The Relationship of the Information Technology Applications, Strategic Partnerships, and Firm Performance in Logistics Industry in Taiwan

Yi-Horng Lai

Department of Health Care Administration

Oriental Institute of Technology

New Taipei City, Taiwan

e-mail: FL006 {at} mail.oit.edu.tw

Abstract—**With the big change of the commercial environment, Taiwanese logistics firms should application new information technology for benefits and improve the efficiency of logistics management. For improve the partnership and efficiency, Taiwanese logistics firms should pay attention to the compatibility information system and information sharing. This study focused on 206 logistics firm that included ocean shipping services, air cargo services, land transportation services, and integrated logistics services in Taiwan. The main research methodology in this study was second order confirmatory factor analysis with structural equation model for information technology applications, strategic partnerships, and firm performance. With the result, it could find that information technology applications in logistics industry in Taiwan is positive with firm performance, information technology applications in logistics industry in Taiwan is positive with strategic partnerships, and strategic partnerships is positive with firm performance. Taiwanese logistics firm should focus on information sharing and compatibility of information technology applications. Besides, value sharing and relationship continued ideal was helpful in improve strategic partnerships in Taiwanese logistics industry.**

Keywords- information technology applications, strategic partnerships, firm performance, second order confirmatory factor analysis

I. INTRODUCTION

With the big change of the commercial environment and the requests of customers, Taiwanese logistics firms should application new information technology for benefits and improve the efficiency of logistics management. For improve the partnership and efficiency, Taiwanese logistics firms should pay attention to the compatibility information system and information sharing. Logistics firm managers should establishment an integrated database for promote information sharing, and applicant new technology and standardized data for information exchange cross organization.

Many previous studies [1, 2, 3, 4] suggests that information technology applications has become a main driver of firm performance. Information technology applications could make the cost of firm minimize, and the profit of them maximum. But some researches indicated that information technology application was not necessarily related with higher profitability [3, 5]

More and more studies [6, 7, 8, 9] analysis data with second order confirmatory factor analysis these years. The methodology of second order confirmatory factor analysis could keep the models to a reasonable size an item parceling strategy was used. This also has the advantage of providing more reliable indicators than individual items and requiring the estimation of fewer parameters [9]. The main research methodology in this study was second order confirmatory factor analysis with structural equation model for information technology applications, strategic partnerships, and firm performance.

A. Information Technology Applications in Logistics Industry

Information technology applications usually contain the sharing of information on consumer demand, store and retailer warehouse inventory levels, and customer needs in logistics industry [10]. In order to gain supply chain efficiencies, companies need to exchange large amount of planning and operational data, ranging from information for annual contracts and periodic progress reporting to real-time delivery and invoicing data [11]. The information sharing and production plan information sharing is a two-way communication between the downstream and upstream organizations in logistics industry. The sales information and demand forecasting information flows from downstream companies to their upstream partners. The order status information is provided by upstream organizations to the downstream partners. Information technology applications also include performance criteria, such as production quality data and early completion data, and production capacities among the partners [12]. Demand information sharing by a downstream operator to the supplier is the basis of initiatives such as Quick Response (QR) and Efficient Consumer Response (ECR).

B. Information Technology Applications and Firm Performance

Information technology applications play an important role in the comprehensive growth and development world. It provides several advantages for industry such as rate of operation speed, stability and compatibility to create data, promoting efficiency on the organization and improving productivity and control internal processes [1]. Sanders and Premus point out that information technology application is valuable, and it is difficult to follow or transfer. Production cost and manufacture time could be reduced, and production quality and competitive advantage could be improved with the application of information technology [4]. Porter and Fuller [13] indicated information technology applications could make the cost of logistic firm minimize, the profit of them maximum, integrate the function in different area but unnecessary activities, and improve effective activities.

Gundaya, Ulusoya, Kilica, and Alpkanb's study [2] reveal the positive effects of innovations on firm performance in manufacturing industries. Bulchand-Gidumal, and Melián-González indicated information technology has an impact on organizational performance Spanish universities [14]. Li and Ye point out that information technology investment appears to have a stronger positive impact on financial performance when there are greater environmental changes [15]. Byrd and Davidson revealed a positive relationship between information technology applications impact and firm performance in 225 large for-profit US firms [16]. Information technology applications investment has a positive impact on firm performance in China [17].

Not the same as above studies, Hunga, Yenb, and Ou [5] focus on self-service technologies applications in bank industry, and they find no association between self-service technologies (such as ATMs) and growth performance. Koellinger found that the information technology application is not necessarily associated with higher profitability [3].

Based on these previous studies, the hypothesis 1 in this study was as:

H1.The Information technology applications in logistics industry in Taiwan is positive with firm performance.

C. Information Technology Applications and Strategic Partnerships

Whipple, Frankel, and Daugherty [18] emphasize that logistics firms could make more profit with information sharing with strategic partnerships with information system. Strategic partnerships would more close with communication with information system [19]. Neo point out that the development of new technological solutions often requires separate organizations cooperating in strategic partnerships [20]. Kim, Cavusgil, and Calantone [21] indicate that logistics firms should build information system with partners together could get more advances. Based on these previous studies, the hypothesis 2 in this study was as:

H2. Information technology applications in logistics industry in Taiwan is positive with strategic partnerships.

D. Strategic Partnerships and Firm Performance

Kim, Cavusgil, and Calantone [21] indicate that the strategic partnership is an important factor for promote business compatibility and improve firm performance. The value that information systems make based on the value-added that strategic partnerships make. Narasimhan and Nair [19] suppose the rising of communicate with strategic partnerships would improve the firm performance.

In the result of Lahiri and Kedia's study [22], resources and capabilities relate to performance in varying measures and partnership quality has partial-mediating on these relationships. Yeung, Lee, Yeung, and Cheng indicated that supplier partnership is positively and significantly related to operational cost performance. The relationship between supplier partnership and operational cost performance is strengthened by specific investments [23]. Based on these previous studies, the hypothesis 3 in this study was as:

H3. Strategic partnerships is positive with firm performance.

II. MATERIALS AND METHOD

This study focused on the effect of information technology applications on strategic partnerships and firm performance in logistics industry in Taiwan. The research framework was as Figure 1. Information technology applications factors included capability, compatibility, and information sharing. Strategic partnerships factors included trust, communicate, value sharing, and relationship continued. Firm performance included logistics performance and financial performance.
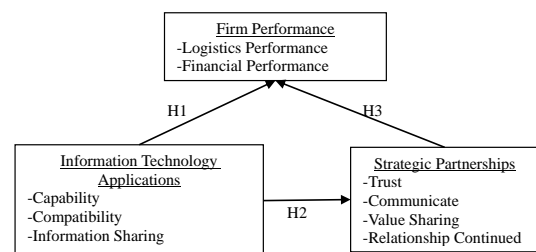

Figure 1.   Conceptual framework of this study.

There were three hypotheses in this study: H1. Information technology applications in logistics industry in Taiwan is positive with firm performance, H2. Information technology applications in logistics industry in Taiwan is positive with strategic partnerships, and H3. Strategic partnerships is positive with firm performance.

A. Research Data

The research data was obtained from Chen's study [24] in the Survey Research Data Archive (SRDA) provided by the Academia Sinica in Taiwan. Shang's study was finished in August 1, 2008.

This research focused on the logistics industry that included ocean shipping services, air cargo services, land transportation services, and integrated logistics services in Taiwan. The sampling methodology was stratified random sampling. The

object of the investigation included manager, general manager, and chairman. The sampling list included the members of Taiwan Association of Logistics Mangement, the Global Logistics Council of Taiwan, and International Ocean Freight Forwarders & Logistics Association (Taiwan). The questionnaire be send to 603 logistics firms that was include 452 ocean and air freight forwarders and 151 warehousing and transportations from February 1, 2007 to March 1, 2007, and there were 206 valid feedbacks.

B. Research Tools

The questionnaires in this study included information technology applications part, strategic partnerships part, and firm performance part.

1) Information Technology Applications

The object of this part was the evaluations of the capability, compatibility, and information sharing of these logistics firms' real-time and automation information system. The questionnaires of information technology applications (ITA) in this study were adopt the questionnaires in Zhao, Dröge, and Stank's study [25] (TABLE I). There 12 items that include 4 items for capability (CAP01, CAP02, CAP03, and CAP04 in TABLE 1), 4 items for compatibility (COM01, COM02, COM03, and COM04 in TABLE 1), and 4 items for information sharing (IFS01, IFS02, IFS03, and IFS04 in TABLE 1) with Likert seven-point scale. One-point to seven-point mean "not very agree" to "very agree".

TABLE I.   THE QUESTIONNAIRES FOR ITA

	Questionnaires
CAP01	Logistics information systems in my firm are being expanded to include more integrated applications.
CAP02	My firm's logistics information systems capture and maintain real time data.
CAP03	Logistics operating and planning data bases are integrated across applications within my firm.
CAP04	The information available in my firm is accurate, timely and formatted to facilitate use.
COM01	My firm has invested in technology designed to facilitate cross-organizational data exchange.
COM02	My firm has adequate ability to share both standardized and customized information internally.
COM03	My firm has adequate ability to share both standardized and customized information externally with suppliers and/ or customers.
COM04	My firm places employees at a business facility of suppliers and/ or customers to facilitate coordination.
IFS01	My firm effectively shares operational information between departments.
IFS02	My firm effectively shares operational information externally with selected suppliers and/or customers.
IFS03	My firm maintains an integrated database and access method to facilitate information sharing.
IFS04	My firm is willing to share strategic information with selected suppliers.

2) Strategic Partnerships

The object of this part was the evaluations of the trust, communication, value-sharing, relationship continued with other strategic partnerships. The questionnaires of strategic

partnerships (PTS) in this study (TABLE II) were adopt the questionnaires in Panayides and So's study [26] and Daugherty, Myers, and Richey's study [27]. The questionnaire of strategic partnerships in this study included four parts: trust (TRU01, TRU02, TRU03, and TRU04 in TABLE II), communicate (CMU01, CMU02, and CMU03 in TABLE II), value sharing (VAS01, VAS02, and VAS03 in TABLE II), and relationship continued (REAC01 and REC02 in TABLE II).

TABLE II.   THE QUESTIONNAIRES FOR PTS

	Questionnaires
TRU01	We trust each other.
TRU02	They are trustworthy on important things.
TRU03	According to our past business relationship my company thinks they are trustworthy persons.
TRU04	My company trusts them.
CMU01	We communicate and express out opinions to each other frequently.
CMU02	We can show our discontent towards each other through communication.
CMU03	We can communicate honestly.
VAS01	We share the same world view.
VAS02	We share the same opinion about most things.
VAS03	We share the same feelings towards things around us.
VAS04	We share the same values.
REC01	We focus on long-term goals in this relationship.
REC02	We expect this firm to be working with us for a long time.

3) Firm Performance

The object of this part was the evaluations of the logistics performance and financial performance. The questionnaires of firm performance (PFM) in this study (TABLE III) were adopt the questionnaires in Ellinger, Daugherty, and Keller's study [28] (LOP01, LOP02, LOP03, LOP04, LOP05, FIP01, and FIP02 in TABLE III) and Zhao, Dröge, and Stank (2001) (FIP03 in TABLE III). The questionnaires of firm performance in this study include two parts: logistics performance (LOP01, LOP02, LOP03, LOP04, and LOP05 in TABLE III) and financial performance (FIP01, FIP02, and FIP03 in TABLE III).

TABLE III.   THE QUESTIONNAIRES FOR PFM

	Questionnaires
LOP01	Meeting quoted or anticipated delivery dates on a consistent basis.
LOP02	Providing desired quantities on a consistent basis.
LOP03	Responding to the needs and wants of key customers.
LOP04	Notifying customers in advance of delivery delays or product shortages.
LOP05	Accommodating special customer service requests.
FIP01	Profitability.
FIP02	Sales growth.
FIP03	The ability to achieve the lowest total cost of logistics through efficient operations, technology, and/or scale economics.

The scale reliability, C.R., and AVE of the questionnaires in this study were as Table IV. The Cronbach's α of these 9 questionnaires were from .70 to .88, and it conform the recommend in Nunnally's study [29] that the scale reliability should larger than .60. The C.R. of these 9 questionnaires was

from .73 to .89, and it conform the recommend in Bagozzi and Yi's study [30] that the C.R. should larger than .60. Base on the result of confirmatory factor analysis, the reliability of these measurement model in this study were well in convergent validity.

TABLE IV. SCALE RELIABLITY, C.R. AND AVE OF MEASUREMENT MODELS

Scale	N	Mean	S.D.	Cronbach's α	C.R.	AVE
Capability	4	5.76	1.07	.88	.88	.64
Compatibility	4	5.59	1.20	.70	.73	.40
Information Sharing	4	5.66	1.09	.80	.81	.52
Trust	4	5.77	1.00	.88	.89	.67
Communicate	3	5.77	1.01	.83	.86	.67
Value Sharing	4	5.47	1.13	.86	.86	.60
Relationship Continued	2	6.02	.98	.73	.74	.59
Logistics Performance	5	5.82	1.09	.83	.85	.54
Financial Performance	3	5.48	1.30	.80	.81	.60

C. The Methodology of Data Analysis

The main data analysis methodology in this study was second-order confirmatory factor analysis (2nd CFA) with structural equation modeling (SEM) for these latent variables: capability (CAP), compatibility (COM), information sharing (IFS), trust (TRU), communicate (CMU), value sharing (VAS), relationship continued (REC), logistics performance (LOP), financial performance (FIP), information technology applications (ITA), strategic partnerships (PTS), and firm performance (PFM), and the SEM model was as Figure 2. The software for data analysis was Mplus 6.1.

D. Model Testing

The structural model was investigated using Mplus 6.1 with maximum likelihood. Path analysis was performed on the model using standardized maximum likelihood estimation. The path analytic method offers the advantage of testing the overall model fit with multiple endogenous variables as in the model as well as individual a priori hypotheses.

The correlation coefficient of capability (CAP), compatibility (COM), information sharing (IFS), trust (TRU), communicate (CMU), value sharing (VAS), relationship continued (REC), logistics performance (LOP), financial performance (FIP) were as Table V. It could be found that square of AVE were between .63 and .82. They are larger than most of other ration in the table. Base on the result, the measurement model were well in discriminant validity.
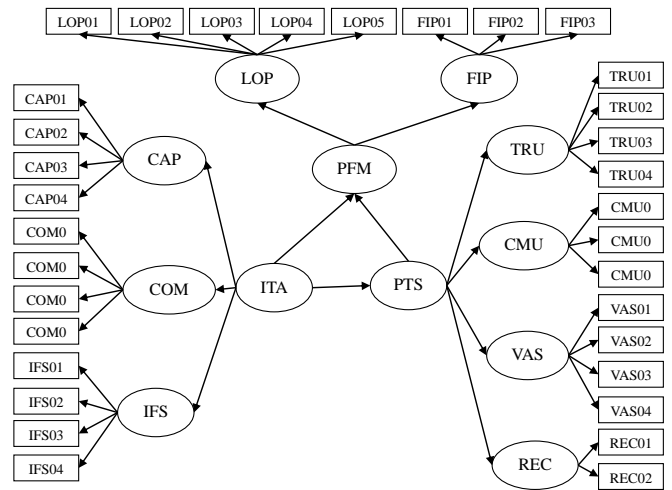

Figure 2. The SEM model of information technology applications, strategic partnerships, and firm performance.

TABLE V. RESULTS OF CORRELATION COEFFICIENT

	CAP	COM	IFS	TRU	CMU	VAS	REC	LOP	FIP
CAP	[.80]								
COM	.73*	[.63]							
IFS	.78*	.80*	[.72]						
TRU	.58*	.60*	.65*	[.82]					
CMU	.51*	.55*	.47*	.62*	[.82]				
VAS	.49*	.59*	.62*	.72*	.76*	[.78]			
REC	.18*	.37*	.40*	.66*	.52*	.65*	[.77]		
LOP	.48*	.53*	.64*	.64*	.38*	.54*	.56*	[.73]	
FIP	.35*	.32*	.49*	.45*	.23*	.26*	.21*	.57*	[.79]

*: P-value < .05
[ ]: square of AVE

III. RESULTS

A total of 206 logistics firm manager, general manager, and chairman's feedbacks were collected, and the data summarize was as TABLE VI. 88 firms provided ocean shipping services, 71 of them provided air cargo service, 109 of them provided land transportation services, and 77 of them provided integrated logistics services. Most of them had built 6 years to 10 years, with 51~100 employees, with the capital of 10,000,001~50,000,000.

A. The Results of Measurement Model

The main research methodology in this study was second order confirmatory factor analysis (CFA) with the method of maximum likelihood for capability (CAP), compatibility (COM), information sharing (IFS), trust (TRU), communicate (CMU), value sharing (VAS), relationship continued (REC), logistics performance (LOP), financial performance (FIP), information technology applications (ITA), strategic partnerships (PTS), and firm performance (PFM). The results of first order confirmatory factor analysis were as Table VII, Table IX, and Table XI. The results of second order confirmatory factor analysis were as Table VIII, Table X, and Table XII.

TABLE VI.   DATA SUMMARIZE

Variable		Frequency	Percent (%)
Ocean Shipping Services	Yes	88	42.72
	No	118	57.28
Air Cargo Services	Yes	71	34.47
	No	135	65.53
Land Transportation Services	Yes	109	52.91
	No	97	47.09
Integrated Logistics Services	Yes	77	37.38
	No	129	62.62
Established (Years)	~ 5	19	9.22
	6~10	49	23.79
	11~15	47	22.82
	16~20	40	19.42
	21~30	35	16.99
	31~	16	7.77
Number of Employees	~25	14	6.80
	26~ 50	41	19.90
	51~100	58	28.16
	101~200	43	20.87
	201~500	27	13.11
	501~	23	11.17
Capital	~5,000,000	8	3.88
	5,000,001~ 10,000,000	28	13.59
	10,000,001~ 50,000,000	70	33.98
	50,000,001~ 100,000,000	58	28.16
	100,000,001~	42	20.39
Total		206	100.00

Latent variable of information technology applications include three first confirmatory factors: capability (CAP), compatibility (COM), and information sharing (IFS). Capability factor based on 4 indicators, compatibility factor based on 4 indicators, and information sharing factor based on 4 indicators. The result of the confirmatory factor analysis of these first order confirmatory factors (1st CFA) was as Table 7. The relationship of first order factors (CAP, COM, and IFS) and indicators were positive.

TABLE VII.   THE RESULT OF 1ST CFA OF CAP, COM, AND IFS

	Estimate	S.E.	Est./S.E.
CAP→CAP01	.85*	.03	33.81
CAP→CAP02	.83*	.03	30.28
CAP→CAP03	.77*	.03	23.26
CAP→CAP04	.77*	.03	22.63
COM→COM01	.65*	.05	13.82
COM→COM02	.67*	.04	15.12
COM→COM03	.67*	.04	15.85
COM→COM04	.54*	.05	10.53
IFS→IFS01	.73*	.04	20.11
IFS→IFS02	.70*	.04	17.39
IFS→IFS03	.81*	.03	27.36
IFS→IFS04	.66*	.04	15.02

*: P-Value<.05

The result of the second order confirmatory factor analysis (2nd CFA) of information technology applications was as Table VII. Capability (CAP), compatibility (COM), and information sharing (IFS) were positive with information technology applications (ITA). The orders of the relationship with information technology applications were information sharing, compatibility, and capability.

The result of the second order confirmatory factor analysis (2nd CFA) of information technology applications was as Table VIII. Capability (CAP), compatibility (COM), and information sharing (IFS) were positive with information technology applications (ITA). The orders of the relationship with information technology applications were information sharing, compatibility, and capability.

TABLE VIII.   THE RESULT OF 2ND CFA OF ITA

	Estimate	S.E.	Est./S.E.
ITA→CAP	.87*	.03	31.37
ITA→COM	1.02*	.03	37.04
ITA→IFS	1.03*	.02	51.21

*: P-Value<.05

Latent variable of strategic partnerships include three first confirmatory factors: trust factor (TRU), communicate factor (CMU), value sharing factor (VAS), and relationship continued factor (REC). Trust factor based on 4 indicators, communicate factor based on 3 indicators, value sharing factor based on 4 indicators, and relationship continued factor based on 2 indicators. The result of the confirmatory factor analysis of these first order confirmatory factors was as TABLE IX. The relationship of first order factors (TRU, CMU, VAS, and REC) and indicators were positive.

TABLE IX.   THE RESULT OF 1ST CFA OF TRU, CMU, VAS, AND REC

	Estimate	S.E.	Est./S.E.
TRU→TRU01	.60*	.05	12.77
TRU→TRU02	.96*	.01	101.47
TRU→TRU03	.96*	.01	103.68
TRU→TRU04	.69*	.04	18.37
CMU→CMU01	.83*	.03	29.65
CMU→CMU02	.91*	.02	37.14
CMU→CMU03	.71*	.04	17.26
VAS→VAS01	.85*	.02	35.14
VAS→VAS02	.78*	.03	23.37
VAS→VAS03	.77*	.04	21.83
VAS→VAS04	.70*	.04	17.42
REC→REC01	.77*	.05	16.16
REC→REC02	.77*	.05	16.19

*: P-Value<.05

TABLE X.   THE RESULT OF 2ND CFA OF PTS

	Estimate	S.E.	Est./S.E.
PTS→TRU	.81*	.05	17.55
PTS→CMU	.77*	.06	13.86
PTS→VAS	.97*	.03	30.79
PTS→REC	.86*	.04	19.75

*: P-Value<.05

The result of the second order confirmatory factor analysis (2nd CFA) of strategic partnerships was as Table X. Trust factor (TRU), communicate factor (CMU), value sharing factor (VAS), and relationship continued factor (REC) were positive with strategic partnerships (PTS). The orders of the relationship

with strategic partnerships were value sharing, relationship continued, trust, and communicate.

Latent variable of firm performance included logistics performance (LOP) and financial performance (FIP). Logistics performance factor based on 5 indicators, and financial performance based on 3 indicators. The result of the confirmatory factor analysis of these first order confirmatory factors was as TABLE XI. The relationship of first order factors (LOP and FIP) and indicators were positive.

TABLE XI.   THE RESULT OF 1ST LOP AND FIP

	Estimate	S.E.	Est./S.E.
LOP→LOP01	.86*	.02	37.81
LOP→LOP02	.93*	.02	55.19
LOP→LOP03	.64*	.05	14.32
LOP→LOP04	.70*	.04	17.62
LOP→LOP05	.44*	.06	7.29
FIP→FIP01	.62*	.05	12.79
FIP→FIP02	.77*	.04	19.38
FIP→FIP03	.91*	.03	29.47

*: P-Value<.05

The result of the second order confirmatory factor analysis (2nd CFA) of firm performance was as Table XII. Logistics performance (LOP) and financial performance (FIP) were positive with logistics performance (LOP). The orders of the relationship with firm performance were logistics performance and financial performance.

TABLE XII.   THE RESULT OF 2ND CFA OF PFS

	Estimate	S.E.	Est./S.E.
PFS→LOP	1.06*	.06	18.63
PFS→FIP	.67*	.06	11.34

*: P-Value<.05

B.   The Results of Structural Model

The result of structural model was as TABLE XIII. The likelihood ratio chi-square test assesses the overall model fit. Chi-square per degree of freedom (CMIN/DF), the relative Chi-square, was 7.22 (3486.42/483). Root mean square error of approximation (RMSEA) was .17. CFI was .57. TL was .53. Standardized Root Mean Square Residual (SRMR) was .13.

TABLE XIII.   THE RESULT OF THE STRUCTURAL MODEL IN THIS STUDY

		Estimate	S.E.	Est./S.E.	R-Square
H1	ITA→PTS	.42*	.12	3.59	.53
H2	ITA→PFS	.73*	.04	16.92	.46
H3	PTS→PFS	.32*	.12	2.69	

*: P-Value<.05

With the result, it could find that information technology applications in logistics industry in Taiwan is positive with firm performance, information technology applications in logistics industry in Taiwan is positive with strategic partnerships, and strategic partnerships is positive with firm performance.

IV.   DISCUSSION AND CONCLUSION

A.   Discussion

Based on previous studies, this studies focus on these logistics firms in Taiwan for proof the relationship of the information technology applications, strategic partnerships, and firm performance. With the result of the study, most of the hypotheses were significance.

With the result of the study, the information technology application in logistics industry in Taiwan is positive with firm performance. It was the same as Mohammad, Hamid, and Seyed [1], Gundaya, Ulusoya, Kilica, and Alpkanb [2], Koellinger [3], and Sanders and Premus [4], Porter and Fuller's [13] studies, and different from the result of Hunga, Yenb, and Ou [5], and Koellinger's [3] study. The same as the result of Porter and Fuller's [13] study, information technology applications could reduce the cost and increase the profit. Sanders and Premus [4] indicate that production cost and manufacture time could be reduced, production quality and competitive advantage could be improved with information technology application.

With the result of the study, the information technology application in logistics industry in Taiwan is positive with strategic partnerships. This result was the same as Kim, Cavusgil, and Calantone [21], Panayides and So [26], Narasimhan and Nair [19], Whipple, Frankel, and Daugherty (2002), and Neo's (1994) study. Narasimhan and Nair [19] indicate that strategic partnerships would more close with communication with information technology application.

With the result of the study, the strategic partnership is positive with firm performance. The result of this study was the same as Yeung, Lee, Yeung, and Cheng [23], Lahiri and Kedia's study [22], Kim, Cavusgil, and Calantone [21], and Narasimhan and Nair [19]. Narasimhan and Nair [19] suppose the rising of communicate with strategic partnerships would improve the firm performance.

B.   Conclusion

The purpose of this study was the proof of the important of information technology applications, and the help of information technology applications for improve strategic partnerships, and firm performance. This study supposed the relationship of information technology applications, strategic partnerships, and firm performance with second order confirmatory factor analysis by structural equation model. With the result, it could find that the information technology application in logistics industry in Taiwan is positive with firm performance and strategic partnerships, and the strategic partnerships were positive with firm performance. Logistics industry is in a competitive environment in Taiwan. The trade of Taiwanese logistics industry was integrating logistics management with new information technology for risk sharing and benefits sharing. Taiwanese logistics firm could get more profit with information technology applications and improve strategic partnerships.

Based on the result, Taiwanese logistics firm should focus on information sharing and compatibility of information technology applications. Besides, value sharing and relationship continued ideal was helpful in improve strategic partnerships in Taiwanese logistics industry.

C. Management Implication

For the big change of the business environment and the needs of customers, Taiwanese logistics firms could create benefits and improve efficiency for logistics management with new information technology applications. For improve the partnership and efficiency, Taiwanese logistics firms should pay attention to the compatibility information system and information sharing. Logistics firm managers should establishment an integrated database for promote information sharing, and applicant new technology and standardized data for information exchange cross organization.

After all, logistics service providers should pay attention to the development of an integrated database with new information technology for real-time response and useful information for quotation and cargo tracking for customers. How to share and application information with strategic partnerships was also very important for logistics service providers in Taiwan.

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