行政院國家科學委員會專題研究計畫 成果報告

線上購物店配取貨物流系統之脆弱度評估
研究成果報告(精簡版)

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行政院國家科學委員會補助專題研究計畫 ■ 成 果 報 告 □期中進度報告

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共同主持人：
計畫參與人員：鐘文伶、徐嘉陽

成果報告類型(依經費核定清單規定繳交)：■精簡報告　□完整報告

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中　華　民　國　100 年　10　月　8　日

中文摘要

便利商店在台灣分佈密集，並提供顧客24小時全年無休的購物環境。發展至今，利用便利商店的物流系統所提供的線上購物、24小時超商取貨已形成台灣一個新的供應鏈模模型。供應鏈管理（Supply Chain Management, SCM）雖被廣泛的研究討論並且應用在實務上，然而，有關整合供應鏈有關的研究領域卻甚少提到台灣線上購物、超商取貨的物流架構。在電子商務的物流相關研究領域中，如何利用便利商店的物流優勢來提升電子商務的物流配送服務品質一直是極具挑戰性的課題之一。鑑於以往對於電子商務的物流研究較少針對線上購物、24小時超商取貨的物流系統進行深入分析，基此，本研究將引進物流脆弱度、回復力等概念，利用模糊認知圖（Fuzzy Cognitive Map, FCM）來建構影響研究線上購物、超商取貨的整合物流供應鏈架構。首先，本研究討論有線上購物、24超商取貨的整合性供應鏈之物流架構，接著建構該物流系統的關聯模式圖並利用模糊認知圖的來模擬運算此關聯模式。本研究的成果將有助於釐清物流系統中有關脆弱度、回復力的課題，並可協助線上購物、24小時超商取貨供應鏈中各成員制訂相對應的營運策略。

關鍵字：脆弱度、恢復力、供應鏈管理、模糊認知圖

英文摘要

In Taiwan, convenience stores, which are widely distributed, provide a 24-hour even on holidays purchasing environment for customers, there are many people who became familiar with the idea of a main delivery service for online shopping. Up to date, the convenience stores have integrated e-retailing with logistics system to form a new supply chain model. The supply chain management (SCM) has been widely studied in the academic as well as practical fields. However, there are fewer studies about the performance of magazine dealer. This paper is concerned with proposing a fuzzy cognitive map (FCM) driven approach for implementing expert decision support in the area of online bookstore delivery system performance. A Fuzzy cognitive map is a cognitive map within which the relations between the elements (e.g. vulnerability, resilience) of a mental landscape can be used to compute the strength of impact of these elements. In this research, we propose a specific algorithms for interpreting the logic-based rules to FCMs as well as specific algorithms and formulas for calculating the values of multi-branch map hierarchies. First, the study discusses the relationship of online shopping and pick-up good in 18 hours logistics system, vulnerability and resilience. Then construct the system relationship model. Second, we use Fuzzy Cognitive Maps to simulate the system relationship model. Finally, this paper presents preliminary experiments and comments on the usefulness of the proposed methodology tool. The results obtained in this study can be used to improve the service quality for online bookstore and evaluate the management strategies.

Keywords: Vulnerability, Resilience, Supply Chain Management, Fuzzy Cognitive Maps

報告內容

（本計畫部分結果發表在 Advanced Science Letters, SCI，已接受）

Vulnerability Analysis of 18-hour Retail Delivery Service Using by Bayesian Network

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With the growth in electronic commerce, ordering books on the Internet is clearly becoming a significant market. Hence, logistics management exposes the formerly latent logistics system in the economic activities and reveals the inner connections between parts of logistics activities. The retail delivery system in Taiwan provides an easy on-line shopping process, safe payment method and quick delivery service for e-retailing. The main purpose of this study is to examine the retailing delivery service process of KingStone on-line book store and highlight all of the most vulnerable parts of the system through Bayesian network (BN). The Bayesian network analysis provides preliminary insights into the direction of relationship management toward maximizing effectiveness of retail delivery service.

1. INTRODUCTION*

With the growth in electronic commerce, there are more and more consumers ordering books from on-line bookstores in Taiwan. Because of the convenient online order process and low price service, ordering books on the Internet is clearly becoming a significant market. Retail delivery of e-commerce in Taiwan is about eight years old, and the e-commerce RD model is mainly employed by providers. Providers have had to improve information flow both internally and externally, and integrate their logistics services into the retail delivery service provided by convenience stores. This refers to customers shopping in an online store and then picking up the purchased goods in a convenience store. The difference between e-commerce development in Taiwan and in other countries is that there is a new logistics service called retail delivery. Taiwan has a high density of convenience stores. It is easy to find convenience stores in Taiwan. Also, most of stores in Taiwan provide 24-hours service.

One of the major on-line bookstores in Taiwan, KingStone on-line bookstore, cooperates with retail delivery (RD) providers to provide customers the 18-hour delivery service. It means books will arrive after pick-up point in 18 hours after ordering. Because RD provides an easy on-line shopping process, safe payment method, quick delivery service and self pick-up approach, RD becomes the major logistics model for on-line bookstores in Taiwan which is shopping on the Internet and picking-up at convenience store.

Vulnerability is a new concept in risk management. Because of recent increases in the frequency of hazards and catastrophes, risk management has been discussed in many different fields. The influence of systems on risk consequences has been assessed in studies on climate change and natural hazards, and is characterized by the notion of vulnerability. The definition of vulnerability varies depending on the field of study. In recent years, a growing number of studies in different fields have examined this issue, particularly because of the recent series of catastrophes and hazards that impacted global economy causing large losses. However, there are few papers focused on the concept of vulnerability in retailing logistics system with e-commerce. To analyze interrelationships among the factors of vulnerability about retail delivery service, this study examine all of the retailing delivery process used by KingStone on-line book store and highlight all of the most vulnerable parts of the system through Bayesian network.

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2. VULNERABILITY OF 18-HOUR RETAIL DELIVERY PROCESS

In Taiwan, there are many convenience stores, and the retailing delivery (RD) services form a new retail delivery model: “Shopping on the Internet and picking up the merchandise at convenience stores.” The retailing delivery services have made remarkable successes. The procedure that combines on-line bookstores with RD system is illustrated below (see Fig. 1): (1). On-line shopping and select the pick-up point: After making an on-line purchase, customers must choose a pick-up point through e-map to receive their orders; (2). Packing and delivery process: First, after the KingStone confirms the orders, it turns over the order information to delivery center (DC), and DC should help finish the packing process and transport the orders to the delivery centre for the convenience store which had chosen. Second, the DC will collect the orders and transport them to different convenience stores, which are the pick-up points, and then it will report the finished order information to the on-line bookstore; (3). Pick-up goods: According to the information replied from delivery centre, KingStone will notify the customer by e-mail or cell phone message to pick-up their orders. KingStone on-line bookstore promises customers that books will arrive in pick-up point in 18 hours after ordering. That is, receivers might wait more days to get their goods after they click the “purchase” button on the website.

There are several strengths to retail delivery. First, in contrast to home delivery, people using retail delivery do not need to wait for their products at home, and thus have more flexibility to select the time and store that are most convenient. Second, people can pay their bill after picking up their product in the store if they are worried about the credit card safety. Third, online stores can lower costs

through retail delivery. However, various risks exist when products are delivered. The KingStone.com promises customers that products will arrive 18 hours after the sender sends the product. Maintaining efficiency and security during such a short time is not that easy.

The concept of vulnerability was still vague in 1990. In general, vulnerability was considered to be the context of risk. It is the adverse reaction that occurs when something is exposed to a hazard or harmful situation. After 1990 definitions of vulnerability became more and more detailed because of increases in the number disasters around the world. It has been discussed not only regarding environmental issues, but also social and individual issues. Vulnerability is a multidimensional concept. The characteristic of the system constitutes the degree of vulnerability. Supply chain vulnerability is a conceptual framework of supply chain risk management (SCRM). The influence of systems on risk consequences has been assessed in studies of climate change, natural hazard and is characterized by the notion vulnerability.[1-2] Vulnerability represents the system sensitivity to external or internal disruptive events which remove the system from its standard working conditions. [3] Supply chain disruptions can have great impact on corporate financial performance, so it is widely accepted that SCRM is necessary in today's business. [4] Supply chain is exposed not only to the risks that come from external environment but also the risks caused by suboptimal interaction between the organizations within the network. The susceptibility of the supply chain to the harm of this situation seems significantly relevant. This leads to the concept of supply chain vulnerability.[5] Even though there are different approaches to the construct supply chain vulnerability, Peck still appraises its conceptual basis as immature.[6] Svensson distinguishes between atomistic vulnerability (of a part of the supply chain) and holistic vulnerability.[7] Barnes and Oloruntoba describe vulnerability as "a susceptibility or predisposition to loss because of existing organizational or functional practices or conditions" in their study in maritime supply chain. [8] Wagner and Bode interpret further that supply chain characteristics are antecedents of supply chain vulnerability and have impact on both the probability of occurrence as well as the severity of supply chain disruptions. [9] We define the delivery vulnerability that "the properties of the delivery system construct the sensitivity of it. The sensitivity and loss of it when product delivering suffers from risks is considered as delivery system vulnerability. "

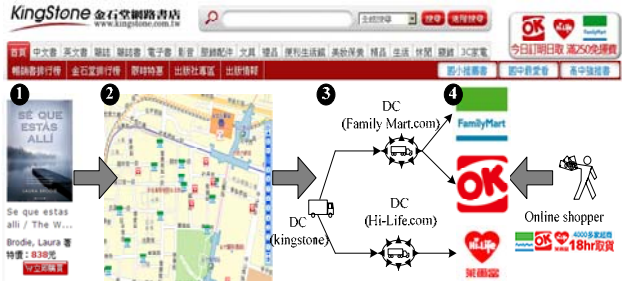

Fig. 1 Concept of retail delivery service of KingStone.com

3. METHODOLOGY

A Bayesian Network (BN) is a probability-based knowledge representation method, which is appropriate for the modeling of causal processes with uncertainty. It is based on the Baye' theorem and can be used to denote causal inference. [10] A BN is a directed acyclic graph (DAG) whose nodes represent random variables and whose links define probabilistic dependencies between variables (see Fig.2). The nodes with arrows directed into them are called "child" nodes; and the nodes from which the edges depart are called "parent" nodes; and nodes without arrows directed into them are called "root" nodes.

The DAG represents the structure of causal dependence between nodes and shows the qualitative part of causal reasoning in a BN. Thus, the relations between variables and the corresponding states provide the quantitative part, which consists of a conditional probability table (CPT). [11] Diagnosis or prediction using BN is composed of fixing the values of the observed variables and computing the posterior probabilities of some of the unobserved variables. [12]

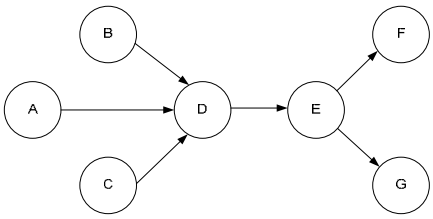

Fig. 2 BN framework

There are three types of connections between variables (serial connections, diverging connections and converging connections), which facilitate the ability to infer and learn in BNs, and comprise DAGs. Many learning techniques rely heavily on data. A BN, which is a knowledge representation, can provide new knowledge by combining expert domain knowledge with statistical data. The chain rule says that a BN is a representation of the joint distribution over all the variables represented in the DAG. Marginal and conditional probabilities can be computed for each node in the network. Let BN be a Bayesian network over $U=\{X_1, X_2, ..., X_n\}$. BN specifies a unique joint probability distribution given by the product of all conditional probability tables specified in BN:

$$P(U) = \prod_{i=1}^{n} P(X_i \mid Pa(X_i)) \quad (1)$$

where $Pa(X_i)$ are the parents of X_i in BN, and $P(U)$ reflects the properties of BN. Therefore, various marginal and conditional probabilities can be computed given an evidence e, as the following shows. The evidence is information received from external sources about the possible states of a subset of the variables of the network.

$$P(X_1, X_2, ..., X_n \mid e) = \frac{P(X_1, X_2, ..., X_n, e)}{P(e)} \quad (2)$$

There are two kinds of evidence. One is called hard evidence. Hard evidence is an exact observation of the state of the variables. The

other is called soft evidence. Soft evidence occurs when non-definite information is given, expressed in terms of likelihood of the states of the variable. In other words, a probabilistic inference is given that is capable of updating our belief about events given observations. It is then possible to perform a sensitivity analysis of probabilities given different subsets of evidences. A probabilistic inference is given that is capable to updating our belief about events given observations, and then it is possible to perform a sensitivity analysis of probabilities given different subsets of evidences.

4. ANALYSIS RESULTS AND DISCUSSION

We interview with experts to understand the whole 18-hour delivery service system well and then build the BN framework. Because BN modeling is too complicated and the prior probabilities are hard to be obtained from experts and input manually, the prior failure probabilities of root nodes are collected from experts (Tab. 1 and Fig. 3), and our study uses expression function to generate conditional probability table. There are two ways to measure the vulnerability of RD system. First, we implemented predictive analysis. This was measured by means of the difference in conditional probability of failure occurrence of the marginal probability that delay situation (A_1) when different states are given. Second, we conducted a diagnostic analysis. We computed the result of each root node when the different states of A_1 are instantiated. Finally, we examine the most vulnerable parts in the system.

Table 1. Prior failure probability of root nodes

Node	Description	Prob.
E_1	E-map information is not updated	0.48%
E_2	Personnel operational errors	0.24%
E_3	Time difference about batches issue	0.19%
E_4	Arrival notice is sent in advance	0.29%
E_5	Unusual errors during delivery	0.45%
E_6	No goods information	0.16%
E_7	Problems with system scheduling	0.19%
E_8	Unusual information system error	0.17%
E_9	No barcode label	0.51%
E_{10}	Defaced or unclear barcode	0.82%
E_{11}	Articles have the same barcode info.	0.12%
E_{12}	Problems from shift changes (DC)	0.79%
E_{13}	Wrong labels attached to goods	0.39%
E_{14}	Goods sent to the wrong store	0.55%
E_{15}	Goods sorted to the wrong container	0.61%
E_{16}	Couriers errors	0.15%
E_{17}	Sorter errors	0.21%
E_{18}	Clerk errors	0.55%
E_{19}	CS is temporarily closed	0.17%
E_{20}	Problems from shift changes	1.00%
E_{21}	Barcode not scanned on arrival	0.28%

Table 2 illustrated the results of Bayesian network analysis, the marginal probability that goods delay arriving A1 occurs is 4.829%. It is slight underestimate, but quite similar to the real data, which was 5.94%, the average rate from October to December, 2010. There may be a bias in the short-term data collected. In addition, the probabilities given by experts' were based on their long-term experience, so it is more stable and close to a normal situation compared to the real data. Therefore, we considered it to be a valid result and did an analysis using this framework.

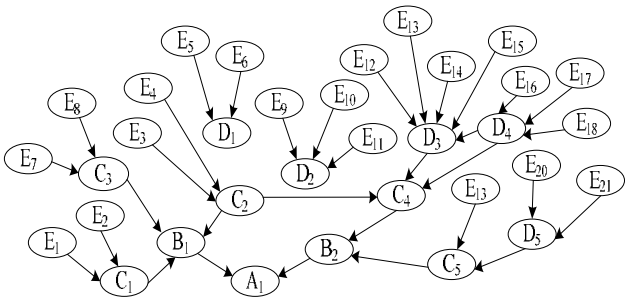

Fig. 3 BN framework

A predictive analysis was conducted on the basis of the prior probabilities of the root nodes and the conditional dependency of each node. In order to discuss the relationships between the root nodes (E_i) and *A1*, P (A_1 = *True* | *Ei*= *True*) and P (A_1= *True* | E_i= *False*) were calculated. "*Ture*" state is represented as failure occurrence and "*False*" state means no failure occurrence. Our study attempts to figure out the relationship between the failure probability of E_i and the result of Table 3. It is pointed out that problems from shift changes (E_{20}), e-map information is not updated in time (E_1) are considered as potential vulnerable parts because they have higher failure probabilities, and also have higher conditional probabilities variations than average when the state of E_i changes from "*False*" to "*True*". On the other hand, CVS is temporarily closed (E_{19}), problems with system scheduling (E_7), unusual information system error or breakdown (E_8), technical personnel operational errors (E_2), barcode not scanned on arrival (E_{21}), arrival notice is sent in advance (E_4) may be more vulnerable than the other ones.

Table 2. The result of BN

Description	Prob.
A_1: Goods delay arriving	4.83%
B_1: Information failures	1.79%
B_2: Physical logistics failures	3.73%
C_1: E-map is not updated	2.35%
C_2: Information is asymmetric	1.03%
C_3: Buyers not receive arrival notices	2.17%
C_4: Errors from fleets or DC	0.37%
C_5: Errors from the selected CS	3.65%
D_1: Asymmetric information occurred	2.17%
D_2: Errors from barcodes	0.81%
D_3: Redeliver goods	0.16%
D_4: Lost goods	0.64%
D_5: Goods can't be found in the CS	2.81%

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It can be found that all root nodes are potential vulnerable parts. They should be kept at low conditional probabilities if we do not want A_1 to occur and also small change in their conditional probabilities of failure occurrence will cause A1 occurrence. Combining the results of two analyses, shift changes, e-map information is not updated in time are regarded as the most vulnerable parts with higher failure probabilities. They all have higher failure probabilities and contribute to a higher conditional probability of failure occurrence of A_1. Additionally, just small change in their conditional probabilities of failure occurrence, given the evidence of A_1, will lead to an occurrence of A_1.

Table 3. Result of probabilistic inference

Predictive analysis			
P (E_i=True | A_1=True)		P (E_i=True | A_1=False)	
E_1:0.104	E_{12}:0.051	E_1:0.048	E_{12}:0.049
E_2:0.085	E_{13}:0.049	E_2:0.049	E_{13}:0.049
E_3:0.068	E_{14}:0.050	E_3:0.049	E_{14}:0.049
E_4:0.077	E_{15}:0.051	E_4:0.049	E_{15}:0.049
E_5:0.053	E_{16}:0.055	E_5:0.049	E_{16}:0.049
E_6:0.053	E_{17}:0.053	E_6:0.049	E_{17}:0.049
E_7:0.110	E_{18}:0.055	E_7:0.049	E_{18}:0.049
E_8:0.100	E_{19}:0.137	E_8:0.049	E_{19}:0.048
E_9:0.055	E_{20}:0.125	E_9:0.049	E_{20}:0.048
E_{10}:0.056	E_{21}:0.084	E_{10}:0.049	E_{21}:0.049
E_{11}:0.054		E_{11}:0.049	
Diagnostic analysis			
P (E_i=True | A_1=True)		P (E_i=True | A_1=False)	
E_1:0.010	E_{12}:0.008	E_1:0.005	E_{12}:0.008
E_2:0.004	E_{13}:0.004	E_2:0.002	E_{13}:0.004
E_3:0.004	E_{14}:0.006	E_3:0.002	E_{14}:0.006
E_4:0.005	E_{15}:0.006	E_4:0.003	E_{15}:0.006
E_5:0.005	E_{16}:0.002	E_5:0.005	E_{16}:0.002
E_6:0.002	E_{17}:0.002	E_6:0.002	E_{17}:0.002
E_7:0.004	E_{18}:0.006	E_7:0.002	E_{18}:0.006
E_8:0.004	E_{19}:0.005	E_8:0.002	E_{19}:0.002
E_9:0.006	E_{20}:0.024	E_9:0.005	E_{20}:0.009
E_9:0.001	E_{21}:0.005	E_{10}:0.001	E_{21}:0.003
E_{10}:0.01		E_{11}:0.008	

The root nodes that have lower failure probabilities are worth mentioning. CVS is temporarily closed, problems with system scheduling, unusual information system error or breakdown, technical personnel operational errors, barcode not scanned on arrival, arrival notice is sent in advance are the most vulnerable parts with lower probabilities. Although these events do not happen easily, they all greatly increase the conditional probability of A_1 occurrence and even more than those that have higher failure probabilities. In addition, only a small change in their conditional probabilities of failure occurrence gives evidence that A_1 will occur.

5. CONCLUSIONS

Supply chain vulnerability is a new concept in risk management. In recent years, a growing number of studies in different fields have examined this issue, particularly because of the recent series of catastrophes and hazards that impacted global economy causing large losses. Supply chain risk management is no exception. Although a substantial number of studies in supply chain vulnerability have been performed to date, most of them employed qualitative analysis. In addition, relatively little research has been conducted on a specific system or company. Retailing delivery is the main logistics model for on-line bookstores in Taiwan. The study is aimed at discussing the vulnerability of the KingStone.com's 18-hour retailing delivery process, which is part of a supply chain. To do this, BN is used to conduct this research. Through predictive and diagnostic analyses, the most vulnerable parts can be classified into two categories, those which have higher failure probabilities and which have lower failure probabilities. For the former ones, KingStone's managers should pay more attention to improving staff's skills and implementing standard operation process intensively to reduce their failure probabilities. For the later ones, managers should allocate more resources to maintaining the reliability and stability of information systems. Besides, they should keep updating information of situation of convenience stores and goods as well. For further research, our study suggests that analyst should try to accumulate statistical data to evaluate the BN in order to achieve more objective results. In addition, BN allows events to include multiple states. Considering multiple states can increase the depth of the study. The conclusions obtained in this study can be used to improve the retailing delivery logistics service quality for on-line bookstores. Although the BN is a useful tool for vulnerability analysis, but we think the BN in this study has been improve as the retailing delivery process change. For future research, it is recommended to explore the vulnerability and resilience issue of the retailing delivery service system.

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國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

■達成目標

□ 未達成目標（請說明，以 100 字為限）

□ 實驗失敗

□ 因故實驗中斷

□ 其他原因

說明：

本計畫在於探討線上購物店配取貨物流系統之脆弱度評估，原本申請三年期計畫，承蒙國科會鼓勵獲得一年的研究補助，本計畫將三年期的研究內容選擇較為重要的部分進行探討，其成果發表在一篇國際期刊（SCI，已接受），一篇則是發表在國際學術研討會上。

2. 研究成果在學術期刊發表或申請專利等情形：

論文：■已發表 □未發表之文稿 □撰寫中 □無

專利：□已獲得 □申請中 □無

技轉：□已技轉 □洽談中 □無

其他：（以 100 字為限）

期刊(SCI，已接受)

Vulnerability Analysis of 18-hour Retail Delivery Service Using by Bayesian Network, *Advance Science Letters*

期刊 (SSCI，審稿中)

The analysis of vulnerability in ezship delivery process, *The Service Industries Journal*

期刊 (TSSCI，審稿中)

影響電子商務 18 小時店配物流服務脆弱度因素之分析, *運輸學刊*

研討會（已發表）

The Analysis of Vulnerability in ezShip Distribution Process, *The 6th International Congress on Logistics and SCM Systems (ICLS 2011)*

其他

本計畫部分研究結果為交通大學交通運輸研究所碩士生鐘文伶的碩士論文，該碩士論文獲得中華民國管理科學學會舉辦之第九屆「供應鏈管理論文獎」優勝。

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）（以500 字為限）

本計畫以網路書店在 18 小時超商配送系統為研究對象，對於此類型的電子商務環境下進行相關後勤端物流配送之供應鏈活動與作業之分析；應用的研究方法將引進物流脆弱度的概念建構模糊認知圖與貝氏網路等數學模型。本計畫之研究成果包括一篇國際研討會、SCI 國際期刊一篇（已接受）、SSCI 國際期刊一篇（審稿中）、TSSCI 國內期刊一篇（審稿中）。此外，本計畫部分研究為與馮正民教授共同指導交通大學交通運輸研究所碩士生的碩士論文，該論文更獲得管理科學協會之供應鏈論文獎的肯定獲得碩士組優勝。

本計畫研究成果除獲得上述學術成就外，應用模糊認知圖與貝氏網路探討物流脆弱度可說是以往探討店配物流相關研究領域中，較具研究方法創新的研究之一。此外，由於店配物流服務是台灣電子商務物流服務中最重要的物流型態之一，因此探討店配物流系統的脆弱度因素便成為一個重要的研究課題之一，本研究成果將可提供業界針對不同物流配送需求的電子零售店發展適當的服務項目規劃時之參考依據。後續相關研究則可以進一步探討店配物流系統相關服務疏失（service failure）或物流系統恢復力（resilience）等課題。

國科會補助專題研究計畫項下出席國際學術會議心得報告

日期：2010 年 10 月 22 日

計畫編號	NSC 99-2410-H-343-030		
計畫名稱	線上購物店配取貨物流系統之脆弱度評估		
出國人員姓名	黃昱凱	服務機構及職稱	南華大學出版與文化事業管理研究所
會議時間	2010 年 10 月 17 日至 2010 年 10 月 18 日	會議地點	中國武漢
會議名稱	(中文)2010 年 IITA 管理科學與工程國際學術研討會 (英文)2010 International Conference on Management Science and Engineering		
發表論文題目	The Factors Affecting the 24-hour Delivery through a Fuzzy Cognitive Map: A Case Study of Pchome Dot Com		

一、參加會議經過

大會會場報到、聆聽專題演講、進行專題簡報、參與其他論文發表

二、與會心得

會中聽取許多不同領域學者專家的論文，其中有許多的研究方法讓我獲益良多

三、考察參觀活動(無是項活動者略)

無

四、建議

建議日後國科會能多補助學者參與國際研討會發表論文，增加台灣學術的能見度

五、攜回資料名稱及內容

會議論文集、大會紀念品、大會議程

六、其他

無

國科會補助專題研究計畫項下出席國際學術會議心得報告

日期：2011 年 6 月 28 日

計畫編號	NSC 99-2410-H-343-030		
計畫名稱	線上購物店配取貨物流系統之脆弱度評估		
出國人員姓名	黃昱凱	服務機構及職稱	南華大學出版與文化事業管理研究所
會議時間	2011 年 6 月 20 日至 2011 年 6 月 23 日	會議地點	韓國濟州島
會議名稱	2011 Eastern Asia Society for Transportation Studies		
發表論文題目	An Analysis of Consumers' Propensity to Return in E-Retailing		

一、參加會議經過

大會會場報到、聆聽專題演講、進行專題簡報、參與其他論文發表

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三、考察參觀活動(無是項活動者略)

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建議日後國科會能多補助學者參與國際研討會發表論文，增加台灣學術的能見度

五、攜回資料名稱及內容

會議論文集、大會紀念品、大會議程

六、其他

無

國科會補助計畫衍生研發成果推廣資料表

日期:2011/07/14

國科會補助計畫	計畫名稱: 線上購物店配取貨物流系統之脆弱度評估
	計畫主持人: 黃昱凱
	計畫編號: 99-2410-H-343-030- 學門領域: 交通運輸

無研發成果推廣資料

99 年度專題研究計畫研究成果彙整表

計畫主持人：黃昱凱	計畫編號：99-2410-H-343-030-
計畫名稱：線上購物店配取貨物流系統之脆弱度評估	

成果項目			量化			單位	備註（質化說明：如數個計畫共同成果、成果列為該期刊之封面故事...等）
			實際已達成數（被接受或已發表）	預期總達成數(含實際已達成數)	本計畫實際貢獻百分比		
國內	論文著作	期刊論文	0	1	100%	篇	期刊（TSSCI，審稿中):影響電子商務 18 小時店配物流服務脆弱度因素之分析，運輸學刊。
		研究報告/技術報告	0	0	0%		
		研討會論文	0	0	0%		
		專書	0	0	0%		
	專利	申請中件數	0	0	0%	件	
		已獲得件數	0	0	0%		
	技術移轉	件數	0	0	0%	件	
		權利金	0	0	0%	千元	
	參與計畫人力（本國籍）	碩士生	1	1	100%	人次	
		博士生	1	1	100%		
		博士後研究員	0	0	0%		
		專任助理	0	0	0%		
國外	論文著作	期刊論文	1	2	100%	篇	期刊(SCI，已接受):Vulnerability Analysis of 18-hour Retail Delivery Service Using by Bayesian Network, Advance Science Letters. 期刊（SSCI，審稿中）:The analysis of vulnerability in ezship delivery process, The Service Industries Journal.
		研究報告/技術報告	0	0	0%		
		研討會論文	1	1	100%		The Analysis of Vulnerability in ezShip Distribution

							Process, The 6th International Congress on Logistics and SCM Systems (ICLS 2011)
		專書	0	0	0%	章/本	
	專利	申請中件數	0	0	0%	件	
		已獲得件數	0	0	0%		
	技術移轉	件數	0	0	0%	件	
		權利金	0	0	0%	千元	
	參與計畫人力（外國籍）	碩士生	1	1	100%	人次	
		博士生	1	1	100%		
		博士後研究員	0	0	0%		
		專任助理	0	0	0%		
其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)		本計畫部分研究為與馮正民教授共同指導交通大學交通運輸研究所碩士生的碩士論文，該論文獲得管理科學協會之供應鏈論文獎的肯定獲得碩士組優勝。					

	成果項目	量化	名稱或內容性質簡述
科教處計畫加填項目	測驗工具(含質性與量性)	0	
	課程/模組	0	
	電腦及網路系統或工具	0	
	教材	0	
	舉辦之活動/競賽	0	
	研討會/工作坊	0	
	電子報、網站	0	
	計畫成果推廣之參與（閱聽）人數	0	

國科會補助專題研究計畫成果報告自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估

■達成目標

□未達成目標（請說明，以 100 字為限）

□實驗失敗

□因故實驗中斷

□其他原因

說明：

2. 研究成果在學術期刊發表或申請專利等情形：

論文：■已發表 □未發表之文稿 □撰寫中 □無

專利：□已獲得 □申請中 ■無

技轉：□已技轉 □洽談中 ■無

其他：(以 100 字為限)

本計畫成果發表在一篇國際期刊(Advance Science Letters, SCI，已接受)，一篇發表在國際學術研討會上(The 6th International Congress on Logistics and SCM Systems)。

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）(以 500 字為限)

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