The following sub-sections identify these barriers and the scale at which they influence free trade within ASEAN. Specifically, we place the barriers under the scale of influence of (6=critically significant, 5=very significant, 4=moderately significant etc.) and the type of barrier(eg. customs related, licensing and transparency, maritime specific, labour related, aviation specific, land transport specific, cross sectoral investment etc.)

1. Total Time for Shipping

Table 5 shows the barriers that influence the total time for shipping and trade.

Table 5: Influence on Trade Performance (Time)

Barrier to logistics services	Scale	Type of barrier
Time consuming documentation requirements	6	Customs related
Burdensome inspection requirements	6	Customs related
Different classification of goods in different countries	6	Customs related
Arbitrary independent rulings	5	Customs related
Lack of border crossing coordination with regional neighbors	5	Customs related
Inefficiency of inbound clearance process	5	Customs related
Limitation on equipment usage	5	Land transport specific
Limitation on fleet size and hours of operation	5	Land transport specific
Access to cargo-handling and storage and warehousing facilities	4	Aviation specific
Volatility in border traffic	4	Customs related
Improper penalties	4	Customs related
Limited hours of operations at customs facilities	3	Customs related
Licensing requirements	3	Licensing & Transparency
Cabotage regulations	3	Maritime specific
Absence of general competition legislation in liner shipping	3	Maritime specific
Security related delays	2	Customs related
Monopolized handling of cargo	2	Maritime specific
Cargo reservation laws	2	Maritime specific

2. Total Cost of Shipping

Table 6 shows the barriers that influence the total cost of shipping.

Table 6: Influence on Trade Performance (Cost)

Barrier to logistics services	Scale	Type of barrier
Time consuming documentation requirements	6	Customs related
Different classification of goods in different countries	6	Customs related
Arbitrary independent rulings	5	Customs related
Limitation on equipment usage	5	Land transport specific
Limitation on fleet size and hours of operation	5	Land transport specific
Absence of adequate warehousing and specialized storage facilities	5	Maritime specific
Cabotage regulations	4	Aviation specific
Improper penalties	4	Customs related
Difficulty in hiring / firing	3	Labour related
Cabotage regulations	3	Maritime specific
Absence of general competition legislation in liner shipping	3	Maritime specific
Security related delays	2	Customs related
Monopolized handling of cargo	2	Maritime specific

3. Quality of the Shipment (related to efficiency of logistics services provided)

Table 7 shows the barriers that influence the quality of the shipment.

Table 7: Influence on Trade Performance (Quality)

Barrier to logistics services	Scale	Type of barrier
Burdensome inspection requirements	6	Customs related
Foreign ownership regulations	4	Cross-sectoral investment
Improper penalties	4	Customs related
Multiple uncoordinated offices	4	Customs related
Discriminatory licensing	4	Licensing & Transparency
Discriminatory inspection practices	3	Customs related
Difficulty in hiring / firing	3	Labor related
Licensing requirements	3	Licensing & Transparency
Duplicative licensing requirements depending upon services	3	Licensing & Transparency
Cabotage regulations	3	Maritime specific
Absence of general competition legislation in liner shipping	3	Maritime specific
Limit on foreign firms to provide brokerage services	2	Customs related
Labor Policies	2	Labor related
Monopolized handling of cargo	2	Maritime specific

4. Trade Volume (related to the total volume that could be shipped)

Table 8 shows the barriers that influence the trade volume.

Table 8: Influence on Trade Performance (Volume)

Barrier to logistics services	Scale	Type of barrier
Restriction on weight and value of the shipment	1	Customs related

5. Reliability of the Shipment (related to damage and pilferage of goods in transit)

Table 9 shows the barriers that influence the reliability of the shipment.

Table 9: Influence on Trade Performance (Reliability)

Barrier to logistics services	Scale	Type of barrier
Burdensome inspection requirements	6	Customs related
Foreign ownership regulations	4	Cross-sectoral investment
Discriminatory licensing	4	Licensing & Transparency
Limited hours of operations at customs facilities	3	Customs related
Duplicative licensing requirements depending upon services	3	Licensing & Transparency
Limit on foreign firms to provide brokerage services	2	Customs related

LOGISTICS FRIENDLINESS INDICATORS

Based on the results of the interviews, we developed an index to measure the extent of logistics friendliness in ASEAN. The measurement index shows a category-wise weighted average of barriers to free trade on a 4-point scale (1- Best friendliness, 4 – Worst friendliness). The lower the score, the better is the logistics friendliness in that country. We used the following formula to compute the weighted average:

$$S = \frac{1}{n} \sum_{i=1}^{n} (A + B \frac{BS_i}{R} \times \frac{CS_i}{R})$$

where

    S = Logistics quality score

    n = No. of indicators for the relevant category

    BS = Significance of the barrier to free trade (on 6-point Likert scale)

    CS = Significance of existence of the barrier in a specific country (on 6-point Likert scale)

    R = Range of the rating (6)

    L = Scale factor (10) to scale the score on a 10 point scale.

Table 2 shows the logistics friendliness indicators in ASEAN. Based on the scale distribution which is within the range of 1 to 4, we categorize the ASEAN into four logistics friendliness groups. As there are very few countries with a score higher than 2, the interval 2.00 and above are defined as poor logistics friendliness. As for the scores between 1:00 and 1.99, they are divided into three equal intervals: 1-1.33 (Very Good); and 1.34-1.66 (Good); 1.67-1.99 (Average). Thus, Singapore is very logistics friendly while Indonesia has relatively weak logistics friendliness.

MAJOR BARRIERS AND SUGGESTIONS for Improvement

In this study, we have identified a number of barriers that influence free trade across ASEAN. Some are critical to free trade. Here we list the barriers with significance rating greater than four and provide some logistics related suggestions for improvement based on the interview responses. We have excluded the barriers that cannot be acted upon, such as those due to poor infrastructure.

A.   CRITICALLY SIGNIFICANT BARRIERS

Table 10 shows the barriers that critically influence free trade and our recommendations.

Table 10: Critically Significant Barriers

SPECIFIC BARRIER	TYPE OF BARRIER	BRUNEI	CAMBODIA	INDONESIA	LAOS	MALAYSIA	MYANMAR	PHILIPPINES	SINGAPORE	THAILAND	VIETNAM	RECOMMENDATION
Time consuming documentation requirements	Customs procedures and inspections	3	5	**6**	6	2	6	4	1	4	3	Adopt common EDI for all ASEAN and all gateways (including payment) to enhance efficiency considerably
Burdensome inspection requirements	Customs procedures and inspections	2	3	**6**	3	2	3	4	1	4	3	Adopt common inspection policy to reduce corruption related problems
Different classifications of goods in different countries	Customs procedures and inspections	4	4	**6**	3	3	3	6	1	4	2	Institute clear and transparent customs rules; Educate the customs officers on proper goods classification

B. VERY SIGNIFICANT BARRIERS

Table 11 shows the barriers that highly influence free trade and the resultant options for improvement.

Table 11: Very Significant Barriers

SPECIFIC BARRIER	TYPE OF BARRIER	BRUNEI	CAMBODIA	INDONESIA	LAOS	MALAYSIA	MYANMAR	PHILIPPINES	SINGAPORE	THAILAND	VIETNAM	RECOMMENDATION
Limitation on equipment usage	Land transportation (Regulatory)	1	1	1	1	**5**	2	1	**1**	1	1	Use common ASEAN certified trucks for cross-border transportation
Limitation on fleet size and hours of operation	Land transportation (Regulatory)	4	5	5	5	5	5	5	5	5	5	Use common ASEAN certified trucks for cross-border transportation
Lack of border crossing coordination with regional neighbours	Customs procedures and inspections	5	5	5	4	**6**	4	1	2	4	4	Use common ASEAN certified trucks for cross-border transportation
Inefficiency of inbound clearance process	Customs procedures and inspections	2	4	6	4	4	6	4	1	5	4	Have transparent regulations in customs to enhance efficiency for both customs and LSPs

C. MODERATELY SIGNIFICANT BARRIERS

Table 12 shows the barriers that moderately influence free trade and some suggestions for improvement.

Table 12: Moderately Significant Barriers

SPECIFIC BARRIER	TYPE OF BARRIER	BRUNEI	CAMBODIA	INDONESIA	LAOS	MALAYSIA	MYANMAR	PHILIPPINES	SINGAPORE	THAILAND	VIETNAM	RECOMMENDATION
Foreign ownership regulations	Foreign Investment	1	4	5	4	5	4	1	1	5	4	Allow majority foreign ownership to help countries improve their infrastructure
Discriminatory licensing	Foreign Investment	1	1	4	3	5	1	1	1	3	1	Enforce same treatment to all firms
Cabotage regulations	Aviation specific (Regulatory)	1	3	3	3	4	3	2	5	1	2	Remove cabotage for increased efficiency
Arbitrary independent ruli1ngs	Customs procedures and inspections	1	1	5	1	1	4	1	1	1	1	Enforce for transparency in rules and regulations (related to corruption)
Volatility in border traffic	Customs procedures and inspections	3	3	3	4	5	3	1	2	4	4	Have 24-hour operation at borders
Multiple uncoordinated offices	Customs procedures and inspections	1	1	4	1	4	1	5	1	4	1	Be transparent in rules and regulations and integration of customs offices
Improper penalties	Foreign Investment	1	1	6	1	1	1	1	1	1	1	Be transparent in customs procedures, rules and regulations

CONCLUSIONS AND LIMITATIONS

In this study, we have identified barriers to free trade in logistics services. Customs procedures and inspections are the most significant barriers to logistics services in ASEAN. The inefficiency arises mainly due to the lack of automated practices and redundant procedures requiring much documentation. The generalizability of the results of this study is subject to its limitations. The time frame for this study was short and hence the results are at best an overview of the barriers. The study, being exploratory, warrants conducting a more rigorous survey for measuring the extent and influence of each specific barrier in ASEAN.

REFERENCES

CIES (Centre for International Economic Studies, The University of Adelaide), (2006). Investigation of measures affecting the integration of ASEAN's priority sectors: Phase one Report. REPSF project 04/011. Available at www.aseansec.org.

Lloyd, P. and Smith, P. (2004). Global economic challenges to ASEAN integration and competitiveness: A prospective look. REPSF project 03/006a. Available at www.aseansec.org.

ABOUT THE AUTHORS

Robert de Souza, Executive Director, The Logistics Institute - Asia Pacific

Dr. Robert de Souza is the Executive Director of the The Logistics Institute - Asia Pacific (TLI - Asia Pacific). Robert is a Chartered Engineer and a distinguished writer, speaker, consultant and advisor in the area of supply chain management. Prior to this appointment, effective May 1st 2004, Dr Robert de Souza served as Deputy Executive Director (Industry) and IT Director at TLI - Asia Pacific. Previously, Dr de Souza was Executive Vice President (Asia Pacific) for V3 Systems. His extensive tenure in the industry also includes serving as the Corporate Senior Vice President and Global Chief Knowledge Officer at Viewlocity Inc. and co-founder, Vice Chairman and CEO of SC21 Pte, Ltd., a Singapore-based supply chain software firm. As an educator, Dr de Souza is an Adjunct Professor in the School of Industrial and Systems Engineering at Georgia Institute of Technology in Atlanta and also a Senior Fellow in the Department of Industrial and Systems Engineering at the National University of Singapore and has previously served as a professor and in several senior positions in the School of Mechanical and Production Engineering at Nanyang Technological University in Singapore. Dr. de Souza is a member of the Editorial Boards of the International Journal of Computer Integrated Manufacturing and the International Journal of Logistics Research and Applications. Dr de Souza also serves on the Advisory Panel of The Chartered Institute of Logistics and Transport, Singapore (CILTS), as a Council Member of the Singapore eSupply Chain Management (eSCM) Council and on the Boards of Directors/Advisors of several IT- based corporations.

Mark Goh, Director (Industry Research), The Logistics Institute - Asia Pacific

A former Colombo Plan Scholar, Dr. Goh holds a Ph.D. from the University of Adelaide. In the National University of Singapore, he holds the appointments of Director (Industry Research) at the Logistics Institute-Asia Pacific, a joint venture with Georgia Tech, USA, Principal Researcher at the Centre for Transportation Research, and was a Program Director of the Penn-State NUS Logistics Management Program. He also used to be Director of Supply Chain Solutions for Asia/Middle East with APL Logistics, crafting logistics engineering solutions for major MNCs in this part of the world.

Dr. Goh was a Board Member of the Chartered Institute of Transport (Singapore), past Chairman of the Academic Board of Examiners for the Singapore Institute of Purchasing and Materials Management, member of the Advisory Committee of the Transportation Resource Centre (NUS) and a past Vice President of the Operations Research Society of Singapore, Associate Senior Fellow of the Institute of South east Asian Studies. His other professional affiliations include membership of INFORMS, and the Academy of International Business. His biography appears in Who's Who in Asia and the Pacific Nations, Who's Who in the World, and Outstanding People of the 20th Century.

He has been involved in executive training for various key organisations in Singapore, for example, PSA Corp., MIS, SIPMM, PSB, J&J, Siemens Nixdorf, CIT, CAAS, Fuji-Xerox AP, Applied Biosystems, Danzas, DHL, Samsung, SembCorp Logistics, Exel, CEI and Mindef. Prof. Goh has also acted as a consultant to organisations both in Singapore and overseas, like Lucent Technologies, Pentex Schweitzer, Trans-Link Express, Perkins Parts, Singapore Post, NCB, Unilever East Asia Pacific, MSAS, TDB, Hewlett-Packard Far East, Siemens Nixdorf, APO, Confectionery Transformation, Danzas-AEI, Bossard Asia Pacific, BBraun AP, Pasminco, Mindef, Cleanaway (China), IE Singapore, Knight Frank, and FXS.

He has held appointments as a visiting Professor in Business Logistics Strategy at Chulalongkorn University, Commonwealth Fellow to the UK, Citibank International Fellow to the US, visiting research fellow at UMIST, visiting scholar at Beijing University, visiting professor at Melbourne University, and adjunct professor at the University of South Australia. He is currently on the editorial boards of the Journal of Supply Chain Management, Q3 Quarterly, Journal for Inventory Research, and Advances

in Management Research, and has served as an associate editor for the Asia Pacific Journal of Operational Research.

His current research interests focus on supply chain strategy, performance measurement, buyer-seller relationships and reverse logistics. With more than 130 technical papers in internationally refereed journals and conferences, some of his recent academic articles on supply chain management have appeared in the Journal of Purchasing and Materials Management, Industrial Marketing Management, European Journal of Purchasing and Supply Chain Management, IIE Transactions, Naval Research Logistics, Physical Distribution and Logistics Management, Production and Operations Management, EJOR, Supply Chain Management Journal, Industrial Organisations, and Logistics Information Management.

Sumeet Gupta, Research Fellow, The Logistics Institute - Asia Pacific

Sumeet Gupta received his PhD (Information Systems) from School of Computing, National University of Singapore. He graduated with MBA from NUS Business School, Singapore. He has been involved in various research and consultancy projects with SAP. His research interests are in logistics and supply chain management, e-commerce with specific focus on IT post-adoption, Internet Shopping and Virtual Communities. He has published in Decision support systems, Information resources management journal and has also presented his work at various logistics (Thinklog 2006) and IS conferences (ICIS, AMCIS, ECIS and PACIS).

Luo Lei, Research Fellow, The Logistics Institute - Asia Pacific

Luo Lei completed her PhD (Finance and Accounting) from NUS Business School, National University of Singapore. Her research interests are in logistics and supply chain management, corporate governance and firm disclosure. Her paper "The Determinants of Corporate Governance and the Link between Corporate Governance and Performance: Evidence from the U.K.: Using a Corporate Governance" has won The Vernon Zimmerman Best Paper Award for Best Doctoral Student Paper in 17th Asian-Pacific Conference on International Accounting Issues.

The Logistics Institute – Asia Pacific
National University of Singapore
E3A, Level 3, 7 Engineering Drive 1, Singapore 117574

Tel: (65) 6516 4842 · Fax: (65) 6775 3391
Email: tlihead@nus.edu.sg · URL: www.tliap.nus.edu.sg