

CHAPTER IV

FINDINGS AND DISCUSSIONS

The purpose of this chapter is to analyze and interpret the result of data analysis, which are collected from the questionnaires in order to prove the research objectives. The results of data analysis are based upon the data collection of 93 respondents which presented in four parts as following.

Part1: Summarize the respondent's general information by using descriptive statistic.

Part2: Analysis result of the respondent' attitude toward factor considered in selecting 4PL providers.

Part3: Analysis result of the respondent's perception toward expected benefits and obstacles in using 4PL providers.

Part4: Hypothesis test by t-test

(Entry data and analysis were done by using SPSS program)

Part5: Depth Interview Summary

4.1 Descriptive Respondents

To identify the characteristic of respondents participating in this study, the descriptive analysis is applied to thoroughly analyze the data. The general information of respondents include type of industry, company latest revenue, the company's current logistics strategy and the use of logistics service. All these are demonstrated from Table 4.1-4.9

4.1.1 Part 1: General Information

Table 4.1 Type of Industry

Type	Frequency	Percent
Automotive Industry	24	25.8
Consumer Product Industry	69	74.2
Total	93	100.0

The figure in table 4.1 signifies that majority of the respondents, up to 69 or more than half of the respondents, recruited in this study, are consumer product industry accounting for 74.2%. The rest of 24 or 25.8 % are automotive industry.

Table 4.2 The respondents classified by company latest annual revenue

Company latest annual revenue	Frequency	Percent
1- 50 billion baht	48	51.6
51-100 billion baht	9	9.7
101-150 billion baht	13	14.0
151 – 200 billion baht	23	24.7
Total	93	100.0

Table 4.2 shows that the largest group of the respondent, up to 48, or 51.6 % generates between 1- 50 billion baht. The second large group consists of 23 respondents or 24.7% generate 151 – 200 billion baht per year. The next group, 13 respondents or 14.0 % generate between 101-150 billion baht per year. And those whose company latest revenue is between 51-100 billion baht are the smallest group consists of 9 respondents, or 9.7 %.

Table 4.3 The respondents classified by the company's current logistics strategy

Current logistics strategy	Frequency	Percent
Insourcing	6	6.5
Outsourcing by 3PL	87	93.5
Total	93	100.0

In regard to current logistics strategy, majority of the respondents, up to 87 or 93.5% use outsourcing by 3PL; And the smallest group; 6 respondents or 6.5 % employ Insourcing logistics strategy.

Table 4.4 The respondents classified by the use of logistics service (Can answer more than one)

Logistics service	Frequency	Percent
Customer service	11	11.8
Parts and service support	29	31.2
Demand forecasting/ planning	8	8.6
Plant and warehouse site selection	12	12.9
Inventory management	19	20.4
Procurement	3	3.2
Logistics communications	18	19.4
Return goods handling	30	32.3
Material handling	32	34.4
Reverse logistics	16	17.2
Order processing	12	12.9
Traffic and transportation	70	75.3
Packaging	43	46.2
Warehousing and storage	76	81.7

For logistics service used by the respondents, the analysis result reflects that 76 respondents or 81.7% use logistics service in warehousing and storage. The second large group use logistics service in traffic and transportation consists of 70 samples or 75.3%. While the smallest group uses logistics service in procurement, comprises 3 respondents or 3.2 %.

4.1.2 Part 2: Factors considered in selecting 4PL provider

Table 4.5 Respondents' attitude toward factor considered in selecting 4PL providers

Factor considered in selecting 4PL providers	\bar{X}	S.D.	Level of importance
1.Lacking the technology capabilities to integrate across its supply chain processes	2.44	.787	Less important

Factor considered in selecting 4PL providers	\bar{X}	S.D.	Level of importance
2.The need of supply chain integration, focusing on core competency	4.05	.728	Very important
3.Lacking the technology capabilities to integrate across your logistics service providers	2.25	.880	Less important
4. 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes	2.25	.830	Less important
5. Using multiple 3PLs's in the same time	2.96	1.132	Moderate important
6. Struggling to manage increasing levels of supply chain complexity	3.48	.685	Very important
7. The availability of specialized companies in supply chain competencies	3.75	.775	Very important
8.Customers' supply chain demands exceeding its capability to deliver	3.82	.625	Very important
9. Growing complexity of 3PL contracts	3.06	.777	Moderate important
10.3PL's reaching their limit of what they can do to improve the supply chain performance and the cannot deliver continuous and ongoing savings	3.54	.828	Very important
11. Considering the supply chain critical to its success but not every supply chain process a corer competency	2.63	.818	Moderate important
12. Making better use of the capital dedicated to supply chain assets	3.60	.768	Very important
13. The economic downturn pressures	3.18	.807	Moderate important
Total	3.16	.263	Moderate important

Based on the observation of table 4.5, the respondents' attitude toward factor considered in selecting 4PL provider is at a moderate important level (\bar{X} =3.16).

When considering in detail, the samples respectively agree with the following factors: The need of supply chain integration, focusing on core competency (\bar{X} =4.05). Customers' supply chain demands exceeding its capability to deliver (\bar{X} =3.82). The availability of specialized companies in supply chain competencies (\bar{X} =3.75). Making better use of the capital dedicated to supply chain assets (\bar{X} =3.60).

3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing saving ($\bar{X} = 3.54$).

The respondents are not sure with the factors: the economic downturn pressures ($\bar{X} = 3.18$). Growing complexity of 3PL contracts ($\bar{X} = 3.06$). Using multiple 3PLs's in the same time ($\bar{X} = 2.96$). Considering the supply chain critical to its success but not every supply chain process a corer competency ($\bar{X} = 2.63$).

The respondents disagree with these factors: Lacking the technology capabilities to integrate across its supply chain processes ($\bar{X} = 2.44$). Lacking the technology capabilities to integrate across your logistics service providers are equal 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes ($\bar{X} = 2.25$).

4.1.3 Part 3: Expected Benefits and Obstacles Identification

Table 4.6 Respondents expected benefit according to cost

Description	\bar{X} (%)	S.D.
Cost	37.60	12.583
Cost efficiencies	40.66	11.736
Lower costs	30.03	12.697
Reduced administrative costs	29.31	12.366

Based on the observation of table 4.6 the respondents' percentage of benefit expectation in respect to cost is at 37.60 %.

When considering in details, the respondent's expectation percentage in regarding to cost are as follows; cost efficiencies 40.66 %; lower costs 30.03 %; reduced administrative costs, 29.31%, respectively.

Table 4.7 Respondents expected benefit according to point of contact

Description	\bar{X} (%)	S.D.
Point of contact	16.53	10.002

Description	\bar{X} (%)	S.D.
Single point of contact	46.32	17.282
A central point of contact	53.68	17.282

Based upon the observation of table 4.7 the respondents' percentage of benefit expectation in respect to point of contact is at 16.53 %.

When considering in details, the respondent's expectation percentage in regarding to point of contact are as follows; Single point of contact 40.66 %; A central point of contact 53.68 %

Table 4.8 Respondents' expected benefit according to administration

Description	\bar{X} (%)	S.D.
Administration	16.94	6.257
Consistency of operations, information, and processes	41.99	10.035
Ease of administration	24.55	7.041
Consistency of processes and operations across 3PL provider	33.43	8.511

Table 4.8 indicates that, the respondents' percentage of benefit expectation in respect to administration is at 16.94%.

When considering in details, the respondent's expectation percentage in regarding to administration are as follows; Consistency of operations, information, and processes 41.99%; Consistency of processes and operations across 3PL provider; Ease of administration 24.55 %, respectively.

Table 4.9 Respondent 'expected benefit according to efficiency improvement

Description	\bar{X} (%)	S.D.
Efficiency Improvement	29.45	11.441
Supply chain system integration	27.61	10.343
Improved supply chain visibility	19.59	5.692
Better accountability	15.77	5.902

Description	\bar{X} (%)	S.D.
Better coordination of the participants	17.14	7.030
Greater customer focus on the strategic side of the business	19.81	8.987

Table 4.9 indicates that, the respondents' benefit expectation percentage in respect to efficiency improvement is at 29.45%.

When considering in details, the respondent's expectation percentage in regarding to efficiency improvement are as follows; Supply chain system integration 27.61%; Greater customer focus on the strategic side of the business 19.81%; Improved supply chain visibility 19.59%; Better coordination of the participants 17.14; Better accountability 15.77 %, respectively.

In summarize, the first place of expected benefit is *cost* (37.6%) followed by efficiency *improvement* (29.45%). The third rank is *administration* (16.94%) and fourth rank is *point of contact* (16.53%).

Table 4.10 Respondents obstacles identification in using 4PL

Description	\bar{X} (%)	S.D.
Loss of control to an outside party	11.92	5.798
Difficulty of assessing the financial savings to be gained through outsourcing	12.88	8.882
The lack of management confidence in an outside party to deliver the same high level services that company employees provide	18.56	13.941
Providers could give unreliable promises to customers	14.90	6.435
Organizations could fail in selecting and managing logistics providers probably	14.04	12.698
Provider could be unable to respond to changing requirements	11.46	5.650
The difficulty of obtaining organizational support	8.31	6.287
Losing touch with important information	10.84	5.692

Based on the observation of table 4.9, The respondents' percentage of obstacle expectation in using 4PL are as follows; The lack of management confidence in an outside party to deliver the same high level services that company employees provide 18.56%; providers could give unreliable promises to customers 14.90%; organizations could fail in selecting and managing logistics providers 14.04% difficulty of assessing the financial savings to be gained through outsourcing 12.88% ; lost control of an outside party 11.92 %; provider could be unable to respond to changing requirements 11.46 %; losing touch with important information s. 10.84% and difficulty of obtaining organizational support 8.31%, respectively.

4.1.4 Part 4: Hypotheses test

Hypothesis 1: There is difference regarding to factor considered in selecting 4PL providers between automotive and consumer product industry.

Ho: There is no difference regarding to factor considered in selecting 4PL providers between automotive and consumer product industry. ($\mu_1 = \mu_2$)

Ha: There are differences regarding to factor considered in selecting 4PL providers between automotive and consumer product industry ($\mu_1 \neq \mu_2$)

Table 4.11 The result of hypothesis test 1

Description	Industry type	T-test for Equality of Means				
		\bar{X}	S.D.	t	df	Sig(2-tailed)
Factors in selecting 4PL provider	Automotive Industry	3.25	.265	2.152	91	.034
	Consumer Product Industry	3.12	.256			

**Significance level at .05

The result of hypothesis test 1 in table 4.11 indicates that value significance (2-tailed) is 0.034, which is less than the significant level (.05). Therefore, the researcher rejects H_0 and accepts H_a , which implies that there are differences



regarding to factor considered in selecting 4PL provider between automotive and consumer product industry. Table 4.12 and 4.13 show the detail of this difference.

Table 4.12 Top 5 of most important factors in selecting 4PL provider in Automotive industry

Automotive Industry	\bar{X}
The need of supply chain integration, focusing on core competency	4.33
The availability of specialized companies in supply chain competencies	3.92
Making better use of the capital dedicated to supply chain assets	3.79
Customers' supply chain demands exceeding its capability to deliver	3.75
3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings	3.67

Table 4.13 Top 5 of most important factors in selecting 4PL provider in Consumer Product industry

Consumer Product Industry	\bar{X}
The need of supply chain integration, focusing on core competency	3.96
Customers' supply chain demands exceeding its capability to deliver	3.84
The availability of specialized companies in supply chain competencies	3.70
Making better use of the capital dedicated to supply chain assets	3.54
3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings	3.49

According to above tables, it can imply that top 5 of most important factors for these industries are the same. On the other hand, they have difference weight and lead to difference sequence.

Hypothesis 2: Test difference of two means

Ho: There is no difference of two means ($\mu_a = \mu_b$)

Ha: Mean of factor a in selecting 4PL providers is greater than mean of factor b in selecting 4PL providers. ($\mu_a > \mu_b$)

Table 4.12 The result of hypothesis test 2

Type	t-test for Equality of Means				
	\bar{X}	S.D.	t	df	Sig. (1-tailed)
Factor1- Factor 2	-1.61	1.084	-14.352	92	.000*

Type	t-test for Equality of Means				
	\bar{X}	S.D.	t	df	Sig. (1-tailed)
Factor2- Factor 3	1.81	1.227	14.197	92	.000*
Factor3- Factor 4	.00	1.225	.000	92	1.000
Factor4- Factor 5	-.71	1.571	-4.355	92	.000*
Factor5- Factor 6	-.53	1.109	-4.581	92	.000*
Factor6- Factor7	-.27	.957	-2.709	92	.008*
Factor7- Factor8	-.06	.918	-.677	92	.500
Factor8- Factor9	.75	.952	7.628	92	.000*
Factor9- Factor10	-.47	.815	-5.595	92	.000*
Factor10- Factor11	.90	1.311	6.644	92	.000*
Factor11- Factor12	-.97	1.425	-6.548	92	.000*
Factor12- Factor13	.42	.756	5.346	92	.000*

**Significance level at .05

The result of hypothesis test from table 4.12 indicates that value significance (1-tailed) are 0.000 and 0.008, which are less than significant level (.05) and 1.000 and .500 which greater than significance level (.05). Therefore, the researcher rejects H_0 and retains H_a , which implies that every pair of factor mean has significance difference except pair of factor 3 – factor 4 and factor 7- 8 that shown no significance in difference of mean.

4.1.5 Part 5: Depth Interview Result

Qualitative data required for this study are retrieved from conducting interviews with factor considered in selecting 4PL providers. The collected information is being briefly presented as following.

I. Interviewee: Material planning manager from leading consumer product company in Thailand

For attitude toward factors in selecting 4PL provider in the most, she agrees with using multiple 3PLs's in the same time as the first rank because it is quickly and easy for controlling. As for the second rank, she agrees that the availability of specialized companies in supply chain competencies, because they need the corporations who have knowledge in supply chain. As for the third rank, she agree that 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes, because some 3PL providers have no plan for using strategic expertise and IT resources. As

for the fourth rank, she agrees that considering the supply chain critical to its success but not every supply chain process a corer competency because many 3PL providers are specialize in supply chain management. For the fifth rank, she agrees that 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings.

Regarding to attitude toward factor in selecting 4PL provider with least important, she agrees with the need of supply chain integration, focusing on core competency as the first rank. For the second rank, she agrees that struggling to manage increasing levels of supply chain complexity. For the third rank, she agrees that customer's supply chain demands exceeding its capability to deliver. For the fourth rank, she agrees that growing complexity of 3PL contracts. For the fifth rank, she agrees that lacking the technology capabilities to integrate across your logistics service providers.

Considering attitude toward benefits from using 4PL provider, she agrees with point of contact as the first rank, follow with efficiency improvement. The third rank, she agrees with cost and last rank she agrees with administration.

For attitude toward obstacles in using 4PL provider, she agrees with difficulty of assessing the financial savings to be gained through outsourcing s as the first rank and follow by provider could be unable to respond to changing requirements. For the third rank, she agrees that providers could give unreliable promises to customers. For the fourth rank, she agrees that organizations could fail in selecting and managing logistics providers probably. For the fifth rank, she agrees that the difficulty of obtaining organizational support. Loss of control to an outside party is the sixth rank. For the seventh rank, she agrees that losing touch with important information. The last place she agrees with the lack of management confidence in an outside party to deliver the same high level services that company employees provide.

II. Interviewee: Supply Planning Manager from leading consumer product company in Thailand

The most important factors in selecting 4PL provider, she presents that lacking the technology capabilities to integrate across your logistics service providers as the first rank because high investment of set up IT and infrastructure for data linkage and

information flow if we are the asset owner and technology just only supporting and simplify operation as well.

The second rank in selecting 4PL provider, she agrees with 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes because these are not a core of business, only tools for supporting business growth.

She agrees with struggling to manage increasing levels of supply chain complexity in selecting 4PL provider as the third rank. She gives the reason that complexity lead to unnecessary cost.

For the fourth rank in selecting 4PL provider, she agrees that 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings because they limited on narrow operation focus and no improvement.

The fifth rank in selecting 4PL provider, she agrees that considering the supply chain critical to its success but not every supply chain process a corer competency because supply chain operation is very dynamic and it should have risk when consolidate each function among supply chain function. Thus, company should better focus on its core.

The least important factor, she agrees with lacking the technology capabilities to integrate across its supply chain process because it depends on budget for investment and business needed.

The second rank in selecting 4PL provider, she agrees with the need of supply chain integration, focusing on core competency because integration of supply chain may lead to slow processing due to authorization system.

For the third rank in selecting 4PL provider, she agrees with the availability of specialized companies in supply chain competencies because company has own dependent department to support and manage in this function.

The fourth rank in selecting 4PL provider, she agrees with making better use of the capital dedicated to supply chain asset because as company policy, this point is not key point to acquire service provider. Company has well managed their own capital in every function.

The fifth rank in selecting 4PL provider, she agrees with the economic downturn pressures because even current economic is not going well, company still need to invest as normal in order to compete with current market situation.

The attitude toward benefits from using 4PL provider, she agrees with the cost as the first rank and follow with administration. The third rank, she agrees efficiency improvement and point of contact for the fourth rank.

Other benefits from using 4PL provider, she agrees with speed of response because this can fulfill customer requirement with the right time and right place.

She agrees with another benefit from using 4PL provider that is making a core of business to be a number one in the market and achieve goal because we can utilized our time to concentrate in core of business and seek the new way for continuous improvement.

The attitude toward obstacles in using 4PL provider, she agrees with loss of control to an outside party as the first rank because since all functions under logistics field will be responded by other parties.

The second rank, she agrees with losing touch with important information because sometimes it is hard to retrieve information right on time that company need. This may caused from many contact levels.

The third rank, she agrees with difficulty of assessing the financial savings to be gained through outsourcing because it is not clear to identify the difference of money saving from using service provider.

The fourth rank, she agrees with the lack of management confidence in an outside party to deliver the same high level services that company employees provide because as outside party need to study and learn company procedure, this may caused non seamless of working process and lead to customers' unsatisfied.

The fifth rank, she agree with provider could be unable to respond to changing requirements due to many requirements of company; it may difficult to manage and prepare themselves to serve us.

The sixth rank, she agrees with providers could give unreliable promises to customer since the linkage from company requirements, it leads to unreliable of service providers in their promise.

The seventh rank, she agrees with organizations could fail in selecting and managing logistics providers probably since company might set high expectation over

service provider's performance however company can switch to new provider after contract termination.

The eighth rank, she agrees with the difficulty of obtaining organizational support as company has policy to support all solutions which can increase company's competency and competitive advantage. There is no doubt in this choice.

III. Interviewee: Export Sales Manager from leading automotive company in Thailand

The most important factors in selecting 4PL provider, she agrees with using multiple 3PLs's in the same time because shorten leadtime in contacting many parties in the same time.

The second rank in selecting 4PL provider, she agrees with struggling to manage increasing levels of supply chain complexity because it is quite difficult for company to deal with the complexity in logistics. Company utilized their time for main activities.

The third rank in selecting 4PL provider, she agrees with the need of supply chain integration, focusing on core competency since company can manage and focus more on key activities and also can perform effectively.

The fourth rank in selecting 4PL provider, she agrees with lacking the technology capabilities to integrate across your logistics service providers as it is difficult to integrate supply chain system from many 3PL.

The fifth rank, she agrees with lacking the technology capabilities to integrate its supply chain processes. The reason is same as previous rank.

The least important factors in selecting 4PL provider, she agrees with the economic downturn pressures because managing 3PL in the same time does not make the higher cost.

The second rank, she agrees with making better use of the capital dedicated to supply chain assets because company believed that cost does not a factor and company supported in using supply chain assets.

The third rank, she agrees with growing complexity of 3PL contracts because many contracts do not lead to complexity.

The fourth rank, she agrees with considering the supply chain critical to its success but not every supply chain process a corer competency because the company

has capability in managing every aspects of supply chain but the factors concerning is to integrate in order to shorten leadtime.

The fifth rank, she agrees with customers' supply chain demands exceeding its capability to deliver because customer's requirement does not make problems in managing supply chain.

Referring to attitude toward benefits from using 4PL provider, she agrees with point of contact as the first rank. The second rank is administration. The third rank, she agrees efficiency improvement follow by the cost.

Considering the attitude toward obstacles in using 4PL provider, she agrees with loss of control to an outside party as the first rank because they cannot contact service providers at the time company faced problem.

The second rank for attitude toward obstacles in using 4PL provider. She agrees with organizations could fail in selecting and managing logistics providers probably because consistency of service is very important in our business.

The third rank for attitude toward obstacles in using 4PL provider. She agrees with losing touch with important information because loss of important has more impact in processing business.

The fourth rank is difficulty of assessing the financial savings to be gained through outsourcing because unclear of saving amount due to variety of situation.

The fifth rank is provider could be unable to respond to changing requirements because company believes that service providers have their own limitation in providing their services.

The sixth rank for attitude toward obstacles in using 4PL provider. She agrees with the lack of management confidence in an outside party to deliver the same high level services that company employees provides since the expertise of company's employee has sufficient to proceed a job. Employee has more experiences than service providers.

The seventh rank for attitude toward obstacles in using 4PL provider. She agrees with providers could give unreliable promises to customers as unreliable information lead to incorrect in planning. This point is very critical for automotive production which need more reliable data. Just a few mistakes may lead to a big loss.

The eight rank for attitude toward obstacles in using 4PL provider. She agrees with the difficulty of obtaining organizational support as company always support in new innovation or procedure which increase company potential.

IV. Interviewee: Procurement Manager from leading automotive company in Thailand

The most important factor in selecting 4PL provider, she agrees with considering the supply chain critical to its success but not every supply chain process a core competency as the first rank. Since we know that supply chain and logistics are important part in running business, however, they are not main activities in achieve our target. Thus, they think it should be better to require someone to control on this while we turn to focus on our core activity.

The second rank in selecting 4PL provider, she agrees with the need of supply chain integration, focusing on core competency because same reason as first place. If proceeding or monitoring in supply chain or logistics function are more complexity, outsourcing should be better solution.

The third rank in selecting 4PL provider, she agrees with lacking the technology capabilities to integrate across its supply chain processes because in case of managing more advancement will require more in investment, outsourcing 4PL should be saver in company's capital.

As fourth rank, she agrees with the availability of specialized companies in supply chain competencies as there is low level of human resource who specialize in this field. Pushing this responsibility to 4PL should be more effective and reasonable.

The fifth rank, she agrees with 3PL's reaching their limit of what they can do to improve the supply chain performance and they cannot deliver continuous and ongoing savings because the difficulty in integration supply chain system from many 3 PL.

The least important factors in selecting 4PL provider, she agrees with making better use of the capital dedicated to supply chain assets as they do not think that there is much difference in cost saving.

The second rank, she agrees with the economic downturn pressures because economic pressure's not much impact on using 4PL. If company can see better benefit of using 4PL, it will be better to use them.

In the third rank, she agrees with growing complexity of 3PL contracts because company believed that employees can handle with more complexity of 3PL contract.

The fourth rank, she agrees with lacking the technology capabilities to integrate across your logistics service providers because acquiring new technology is not too difficult. It depends on who will be responsible them. Company can acquire high technology by hiring high qualified employee or only request suggestion from consultant outside and proceed by themselves.

The fifth rank, she agrees with using multiple 3PLs's in the same time because company can operate over many 3PL if they can provide their best services.

Considering the attitude toward benefits from using 4PL provider, she agrees with efficiency improvement as the first rank. The second rank, she agrees with administration. The third rank, she agrees with the cost and point of contact as the fourth rank.

Other benefits from using 4PL provider, she agrees with sharing knowledge and information because it would be great if outsourcing firm can share information, updated news or any knowledge regarding to logistics or supply chain field which would have benefit for company at current moment or ever in the future

For attitude toward obstacles in using 4PL provider, she agrees with loss of control to an outside party as the first rank because without control ability of service provider will create more trouble for company which may lead to losing in marketing advantage for competing in the market.

The second rank, she agrees with losing touch with important information as information is very important in this function, losing touch in all information will be effect in the operation.

The third rank, she agrees with providers could give unreliable promises to customers since unreliable promise can mislead or lead to wrong plan in our production. Thus, trustiness of information provided to us is very important.

The fourth rank, she agrees with provider could be unable to respond to changing requirements because we always expect for unlimited service that they can provide and support.

The fifth rank, she agrees with organizations could fail in selecting and managing logistics providers probably as reselecting in service provider will increase expenses and waste much time consume.

The sixth rank, she agrees with the lack of management confidence in an outside party to deliver the same high level services that company employees provide

since company acquire employees with high qualification, they expect much in expertise of service provider.

The seventh rank, she agrees with difficulty of assessing the financial savings to be gained through outsourcing because in calculating the difference in using outsource or proceed by company is too difficult to identify as there are many detail points.

The eighth rank, she agrees with the difficulty of obtaining organizational support as company will support in any project which able to increase more productivity and efficiency.

V. Interviewee: Project manager from leading logistics service provider in Thailand

For attitude toward factors in selecting 4PL provider in the most, he agrees with the economic downturn pressures come as the first rank. The reason is the fact that during political crisis and economic downturn, customers will think twice before spending money. Budgets or projects will be postponed until situation turn back to normal. 4PL providers have to push a lot of efforts to convince them to switch from existing supply chain and logistic system. Besides, customers themselves might demand several things or benefits in order to ensure the minimum risks from decision making. Under this circumstance, selection process would take longer time and more complicate because it might involve with many parties rather than usual. 4PL must prove themselves that it is worth to change. Otherwise, customers will prefer to use multiple 3PLs instead.

For the second rank in selecting 4PL provider, he agrees with need of supply chain integration, focusing on core competency. The reason is that it has no doubt that every company would like to focus only on their core competency and allow other professional service providers perform other activites instead. Supply chain and logistics normally are considered as complicated tasks that need many efforts and resources from company. In order to enhance core competency and maintain competitive advantage, customers may take 4PL into account.

He agrees that growing complexity of 3PL contracts in selecting 4PL provider as the third rank. He gives the reason that consumers or end-users demand many things or more complexity in consumption pattern. Therefore, the way to serve them

would be changed significantly by leading companies. Only one 3PL providers may not be sufficient enough to serve customers' needs and wants. Multiple 3PLs may create complexity of daily work. The more complexity of 3PL contracts and business process would drive the demand of 4PL or other advanced logistics models.

As the fourth rank in selecting 4PL provider, he agrees that 3PL's lacking of the strategic expertise and IT resources required to operate across the entire supply chain and to truly integrate supply chain processes. The reason is in Thailand, there are only a few professional or international logistics providers. We could notice many local brand or family business logistics providers. These low capital logistics providers come with very limited expertise, especially in IT system. To overcome this problem, customers need to employ many 3PLs to receive the ultimate solution and entire chain connection. Basically, they need to do accordingly because there is no better choice or lacking of knowledge about advanced logistics system.

The fifth rank in selecting 4PL provider, he agrees that making better use of the capital dedicated to supply chain assets. The reason is service providers cannot avoid from the fact that customers will consider 4PL as a kind of product. Customers always compare benefits between the current product and the new one, in hope that they will make the smart choice or better use of fund. For 4PL case, customers must expect the more efficiency of the entire supply chain from their investment.

Regarding to attitude toward factor in selecting 4PL provider with least important, he agrees with lacking the technology capabilities to integrate across its supply chain process because technology is not a main issue in Thailand. The only important issue is huge money to invest on those technologies. This lead to the question, is it worth to do so or allow others do it instead. If company have sufficient funds to investe, they can find the best IT resources to link the entire supply chain process definitely. This factor should have less impact to the selection of 4PL.

As the second rank in selecting 4PL provider, he agrees with lacking the technology capabilities to integrate across your logistics service providers because this factor is quite the same as above. However, for security reason, each logistics provider will not allow others or customers to come thru their system. The compatability between 2 systems (service providers and customer) may also be very big problem for each party. Logistics providers will apporach customers with total solution under their own technology, both hardware and software. Thus, this factor

has no significantly impact to decision making of using 4PL or other advanced logistics system.

The third rank in selecting 4PL provider, he agrees that considering the supply chain critical to its success but not every supply chain process a corer competency. The reason is logistics and supply chain system could be considered as a valued asset or competitive advantage for a company. Succesful companies will always find the way to upgrade or improve their supply chain systems in order to stay ahead competitors. The very shortcut to achieve the goal is to outsource those experts. 4PL seems to be the total solution for customers if there is no other advanced logistics models to select.

The fourth rank in selecting 4PL provider, he agrees that the availability of specialized companies in supply chain competencies. The reason is the availability of experts or providers are important to customers' confident to use or not use. If there are many alternatives, customers can compare and check for the best solution until they satisfy. Customers love to have high bargaining power or win-loss negotiation.

The fifth rank in selecting 4PL provider, he agrees that using multiple 3PLs's in the same time because it has no doubt that the more point of contact, the more complexity happenned. Problems are more likely to happen when customer need to interface with many parties at the same time to achieve the only one objective. For example, customer imports one product to Thailand. One logistics provider handle cargo and shipment. Then, another parties in charge of custom clearance and pass to another land logistics provider. It is very easy to imagine that customer has to contact many parties until they receive products into warehouse. Finally, they suppose to consider the 4PL as the ultimate solution to reduce tasks and efforts. The longer supply chain, the more complexity and tendency of problems.

The attitude toward benefits from using 4PL provider, he agrees with efficiency improvement as the first rank and cost as the second place. For the third rank, he agrees with administration and Point of Contact as the fourth rank.

Regarding to other benefits from using 4PL provider, he agrees with value added for customer's sustainable growth in business.

He agrees with another benefits from using 4PL provider that is quicker and higher return on investment because the higher productivity comes from the better use



of assets and resources utilization. Customers, especially, shareholders, should be satisfied with this point.

For attitude toward obstacles in using 4PL provider, he agrees with loss of control to an outside party as the first rank because it is the norm of Thai people that they are afraid in losing control and power. This must be changed. However, brand image (reputation) of provider itself, is very important to build trust and partnership. Nobody would like to rely on the others that they do not feel comfortable to deal with. 4PL providers or other advanced providers should have business principle and integrity to do long term business. Currently, there are many providers that always do over-promised to customers and destroy the entire business.

As the second rank, he agrees with losing touch with important information because business cannot happen without trust. Information is very critical in today business. The more information you have, the more chance to be successful or win others. Information leak is a huge concern for either customers or providers. The winner in this business will consider this issue seriously. This becomes strong selling point of some 4PL providers because they turn weakness into opportunity

As the third rank, he agrees with the lack of management confidence in an outside party to deliver the same high level services that company employees provide because customers, who are considering to apply 4PL or already applied 4PL, may think that their tasks or activities are very complicated. When they lose control to other parties, the quality of tasks might drop since outsiders do not understand very well in business or unexpected problems. 4PL needs to do the best homework to extract the real needs and problems in order to provide the best solution for customers. Then customers can focus their own core competency.

As the fourth rank, he agrees with organizations could fail in selecting and managing logistics providers probably because it might be very difficult to select the right partner, especially when customers have very limited knowledge, time and budget. Advanced logistics model like 4PL might be very new for customers. Customers might perceive that 4PL is too high qualification for them or too expensive to use. It is a heavy responsibility for 4PL providers to educate customers in Thailand.

For the fifth rank, he agrees with provider could be unable to respond to changing requirements because focusing on Thailand, there are many uncertainties in doing business like political risk, fluctuation of demand and unreliable laws and regulation. Manufacturers or customers have to adapt / respond quickly to the

changes. The complexity of activities, tasks and system may not allow 4PL providers to change as quick as customers need. The written service agreement may tight customer and provider up and not allow for changing without cost occurred. Customers may feel uncomfort that they will become disadvantage. The fair deal and partner relationship can solve this concern.

For the sixth rank, he agrees with providers could give unreliable promises to customer because over-promising or unreliable promises can happen in business world in order to close the deal quickly but for the leading and famous providers, reputation is very important than other things. Brand can be very valuable asset. We will not do such a thing. Customers themselves have to evaluate providers very carefully and make the smart choice.

For the seventh rank, he agrees with the difficulty of obtaining organizational support because 4PL is merely a tool for improving productivity and efficiency of organization. 4PL is a competitive advanatge of the organization. 4PL supposes to help company to solve all complexity and hanging issues. Modern organizations and successful companies suppose to strongly support using 4PL or other advanced logistics model.

The eighth rank, he agrees with difficulty of assessing the financial savings to be gained through outsourcing because this is very weak issue. Customers can see clearly that if they can generate money from higer productivity more than saving from outsourcing.

VI. Interviewee: Import Customs Operations Manager from leading logistics service provider in Thailand

The most important factor in selecting 4PL provider, he agrees with the need of supply chain integration, focusing on core competency as the first rank because currently customers are in tough economic time and cutthroat competition. Company need to focus only core competencies and activities like marketing strategy, production, and R&D. Therefore, they need to outsource logistics activities to other strategic partner who can help to maintain competitive advantages (Total cost reduction and highest utilization of resuorces) in market place.

As for the second rank in selecting 4PL provider, he agrees with Customers' supply chain demands exceeding its capability to deliver because customer

satisfaction becomes the most critical desire in today business. The way to satisfy their need within the budget or effective cost utilization, this important question seems to be solve by using 4PL.

As third rank in selecting 4PL provider in the most, he agrees with making better use of the capital dedicated to supply chain assets because smart investment and ability to utilize and allocate resources are considered as such important duty of succesful provider. Our customers can save a lot of money from smart investment in an effective logistics system which can generate return quicker and serve customers better than opponents.

As fourth rank in selecting 4PL provider, he agrees with using multiple 3PLs's in the same time because using multiple 3PL cause many management problems and time consuming when we need to contact or interface with those service providers. Each 3PL may have limited expertises and can allocate only certain resources to serve our needs. Moreover, it becomes very big burden and complexity for company to monitor and evaluate performances of each logistics provider. As a manager and resposible person, customers love to keep things simply but yet effectively, especially daily operation. Company try to find out ultimate solution but still maintain as low as cost possible. Most importantly, 4PL seems to create sense of business in strategic partner rather than 3PL. This feeling would be very important for us and counter-party since we need to share or reveal such an important information to another party.

As fifth rank in selecting 4PL provider, he agrees with lacking the technology capabilities to integrate across its supply chain processes because from the definition of 4PL, company can save a lot of time, money, manpower and other resources to invest in IT and other sophisticated system to perfrom the complex supply chain and logistics network. 4PL seems to be very short cut and strategic weapon for a company to acheive the ulitimate goal and stay many steps ahead competitors.

For the least importance of factors in selecting 4PL provider, he agrees with lacking the technology capabilities to integrate across your logistics services provider because for the decision makers, customers will potentially select only service provider who has good reputation and readiness. Customers will screen out those unprofessional service providers to save their time. They will not take any risks with those who are under perform or have unknown reputation.

As for the second rank in selecting 4PL provider, he agrees with struggling to manage increasing levels of supply chain complexity because successful companies will try to focus only core competency. Therefore, customers will leave those complicated activities to those expertise like service providers. The more simplicity, the more likely they will use the service. Smart customers will see clearly that they should spend their time to increase profitability rather than solving supply chain problems.

For third rank in selecting 4PL provider, he agrees with growing complexity of 3PL contracts because complexity of 3PL contracts may lead to disadvantage and becomes weakness of company itself instead of strength or competitive edge. Unclear contracts lead to lower service level which not worth to money and time spending. Conflict between service providers and customer is undesire situation for all concerned parties. This circumstance may be very good reason for 4PL to approach and be succesful in Thailand.

For fourth rank in selecting 4PL provider, he agrees with the availability of specialized companies in supply chain competencies because customers will feel comfortable if they have many choices to consider, compare and select. The number of 4PL providers in Thailand may be main concern of customers who need to be decision maker. The rare alternatives would lead to higher risk taken. Typically, customers will try to avoid uncertainty and high risk by selecting only big service provider or those who have brand reputation.

For fifth rank in selecting 4PL provider, he agrees with the economic downturn pressures because during economic downtrend and political unrest, most companies have to adapt themselves to survive. Cost reduction becomes general practice during bearish business environment. Therefore, it is very difficult to convince customers to invest or grow business during bad economic. As a provider, we need very robust reasons and realistic benefits to encourage customers to turn crisis into greates opportunities for them.

Considering to attitude toward benefits from using 4PL provider, he agrees with efficiency improvement as the first rank. For the second rank, he agrees with the cost. For the third rank, he agrees with administration and follows with the point of contact as last place.

He presented that customer satisfaction from improving productivity of company itself can consider as benefit in using 4PL services because more spare resources to serve and satisfy customers by using core competency. This would lead to higher profitability in return. He also present in higher security of information and trade secret since base on trust and business partner relationship, company more likely to secure trade secret because number of point of contacts are reduce significantly. It is also easier to audit and close information disclosure between 2 parties. It can solve very huge concern in Thai society about trustiness.

Regarding to attitude toward obstacles in using 4PL provider, he agrees with loss of control to an outside party as the first rank because people in organization may resist to any big changes, especially power and information. It may take times to implement the change. This is very big concern for top management and those decision makers.

The second rank, he agrees with losing touch with important information because not every company will believe in good governance and business ethics of other counter parties, even they are strategic partner. Trade secret is very important to a single company. In Thailand, we lack of laws and regulations to protect about intelligent assets and trade secret. This concern becomes very good excuse for customer to wait and see the success of 4PL in Thailand until they feel confidence.

The third rank, he agrees with the difficulty of obtaining organizational support because huge changes in organization and significant number of investment will force those decision makers to think more. However, it would be very important task for service providers to build trust and confidence.

The fourth rank, he agrees with organizations could fail in selecting and managing logistics providers probably because management style of customer and service provider may totally be different. Customers may spend less time to study about 4PL, competency and ability of provider, service levels or other specific requirements before making decision. Finally, they might select the wrong partner. It can happen if both parties do not trust each other and keep some important information that lead to failure in selecting process.

The fifth rank, he agrees with providers could give unreliable promises to customer because customers can evaluate and assess service providers to ensure that they are not making unreliable promises to them. Customers themselves have to think and study carefully before making decision. Moreover, good service providers will



try to keep their reputation in global. Hence they will give customers all related information to make decision and convince them to be strategic partner.

The sixth rank, he agrees with provider could be unable to respond to changing requirements because basically customer and service provider will perform according to service agreement. All other aspects or changing requirements can be added or written clearly in the agreement. All mature company should have no issue with these matters.

The seventh rank, he agrees with the lack of management confidence in an outside party to deliver the same high level services that company employees provide because outsourcing is not new for Thailand. Leading firms always consider outsourcing option if needed. It has no doubt if customer select the right partner, then they should achieve the goal.

The eighth rank, he agrees with difficulty of assessing the financial savings to be gained through outsourcing because there are many financial tools and models to evaluate project like IRR, NPV, ROA, ROI, etc. This item seems to be very weak obstacle.

VII. Conclusion

According to all depth interviews, the researcher can conclude that the most important factors in selecting 4PL provider, most of them think that *using multiple 3PLs's in the same time* is first place for selecting 4PL provider because they would like to focus in time- consuming and easiness of controlling over service providers. In regarding to their attitude toward major benefit expected from using 4PL provider, most of them agree that *efficiency improvement* is key expected benefit from using 4PL provider. Moreover, they also shared opinion that they can obtain low risk in information's disclosure due to centralized contact point which is very important in building business in Thailand. Their attitude toward obstacles in using 4PL provider is *loss of control to an outside party*. This can be used as guideline to service providers that the reputation or trustiness of company are critical things when dealing with their customer.

4.2 Questionnaire and Depth Interview Result Comparison

According to questionnaire and depth interview result, researcher can compare the result as following table.

Table: 4.14: Questionnaire and Depth Interview Result Comparison

Measure	Questionnaire Result	Depth Interview Result
Most important factor	The need of supply chain integration, focusing on core competency.	Using multiple 3PL in the same time.
Least important factor	Lacking the technology capabilities to integrate across its supply chain processes.	Lacking the technology capabilities to integrate across its supply chain processes.
Expected Benefit	Cost	Efficiency Improvement
Obstacle Identification	The lack of management confidence in an outside party to deliver the same high level services that company employees provide.	Loss of control to an outside party.