

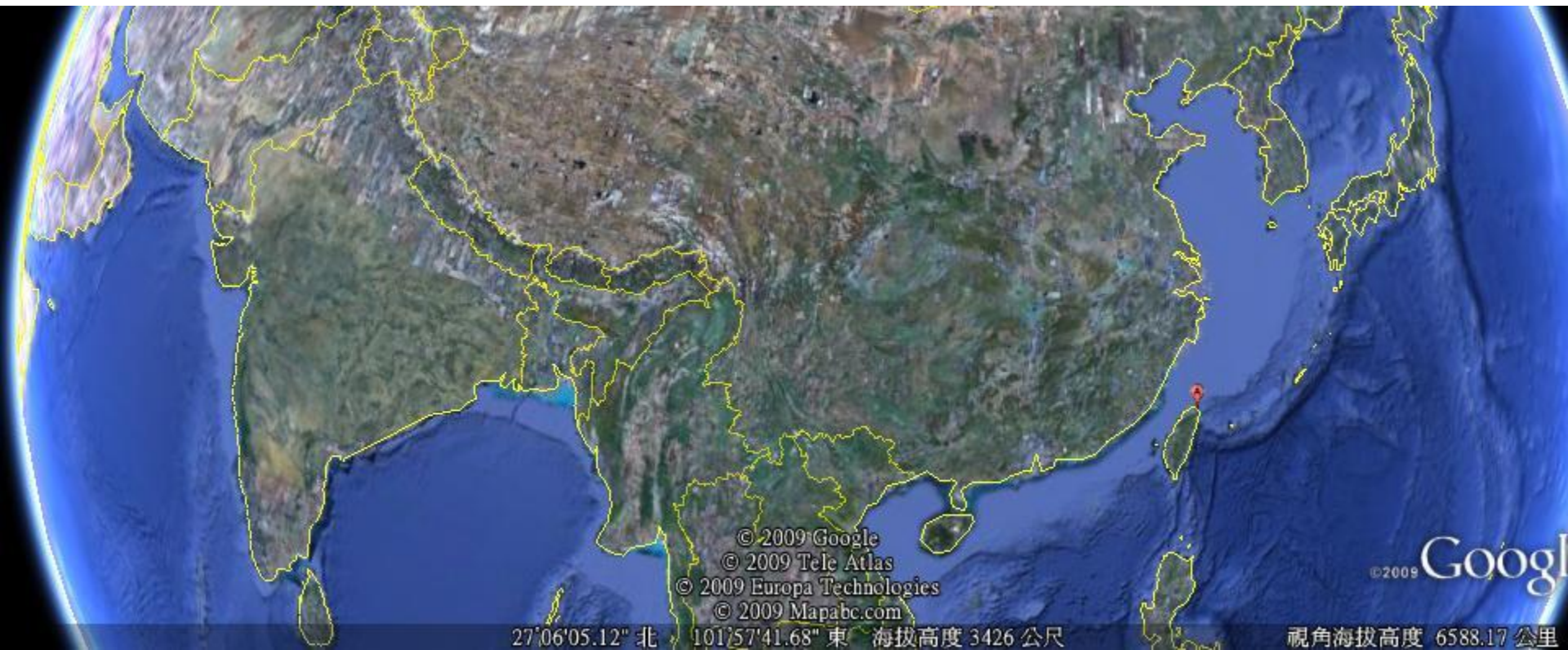


EVALUATING CORE CAPABILITIES FOR FORWARDER-BASED 3PL FIRMS IN TAIWAN

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Outline

- **Introduction**
- **Literature Review**
- **Methodology**
- **Results of Empirical Analyses**
- **Conclusions and Discussion**



Introduction

- Logistics and supply chain management have been elevated to a strategy level whereby many firms can simultaneously achieve difference and low cost for sustained competitive advantage (SCA).



- In order to gain benefit from value-added maximisation and cost minimisation, executives are becoming increasingly aware of the importance of outsourcing their logistics activities to third-party logistics (3PL) providers.



- Some 3PL providers have their own assets (e.g. cargo aircraft, warehouse, trucks, etc.) while others have no assets (e.g. air forwarders, freight forwarders, customer brokers, etc.).
- Most non-asset-based 3PL providers are small and medium-sized enterprises (SMEs), with limited resources and capabilities, therefore, effort is required to identify and develop core capabilities in order to create sustained competitive advantage.



- The present research examines core capabilities (such as supply chain integration, organization learning, and service capabilities) for non-asset based providers, namely, air forwarders and ocean freight forwarders, in Taiwan as core strategic resources for acquiring sustained competitive advantage.



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Literature Review

- **Integration Capability**
- **Organizational Learning Capability**
- **Logistics Service Capability**



Integration Capability

- *The most fundamental shift in logistics thinking is to view functional excellence in terms of performance that enhances overall supply chain integration' (Bowersox et al., 1999: 19).*



Organizational Learning Capability

- *A dynamic process of creation, acquisition, transfer, and integration of knowledge (Jerez-Gómez et al., 2005).*



Logistics Service Capability

- *Logistics service capabilities are complex bundles of individual skills, assets and accumulated knowledge exercised through organizational processes, that enable firms to coordinate logistics activities and make use of their resources.*



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Sample

- A questionnaire survey was administered.
- The population comprised 361 freight forwarder and 650 air freight forwarder.
- The total response rate was 14.17% $[(51+85)/1,011]$.



Measures

■ Core capability

indicate their level of agreement with each item

1 represented “Strongly Disagree” and 5 represented “Strongly Agree”

■ Service and financial performances

relative to its major competitors

1 represented “Much Worse” and 5 represented “Much Better”.



Profile of respondents

- **Nearly 50 %** had worked in the firm more than 9 years, suggesting they had abundant practical experience to answer the questionnaire accurately and reliability.
- Further, **82%** of questionnaires were filled in by vice-presidents or above (32.6%), managers or assistant managers (17.4%), department managers (27.3%), and presidents' assistants (4.5 %), which further reinforced the reliability of the survey's findings.



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Perceptions of capability



Respondents' agreement with capability attributes (1)

Capability variables	Mean	S.D.	Rank.
My firm has good capability to provide a freight forwarding service.	4.13	1.03	1
All parts that make up this firm are interconnected, working together in a coordinated fashion.	4.02	0.84	2
Managers basically agree that our organization's ability to learn is the key to our competitive advantage.	<u>3.99</u>	0.86	3
All parts that make up this firm (departments, sections, work teams, and individuals) are well aware of how they contribute to achieving overall objectives	3.95	0.87	4
The sense around here is that employee learning is an investment, not an expense.	3.90	0.97	5
The routine remains			6
Errors and failures are always discussed and analyzed in this firm, on all levels.	3.89	0.87	7
My firm effectively shares operational information externally with selected suppliers and/or customers.	3.87	0.87	8

High agreement with capability attributes to all respondents (their mean scores were over 3.99)

Respondents' agreement with capability attributes (2)

Capability variables	Mean	S.D.	Rank.
My firm has increased operational flexibility through supply chain collaboration.	3.86	0.87	9
My firm's compensation, incentive, and reward systems encourage integration.	3.86	0.86	10
We have strong skills in integrating customers' innovative ideas into final products and services.	3.78	0.87	11
My firm effectively shares operational information between departments	3.77	0.84	12
My firm maintains an integrated database and access method to facilitate information sharing.	3.68	0.98	13
My firm has good capability to provide intermodal services.	3.62	1.26	14
This firm promotes experimentation and innovation as a way of improving the work processes.	3.61	0.86	15
My firm successfully integrates operations with customer and/or suppliers by developing interlocking programs and activities.	3.56	0.96	16



Respondents' agreement with capability attributes (3)

Capability variables	Mean	S.D.	Rank.
My firm has good capability to provide a customs clearance service.	3.53	1.45	17
My firm has good capability to provide a freight consolidation service.	3.50	1.39	18
Experiences and ideas provided by external sources (advisors, customers, training firms, etc.) are considered useful instruments for this firm's learning.	3.46	1.00	19
My firm has supply chain arrangements with suppliers and customers that operate under principles of shared rewards and risk.	3.45	0.92	20
My firm	<p style="color: yellow; font-weight: bold;">The least agreement with capability attributes to all respondents (their mean scores were below 3.09)</p>		21
My firm			22
My firm has good capability to provide an online real-time information tracking/racing service	3.10	1.47	23
My firm has good capability to provide a legal affairs advisory service.	<u>3.09</u>	1.36	24
My firm has good capability to provide a warehousing service.	2.99	1.51	25
My firm has good capability to provide a bonded warehousing service.	2.18	1.40	26



Factor Analysis



Factor analysis (1)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
My firm has increased operational flexibility through supply chain collaboration.	<u>0.70</u>	0.25	-0.13	0.27	-0.09	0.00
My firm has supply chain arrangements with suppliers and customers that operate under principles of shared rewards and risk.	<u>0.70</u>	0.00	0.19	0.03	0.13	-0.00
My firm successfully integrates operations with customer and/or suppliers by developing interlocking programs and activities.	<u>0.61</u>	-0.06	0.25	0.27	0.02	0.20
My firm effectively shares operational information externally with selected suppliers and/or customers.	<u>0.58</u>	External Integration				0.00
This firm promotes experimentation and innovation as a way of improving the work processes.	<u>0.54</u>	0.00	0.48	0.04	-0.17	-0.00
My firm maintains an integrated database and access method to facilitate information sharing.	<u>0.51</u>	0.02	0.20	0.31	-0.04	0.30
We have strong skills in integrating customers' innovative ideas into final products and services.	<u>0.50</u>	0.14	0.49	0.13	0.01	-0.30
Overseas distribution service	-0.08	<u>0.74</u>	-0.13	0.18	-0.03	0.00
Legal affairs advisory service	0.20	<u>0.74</u>	Transportation & Consulting			
Consulting services	0.09	<u>0.67</u>				
Intermodal services	0.04	<u>0.66</u>	0.00	0.22	0.13	0.00
Freight forwarding service	0.11	<u>0.57</u>	0.17	0.39	0.08	-0.20
Customs clearance service	0.14	<u>0.52</u>	0.09	-0.14	0.41	-0.00
Freight consolidation service	-0.11	<u>0.44</u>	0.41	-0.15	0.36	0.20

Factor analysis (2)

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
The sense around here is that employee learning is an investment, not an expense.	0.11	0.09	<u>0.73</u>	0.16	0.06	0.09
Managers basically agree that our organization's ability to learn is the key to our competitive advantage.	0.14	0.21	<u>0.73</u>	0.16	0.06	0.09
Errors and failures are always discussed and analyzed in this firm, on all levels.	0.45	-0.04	<u>0.59</u>	0.24	0.04	0.02
Experiences and ideas provided by external source (advisors, customers, training firms, etc.) are considered useful instruments for this firm's learning	0.39	-0.18	<u>0.44</u>	0.28	0.27	-0.24
All parts that make up this firm (departments, sections, work teams, and individuals) are well aware of how they contribute to achieving overall objectives	0.41	0.07	<u>0.42</u>	0.32	-0.08	-0.02
My firm effectively shares operational information between departments	0.22	0.10	0.24	<u>0.74</u>	0.01	0.11
The firm has instruments (manuals, databases, files, organizational routines, etc.) that allow what has been learnt in past situations to remain valid, although the employees are no longer the same.	0.22	0.21	0.08	<u>0.63</u>	0.17	0.08
All parts that make up this firm are interconnected, working together in a coordinated fashion.	0.27	-0.00	0.42	<u>0.60</u>	-0.02	-0.08
My firm's compensation, incentive, and reward systems encourage integration.	0.32	0.00	0.00	<u>0.45</u>	-0.32	0.07
Bonded warehousing service	-0.04	0.00	0.00	0.05	<u>0.79</u>	0.14
Warehousing service	0.04	0.40	0.00	0.00	<u>0.63</u>	-0.14
Online real-time information tracking/tracing	0.16	0.18	0.00	0.00	0.07	<u>0.78</u>
Eigenvalues	7.30	3.30	1.71	1.51	1.13	1.01
Percentage variance	28.08	12.68	5.41	5.03	4.31	4.06

Organizational Learning

Internal Integration

Warehouse

Information Tracking

Reliability test

Core capability dimensions	Number of items	Alpha	Mean	SD
1. External integration	7	0.816	3.67	0.62
2. Transportation and consulting	7	0.803	3.49	0.91
3. Organizational learning	5	0.778	3.84	0.67
4. Internal integration	4	0.718	3.91	0.66
5. Warehouse	2	0.543	2.59	1.21
6. Information tracking	1	N	3.10	1.47



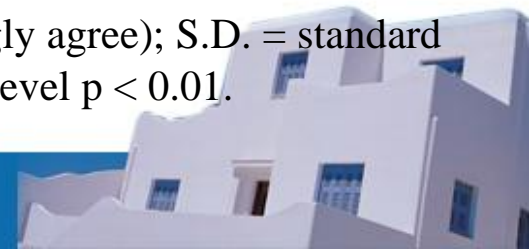
Comparison of air forwarder and ocean forwarder groups' perceptions of core capability factors

Core capability factors	Air cargo forwarder		Ocean forwarder		Statistical Index	
	Mean	S.D	Mean	S.D	F Ratio	Sig. of F
External integration	3.77	0.60	3.58	0.63	3.298	0.07
Transportation and consulting	3.64	0.91	3.56	0.90	3.330	0.07

This is not surprising because air cargo forwarders belong to a more time sensitive industry than ocean forwarders

Warehouse	2.71	1.20	2.47	1.21	1.324	0.25
Information tracking	<u>3.59</u>	1.39	<u>2.67</u>	1.41	14.813	**0.00

Note: Mean scores based on a 5-point scale (1 = strongly disagree, 5 = strongly agree); S.D. = standard deviation; *represents significance level $p < 0.05$; **represents significance level $p < 0.01$.



Cluster Analysis



One-way ANOVA analysis of core capability factor differences among the four groups

Core Capability factors	1 (53)	2 (19)	3 (41)	4 (23)	F Value	F Prob	Scheffe Test
External integration	-0.70	0.50	0.32	0.64	21.62	**0.00	2>1; 3>1; 4>1
Transportation & Consulting	0.14	0.68	0.05	1.01	14.73	**0.00	1>4; 2>4; 3>4
Organizational learning	0.14	0.16	0.01	0.17	0.72	0.54	None
Internal integration	0.14	-0.14	0.44	0.58	30.89	**0.00	4>1>2; 3>1>2
Warehouse	0.14	0.14	0.14	-0.63	11.92	**0.00	1>2; 1>4; 3>2; 3>4
Information tracking	0.14	0.14	0.14	-0.71	40.68	**0.00	2>1; 3>1; 2>4; 3>4

Warehouse Oriented Firms

Transportation & Consulting Oriented Firms

Intensive Core Capability Oriented firms

Integration Oriented firms

the negative value of the factor loadings, -0.7 (see first column, first row), indicates that respondents placed less emphasis on factor one. *Significance level $p < 0.05$; **Significance level $p < 0.01$



One-way ANOVA analysis of performance differences among the four groups

Performance Index	Groups				Significant test		
	1	2	3	4	F Ratio	Comparison	Scheffe Test
Customer loyalty	3.49 ^a (0.91) ^b	4.00 (1.05)	3.95 (0.84)	4.04 (0.66)	*3.57 (p=0.02)	4>2>3>1	
Customer satisfaction	3.54 (0.72)	3.63 (0.83)	4.02 (0.69)	3.96 (0.56)	**4.41 (p=0.01)	3>4>2>1	(3,1)
Sales	3.15 (0.69)	3.5 (0.83)	3.86 (0.87)	3.46 (0.78)	**7.04 (p=0.00)	3>2>4>1	(3,1)
Market share	3.11	3.5 (0.83)	3.77 (0.91)	3.37 (0.83)	**5.24 (p=0.00)	3>2>4>1	(3,1)
Profit			3.69 (0.84)	3.20 (1.12)	4.23 (p=0.10)		

Intensive Core Capability Oriented firms

Note: a. represents mean., b. represents standard deviation.

** represents significance level $p < 0.01$.; * represents significance level $p < 0.05$.



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CONCLUSIONS AND DISCUSSION

- In this analysis, there are six dimensions : external integration, transportation and consulting, organizational learning, internal integration, warehouse, and information tracking factors.
- The authors divided 136 firms into four groups, namely, warehouse oriented firms, transportation and consulting oriented firms, intensive core capability oriented firms, and integration capability oriented firms.



- Intensive core capability oriented firms, which had positive scores in all five capability factors, had the best performance.
- Thus, overall, findings suggest that **core capabilities should not exist in a vacuum, but should leverage each other to create sustained competitive advantage**. The more core capabilities are combined together, the more difficult it will be for competitors to imitate them.



Thank you for listening

