Assessing the Innovation Competence of a Third-Party Logistics Service Provider

Shong-Iee Ivan Su (sisu@scu.edu.tw) SC*Lab*, Department of Business Administration, School of Business, Soochow University, Taipei, Taiwan

Jian-Yu Fisher Ke, Management and Marketing Department, College of Business, University of Wisconsin-Eau Claire

Abstract

This paper has designed a 23-question survey instrument to assess the innovation competence of a 3PL firm. The survey results of three 3PL firms based in U.S. are analyzed and discussed. The findings have provided insightful information on the nature and study of the innovation competence of a 3PL firm.

Keywords: Third-party Logistics Service Providers (3PLs), Innovation Competence Model, Assessment

Introduction

A competence (or competency) is a persistent pattern of behavior resulting from a cluster of knowledge, skills, abilities, and motivations. A core competence is the result of a specific set of skills or production techniques that deliver value to the customer (Prahalad and Hamel 1990; Kandampully 2002). Such competences enable an organization to access a wide variety of markets.

Innovation is the key to the advancement of society, the economy and the growth of enterprises (Gaynor, et al. 2009; Linden, Dedrick, and Kraemer 2011). The third-party logistics service providers (3PL) industry has evolved in the past three decades into a sophisticated service industry with many innovative players, such as DHL, UPS, FedEx, and C.H. Robinson, who are constantly seeking new ways to serve customers better by creating new values in their supply chains (Burnson 2011; Langley and Capgemini 2010; Su et al. 2011). For 3PLs, seeking high value service opportunities and developing innovation competence have become very important, however, challenging strategic goals in the growing and competitive 3PL outsourcing markets (Halldorsson and Skjott-Larsen 2004).

The purpose of this paper is to introduce an innovation competence model for 3PL firms and develop a diagnostic instrument for 3PL firms to assess their innovation competence levels. The innovation competence model prescribes the ideal organizational patterns and formalizes the organizational behaviors needed for exceptional 3PL innovation performance. The diagnostic instrument helps a 3PL firm to assess its key capability gaps and develop strategies to enhance its innovation competence.

Literature Review

The 3PL service industry is developing as a result of the emerging demand on logistics services. Major changes contributing to this interest in logistics include specialization and outsourcing, logistics as a strategic component, globalization, lead time reductions, and customer orientation. Integration of the supply chain has become an important way for industrial firms to gain competitive advantage (Bowersox, et al. 1989; CLM 1995; Mentzer et al. 2008). As a result, the role of logistics service providers is changing both in its context and complexity.

Logistics is an essential business function of a business entity. This function has increased its importance in the past two decades due to the factors such as increased customer requirements, pressure to reduce costs while still maintain service levels, and globalization, et al. The focus of logistics management has also changed from the operational to the strategic arena, and also from the internal integration to the external collaboration emphasis (Mentzer et al. 2008). Furthermore, due to its nature as a complex service process with the intensive capital requirements, many firms outsource logistics function to 3PL firms (3PLs) who possess the expertise in the integration and execution of supply chain logistics.

The U.S. 3PL industry has experienced explosive growth in the last two decades (Knemeyer and Murphy 2005) and the trend is expected to continue (Lieb 2008). However, extensive outsourcing of logistical needs is not limited to the U.S. market. The rationale for choosing to outsource is somewhat universal. As Lau and Zhang (2006) noted, economic, strategic, and environmental factors are the main drivers that motivate organizations to outsource in developed, as well as in developing countries. Managers also realize they can develop logistics competencies through third-party relationships, rather than by trying to develop the necessary expertise internally.

According to Oke (2008), logistics innovation should include service product innovations and technological developments. In contrast, Wagner and Busse (2008 p.2) define innovation as 'a subjective novelty which is the result of a conscious management process and which aims at economic exploitation'. They concluded that logistics innovation should be manageable and serves exploitation purpose (Wagner and Busse 2008).

Several international multiple-case-comparison studies on the innovation of 3PLs in Northern Europe and Greater China (mainland China, Hong Kong, Macau, and Taiwan) have revealed new insights to the innovation of 3PLs. In their earlier work (Cui et al. 2009), it was found that 3PLs possess strong intension to innovate to deliver high value to their customers in many business dimensions and thus create their own value. In their later studies (Cui et al. 2010; 2012), they looked at the factors that drive or deter 3PLs from innovation and the performance of 3PL innovations. The findings showed that successful 3PL innovations could bring substantial tangible and intangible advantages to the supply chain partners.

3PL Innovation Competence Model

According to the 3PL innovation study of Su, Cui & Hertz (2012), a 3PL innovation competence model depicted in Figure 1 is developed. The model in Figure 1 shows a 3PL innovation competence is composed by six key innovation capabilities (or constructs in

the original paper, Su et al. 2012) and 23 diagnostic items. The validity and reliability of these items were verified through multiple 3PL innovation case studies and an extensive 3PL industry and innovation literature review (Cui, et al. 2009, 2010 and 2012; Su et al. 2011). Their relationships are represented by the linked arrows and corresponding propositions.

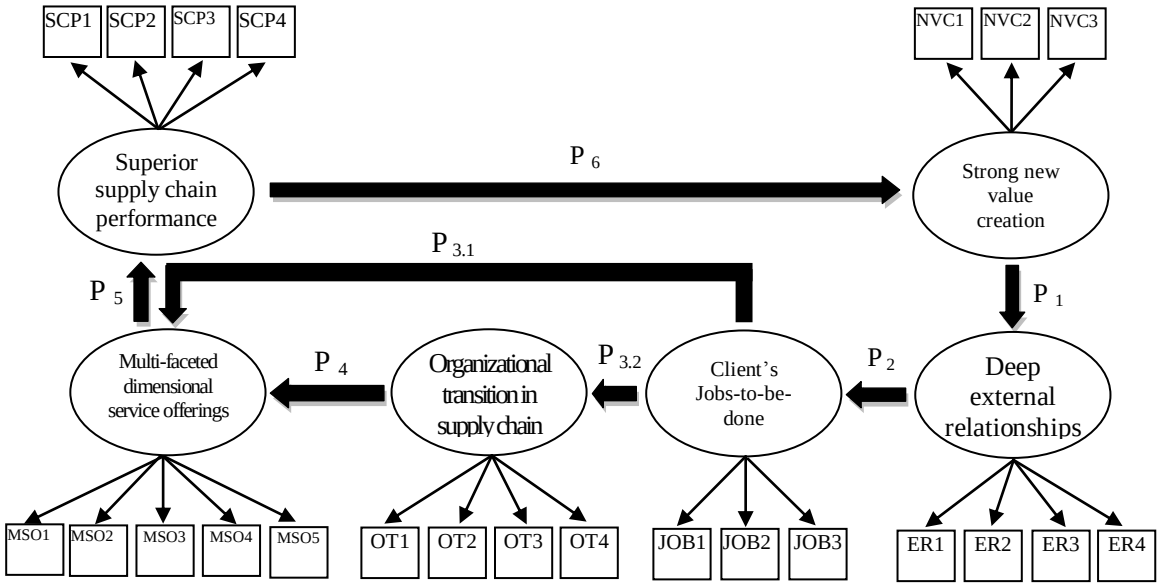

Figure 1 - 3PL Innovation Competence Model and its Diagnostic Items

Table 1 lists the definitions and codes for the six innovation capabilities shown in Figure 1. The strong motivation to create substantial new value for its supply chain has led a 3PL to develop deep relationships with external supply chain partners, particularly its key clients. Deep external relationships with key clients or potential clients create more opportunities for a 3PL to investigate the logistics demands that its clients really need but are not yet satisfied, in other words, the logistics jobs-to-be-done of its clients. With the knowledge of the clients' jobs-to-be-done, a 3PL can design the most appropriate service offerings and related supporting business dimensions that can meet clients' unmet needs. Furthermore, the organizational transition in 3PL will need to be in place to cope with all the changes required for the new service offerings. Finally, a 3PL must collaborate closely and intensely with its clients and supply chain partners to deliver superior supply chain performance, that is, create substantial new value for the 3PL, its clients and its supply chain partners. In this paper, we use 23 items developed in the above research as the diagnostic items for the six innovation capabilities of the 3PL innovation competence model. Items associated with each capability are described in detail in Table 2.

Table 1 - Definitions of six key innovation capabilities of a 3PL

Capability	Definition	Code
New value creation	New values of business of a 3PL firm are created by service innovation in the supply chain. They are mainly driven by those controllable factors to look for substantial new value creation opportunities in their supply	NVC

	chains.	
External relationships	In order to find the new value creation opportunities, an innovative 3PL firm tries hard to develop deep relationships with their supply chain partners, especially focusing on the core clients.	ER
Jobs-to-be-done	An innovative 3PL interacts with their key clients proactively and develop intelligence capability to monitor key industry trends to identify important but unsatisfied clients' problems, or "jobs" with the goal to design new service offerings to help clients more effectively, reliably, conveniently, and affordably solve these important problems at a given price.	JOB
Organizational transition	An innovative 3PL owns reliable, flexible and economic service capability to effectively interact with its clients and supply chain partners to support its transition from the current organizational format to that needed by the innovative solution provisions for clients.	OT
Multi-faceted dimensional service offerings	An innovative 3PL designs, tests, launches and improves the innovative service offerings supported by multi-facet business dimensions for its clients in need and collaborate effectively with its clients. Other supply chain partners may often join to bring in their capabilities that are required to deliver the innovative service offerings.	MSO
Supply chain performance	The tangible benefits and the intangible effects in supply chain are created from the superior supply chain performance when 3PL innovative service offerings supported by multi-faceted business dimensions are successfully implemented. Tangible benefits are related to the operational and financial performances and can be measured quantitatively. Intangible effects are related to competence and relational performances and are normally measured qualitatively.	SCP

Table 2 Definitions of 3PL innovation Diagnostic items

Code	Item Definition
NVC1	The desire to grow and enhance competitiveness drives a 3PL to look for the new value creation opportunities in your supply chains.
NVC2	The needs to integrate the supply chains and satisfy the requirements of the current and potential customers motivate a 3PL to develop the new service offerings that may create substantial value to the 3PL, its customers and other supply chain partners in stake.
NVC3	The new value creation opportunities are often related to major regulatory changes, emergence of new technologies, market disruptions, and environmental pressures in a 3PL's industry.
ER1	The customer contact personnel play a critical role between a 3PL and its clients because they are at the frontline where the inter-firm interactions occur.
ER2	Good personal relationships from the top to the frontline employees between a 3PL and its clients can facilitate and promote the sharing of proprietary information, as well as joint exploration of market opportunities and joint development of new ideas.
ER3	Favorable interactions between a 3PL's knowledgeable and experienced employees and its key clients influence the willingness of clients to collaborate in new value creation initiatives.
ER4	The positive attitudes and effective communication skills of a 3PL's employees can increase the confidence and trust of the clients with the 3PL.
JOB1	A 3PL has a good and formal mechanism to collect information regarding to the unmet needs or unsolved problems of key clients or in the industry.
JOB2	A 3PL has a dedicated team to make good use of the collected information regarding to the unmet needs or unsolved problems of key clients or in the industry to come up with Customer Value Propositions (CVPs), that is, service offerings that can effectively help clients to solve their unmet needs or unsolved problems at a reasonable price.
JOB3	CVPs are the important premises that guide a 3PL's new value creation efforts.
OT1	A 3PL and its employee are not complacent to what they are providing to the markets now and always ready to make the changes needed to serve customers better.

OT2	The social and political dynamics of logistics innovation is an important issue as a 3PL addresses the energy and commitment that are needed among coalitions of cross-functional groups and supply chain partners to develop the innovation for clients.
OT3	Individuals involved in individual transactions in a 3PL do not lose sight of the whole innovation effort. Rather these individuals see things from a total picture and often become strong advocates to the changes needed. Multiple functions, resources, and disciplines are often needed to transform an innovative opportunity into a concrete reality.
OT4	In a 3PL, innovations not only adapt to existing organizational and industrial arrangements, but they also transform the structure and practices of these environments. The 3PL is able to create an infrastructure that is conducive to innovation.
MSO1	A 3PL designs and tests the innovative service offerings to meet the unmet needs of its clients based on Customer Value Propositions defined by the 3PL. Once tested and passed (or revised), the 3PL will launch the service offerings and improve them overtime.
MSO2	Delivering innovative service offerings often incorporates multiple business dimensions such as customer involvement, channel set-up, enabling technology, supply chain partners, infrastructure adjustment, and organizational redesign.
MSO3	Investing in new systems that will enhance supply chain integration and communication is imperative in a 3PL's innovation process.
MSO4	A 3PL involves the critical decision-makers such as clients and supply chain partners to the logistics innovation process as early as possible to develop a high level of trust required for effective collaboration.
MSO5	A 3PL strives hard to establish commitment and create understanding among members of the supply chain regarding logistics innovation to increase the willingness and ability to collaborate effectively among these members.
SCP1	Successful implementation of innovative service offerings can create very positive operational and financial performances to a 3PL. A 3PL's clients and its supply chain partners would also achieve high operational and financial performances.
SCP2	Successful implementation of innovative service offerings can enhance a 3PL's logistics innovation competence and develop better relationships with its clients and supply chain partners.
SCP3	A 3PL has a good way to measure the tangible benefits and intangible effects created by logistics innovation.
SCP4	A 3PL has a good way to leverage the tangible benefits and intangible effects created by logistics innovation to build stronger supply chain advantages.

Table 3 - Interview questions for the diagnostic item SCP3

SCP3:	**Your company has a good way of measuring the tangible benefits and intangible effects created by logistics innovation.**						
	1	***2***	***3***	***4***	***5***	***6***	***7***
	Not very Important / Strongly Disagree ← Neutral → Very Important / Strongly Agree						
Importance							**7**
Current status					**5**		

An executive interview tool with 23 questions used to quantitatively assess the innovation capabilities of a 3PL is developed based on the items defined in Table 2. The third diagnostic item for the supply chain performance capability (SCP3) is used in Table 3 to illustrate the contents asked by a question. It shows that the importance score for SCP3 is 7 that is greater than the current status score 5. Therefore, SCP3 can be an object for further enhancement on this innovation capability.

Assessing the Innovation Competence of Three 3PLs

Using the executive interview tool developed in the previous section, this study assesses the innovation competence of three U.S. 3PLs, i.e. C.H. Robinson Worldwide, Inc. (CHRW), Mainfreight San Francisco (Mainfreight SF), and Aeronet. A senior executive from each firm who possesses the experience and knowledge of the logistics innovation specific to that firm was chosen to fill out the questionnaire. The questionnaire was explained interactively to the interviewee in each case to guarantee a full understanding of all questions and the validity of the survey result. The details of 23 questions interview statistics are attached in the appendix. The key information regarding the three 3PL is shown in Table 4 (Aeronet 2013; CHRW 2013; Mainfreight USA, 2013).

Table 4 – 3PL Corporate Information

Category	**CHRW**	**Mainfreight SF**	**Aeronet**
Year Founded	1905	2007 (acquired)	1982
HQ	Eden Prairie, MN	New Zealand	Irvine, CA
2010 Revenue	$9.3 billion	$30 million (SF)	$70 million
Revenue Growth ('01-'10)	33%	50%	50%
Profit Growth ('01-'10)	21%	30%	75%
Employees ('10)	7,600	50	150

Note: Most statistics were given in 2011 by the interviewees surveyed during May-July, 2011

Table 5 provides the innovation capability assessment results of three 3PLs. Each capability is measured by the scores of its importance and current status calculated respectively by the average scores of all diagnostic items regarding this capability. The total scores for current status and importance are first summed up respectively and then an innovation competence ratio (IC ratio) is calculated by dividing the current status sum over the importance sum. This ratio is a percentage between 14% and 100%; the higher the percentage, the more innovative the 3PL is under assessment.

Table 5 - Results of Innovation Competence Assessment

3PL	CHRW			Mainfreight SF			Aeronet		
Capability	Current Status	Importance (Firm Goal)	Gap	Current Status	Importance (Firm Goal)	Gap	Current Status	Importance (Firm Goal)	Gap
NVC	4.67	5.00	-0.33	6.33	6.67	-0.33	5.00	6.33	-1.33
ER	6.00	6.75	-0.75	6.50	7.00	-0.50	6.50	7.00	-0.50
JOB	5.67	6.33	-0.67	6.33	7.00	-0.67	4.67	6.00	-1.33
OT	5.00	6.00	-1.00	6.00	6.75	-0.75	4.75	6.75	-2.00
MSO	5.60	6.20	-0.60	6.60	6.80	-0.20	4.80	6.80	-2.00
SCP	5.00	7.00	-2.00	6.50	7.00	-0.50	5.50	6.50	-1.00
Competence (capability average)	5.35	6.26	-0.91	6.39	6.87	-0.48	5.22	6.61	-1.39
Total scores	123	144	21	147	158	11	120	152	32
IC Ratio	85%			93%			79%		

Note: IC Ratio=Total scores of 23 questions on current status÷Total scores of 23 questions on importance

Because the main purpose of this questionnaire instrument is to assess individual firm's innovation competence, the profile and the assessment result of each company should be examined and interpreted separately. All statistics are drawn from Table 5.

C.H. Robinson Worldwide

As a whole, CHRW got an IC ratio of 0.85, which implies that CHRW is 15% behind its ideal innovation competence level. The score level actually reveals CHRW's management philosophy. NVC (new value creation) current status score is the lowest at 4.67, mainly contributed by the low score of NVC3 (the ability to notice the major regulatory changes, emergence of new technologies, market disruptions, and environment pressures) at only 2 out of 7. It shows that CHRW may pay less attention to the changes in the external environment. Instead, CHRW focuses more on customers' current needs and establishes a tight relationship with its supply chain members. CHRW is a company with very strong supply chain and customer orientation. It strives to serve customers better with a highly collaborative carrier network and dedicated employees. Thus, it gives the ER (external relationships with its supply chain partners) the second highest importance, next to SCP (supply chain performance) the highest importance score among all capabilities. In addition, the strong external relationships help CHRW identify customers' potential needs and develop appropriate service offerings. CHRW has a relatively high achievement in its goals of JOB (client's job-to-be-done) and MSO (multi-faced dimensional service offerings). It implies that CHRW has sensed the needs for quick response to the dynamics of customers' demand. Looking at Gap statistics, SCP and OT (organizational transition) have lagged behind other capabilities. It probably reveals the common challenge of a large corporation: setting high performance goal but having difficulty to shape the organization for change. Finally, it shows that CHRW considers the superior supply chain performance the most important capability and the current situation is approximately 30 percent behind the goal.

Mainfreight San Francisco

Overall, Mainfreight SF considered that all capabilities of the innovation competence model are highly important and gave importance ratings at 6.67 or above out of 7. In addition, the result of self-evaluated innovation competence performance shows that Mainfreight SF's current status is rather close to its goal, approximately 7% behind the goal based on the IC ratio. Despite the high self-evaluated performance, the gaps between the goal (importance rating) and the current status reveal some important messages. The OT (organizational transition) and JOB (jobs-to-be-done) have the largest gaps among six capabilities. It shows that Mainfreight SF needs to interact with customers more proactively to identify unsatisfied customers' needs and develop new service offering to meet or even exceed customers' expectations. The OT3 shows the largest gap at -2 among all diagnostic items, implying that Mainfreight SF needs better integration among multiple resources for addressing an innovative opportunity. It is crucial that the staff of Mainfreight SF sees the big picture from a supply chain's perspective rather than just respond to individual customer's need.

Aeronet

As a whole, Aeronet evaluates itself as 21% behind the goal of innovation competence based on the IC ratio. Aeronet considers that all innovation competence are of high importance at 6 or above out of 7, and ER (external relationship), MSO (multi-faced dimensional service offerings), and OT (organizational transition) are the top three

important capabilities. It shows that Aeronet emphasizes its capability to promptly respond to customers' needs. It is likely because Aeronet business focuses on urgent logistics which heavily relies on a highly integrated network and agile logistics capability. Except ER, the gaps between current status and the goal of innovation capabilities are quite large and require further improvement. To shorten the gaps in OT and MSO, Aeronet needs to enhance its capabilities to support customer's need and offer right service to the customers who need urgent logistics. It requires collaboration among supply chain partners and team members inside Aeronet. In addition, Aeronet should get its customer involved in the process of new service development and collaborate with its customers to deliver the innovative service offerings. Since Aeronet is a relatively smaller firm, it seems to cultivate a very close relationship with its clients. However, due to its small nature, it is probable that Aeronet does not have enough resources and talents to keep up with the goals of most of the innovation capabilities. It may be the reason the company has sought alliances in Asia and Europe to extend its service network and increase its global coverage for North American customers.

Discussion

Logistics in business is growing complex and far reaching. However, logistics has also become more important and strategic to the industrial and trading firms. 3PLs meeting the logistics needs of these firms in the 21st century are service intensive and require ability for fast adaptation to the constant changes from their customers or the environments they situate. Innovation is now a core competence that 3PLs are seeking to ensure their roles as the logistics experts for their clients to create new values and fend off risks and uncertainties in an ever changing world.

Summarizing from the assessment results of three 3PLs discussed in this paper, the first observation is that the three results are all unique in each case. Since each 3PL and the executive who filled out the questionnaire are different in many aspects, the results should not be compared and be subject to a case by case situation. Rather, the assessment result of each case reflects the sole condition of that 3PL and ought to be used only by the 3PL to develop its own innovation competence enhancement strategy.

The second observation is the importance scores are all higher than the current status scores in all three cases. Since the interview and survey were conducted by an author with an executive interviewee in each case, it reflects the results from an objective assessment tool and a subjective assessment by the executive with the aid of a neutral third party researcher. Without other proper means, this approach is a reasonable way to help a 3PL, with the assistance of its senior executive(s) to systematically identify its opportunity to improve its innovation competence.

The third observation finds that the gaps of six innovation capabilities vary in a range for all three cases. It means the assessment tool helps a 3PL to distinguish the innovation capability(ies) most needed for improvement from those less needed. In a world of limited resources for many businesses, it is quite valuable to prioritize options of strategic importance such as the innovation competence development program for resource allocation.

The purpose of this paper is more practical oriented: to design an innovation competence assessment tool relatively easy to be applied by 3PLs. There are actually many research issues intact regarding the 3PL innovation competence model developed

in this paper. First, each innovation capability by itself can be a profound research area worthy of further research efforts. These researches should aim to provide more insights to both the practice and the theory regarding future 3PL innovation studies. Second, the proposed relationships between capabilities in Figure 1 are derived from qualitative case studies. They should be examined by quantitative approach regarding their validity and reliability for theoretical rigor. Third, it will be interesting to work closely with some 3PLs on applying the tool to enhance its innovation competence by a multiple-year action research approach. The effort may produce more accurate theories and practical guidelines for the 3PL innovation.

Conclusion

This paper reports and discusses the application of recently developed 3PL innovation theories on the assessment of 3PL innovation competence and its related findings. Major contribution of this paper is the development of a 3PL innovation competence model and the design of an assessment tool for 3PL innovation competence. This tool was used to assess the innovation competence of three 3PLs. The assessment results provide useful managerial information to 3PL executives to tap into the innovation capability gaps that hinder 3PLs from being more innovative.

Since there is rare literature in theory or in practice on assessing the innovation competence of 3PLs, the research findings in this paper are encouraging regarding the applicability of the novelty tool developed for assessing 3PL innovation competence. However, we notice that there are still many research issues intact and further studies in the future are needed.

Reference

Aeronet, 2013, retrieved from the company website: http://www.aeronet.com/corporate/Default.aspx

Bowersox, D.J., P.J. Daugherty, C.L. Dro¨ge, D.L. Rogers, D.L Wardlaw. 1989. *Leading edge logistics—competitive positioning for the 1990s*. Oak Brook (IL): CLM.

Burnson, P. 2011. Top 3PLs: getting the balance right. *Logistics Management Magazine*, June.

CHRW, 2013, retrieved from the company website: http://www.chrobison.com/

CLM(Council of Logistics Mangement). *The Challenge of Managing Continuous Change*. Prepared by Global Logistics Research Team at Michigan State, 1995.

Cui, L., S.I. Su, S. Hertz. 2009. How do regional third party logistics firms innovate? a cross-regional study. *Transportation Journal* 48(3): 58-65.

Cui, L., S. Hertz, S.I. Su. 2010. Factors influencing logistics innovation at logistics firms. *The Nordic Logistics Research Network (NOFOMA) Conference Proceedings*. Kolding. Denmark. June 10-11.

Cui, L., S.I. Su, S. Hertz. 2012. Logistics innovation in China. *Transportation Journal* 51(1): 98-117.

Gaynor, J., A. Mackiewicz, R. Ramaswami. 2009. *Entrepreneurship and Innovation: The Keys to Global Economic Recovery*, UK: Ernst & Yang.

Halldorsson, A., T. Skjott-Larsen. 2004. Developing logistics competencies through third party logistics relationships. *International Journal of Operations & Production Management* 24(2):192-206.

Kandampully, J. 2002. Innovation as the core competency of a service organisation: the role of technology, knowledge and networks. *European Journal of Innovation Management* 5(1): 18 – 26

Knemeyer, A. M., R. M. Paul. 2005. Exploring the potential impact of relationship characteristics and customer attributes on the outcomes of third-party logistics arrangements. *Transportation Journal* 44(1): 5-19.

Langley, Jr., C.J., Capgemini. 2010. *2010 Third-Party Logistics -the 15th Annual Survey*. Georgia Institute of Technology and Camgemini.

Lau, K. H., J. Zhang. 2006. Drivers and obstacles of outsourcing practices in China. *International Journal of Physical Distribution and Logistics Management* 36(10): 776-792.

Lieb, R.C. 2008. The North American third-party logistics industry in 2007: the provider CEO perspective. *Transportation Journal* 47(2): 39-53.
Linden, G., J. Dedrick, K.L. Kraemer 2011. Innovation and job creation in a global economy: the case of Apple's iPod. *Journal of International Commerce and Economics* 3(1): 223-240.
Mainfreight USA, 2013, retrieved from the company website: http://mainfreightusa.us/about/company-profile/
Mentzer, J.T., T.P. Stank, T.L. Esper. 2008. Supply chain management and its relationships to logistics, marketing, production and operations management. *Journal of Business Logistics* 29(1): 31-46.
Panayides, P.M., M. So 2005. Logistics service provider–client relationships. *Transportation Research Part E* 41(3):179-200.
Prahalad, C.K., G. Hamel. 1990. The core competence of the corporation. *Harvard Business Review* 68(3): 79–91.
Su, S.I., S. Hertz, L. Cui. 2011. Developing a conceptual framework for logistics innovation at 3PL firms - a case study approach. *POMS 22nd Annual Meeting Proceedings*, Reno, Nevada, U.S., April 29-May 2.
Su, S.I., L. Cui, S. Hertz. 2012. Developing a theoretic framework and propositions for the innovation of the third-party logistics service providers. *POMS 23rd Annual Meeting Proceedings*, Chicago, Illinois, U.S.A., April 20-23.

Appendix

	CHRW			Mainfreight SF			Aeronet		
	status	importance	gap	status	importance	gap	status	importance	gap
1 NVC1	6	6	0	6	7	-1	6	6	0
1 NVC2	6	7	-1	7	7	0	5	7	-2
1 NVC3	2	2	0	6	6	0	4	6	-2
2 ER1	5	7	-2	7	7	0	7	7	0
2 ER2	5	7	-2	6	7	-1	6	7	-1
2 ER3	7	7	0	7	7	0	6	7	-1
2 ER4	7	6	1	6	7	-1	7	7	0
3 JOB1	5	6	-1	7	7	0	4	6	-2
3 JOB2	6	6	0	6	7	-1	5	6	-1
3 JOB3	6	7	-1	6	7	-1	5	6	-1
4 OT1	6	6	0	6	6	0	5	7	-2
4 OT2	5	7	-2	7	7	0	4	6	-2
4 OT3	4	6	-2	5	7	-2	5	7	-2
4 OT4	5	5	0	6	7	-1	5	7	-2
5 MSO1	7	7	0	7	7	0	4	6	-2
5 MSO2	5	5	0	7	7	0	5	7	-2
5 MSO3	5	6	-1	7	7	0	4	7	-3
5 MSO4	6	6	0	5	6	-1	5	7	-2
5 MSO5	5	7	-2	7	7	0	6	7	-1
6 SCP1	5	7	-2	7	7	0	7	7	0
6 SCP2	5	7	-2	7	7	0	5	7	-2
6 SCP3	5	7	-2	6	7	-1	5	6	-1
6 SCP4	5	7	-2	6	7	-1	5	6	-1