

# 科技部補助專題研究計畫成果報告 期末報告

## 變遷中的網路書店：邁向調適與反脆弱之路

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中文摘要：藉由運籌的快速發展以及互聯網科技的進步，讓商務活動得以 Internet 為基礎進行區域整合。以出版產業為例，金石堂網路書店整合跨境電商與跨境店配物流服務，提供香港消費者在台灣網站購書，香港 OK 便利店取貨的服務，不但是台灣經營跨境電商的重要個案，同時也顯示以互聯網為基礎的國際化佈局，已經是台灣出版通路最關心的產業發展課題。當網路零售商進行跨國交易時，如何快速理解不同地區消費者的行為特徵，並避免在跨國整合後勤支援活動中發生供應鏈斷鏈，將會是跨境電商重要的管理課題。本文以金石堂網路書店為研究個案，首先以因素分析技術與劇變模型描述香港地區消費者的消費行為特徵；其次則是導入反脆弱的觀點並藉由模糊認知圖與敏感度模式等分析技術，建構研究個案從事跨境電商商務活動時相關風險管理的評估架構。本計畫的研究結果將可以提供國內電商業者從事跨境經營時重要的參考依據。

中文關鍵詞：網路書店、調適、反脆弱、蝴蝶劇變模型、模糊認知圖

英文摘要：The internet represents a growing and huge market and the development of e-commerce is an efficient business model which enables new relationship between consumers and suppliers. Recently, the cross-border e-commerce is obviously becoming a noticeable market. In Taiwan, Kingstone.com provide a new service for Hong Kong's readers: online shopping through website and pick-up goods in convenience store in Hong Kong. Risk management is regarded as the important issue in cross-border e-commerce, it is no doubt if managers could capture the consumers' feature and focus on the management risk issue, it will increase the competitiveness of enterprises. In this study, we are concerned about Kingstone.com's cross-border e-commerce activities. The objective of this study is to explore the consumer's behavior by butterfly catastrophe model, and develop an evaluation model and discuss the risk of cross-border e-commerce activities via the Fuzzy Cognitive Map (FCM) and Sensitivity Model (SM). The results obtained in this study can be used to help the manager formulate strategies and reduce the risks proactively as well.

英文關鍵詞：online bookstore, adaptive, antifragile, butterfly catastrophe model, fuzzy cognitive maps

# **A Cusp Catastrophe Model for Developing Logistics Service Satisfaction Strategies: Multi-Case Study of Taipei, Shanghai and Hong Kong**

**Abstract:** E-commerce is the most importance business model in recently, and the logistics service play an important role in the system. In Asia, retailing delivery has been widely applied in the e-commerce actives, for a retailing delivery provider, understand the nonlinear relationship between service quality and satisfaction is a key strategy issue. This study is to develop an evaluation model and discuss the retail logistics service strategy of retailing delivery system via the Factor Analysis and Cusp Catastrophe Model for three different kind cities. From the survey, we establish an evaluation model to analyze and describe the relationship among logistics service quality, switching barrier and satisfaction of the retailing delivery system using different kind of research methods. The results obtained in this study can be used to help the manager formulate marketing strategies and increase the satisfaction as well.

**Keywords:** Logistics Service Quality, Retailing Delivery, Online Bookstore, Cusp Catastrophe Model, Satisfaction, Switching Barrier

## **1. INTRODUCTION**

Due to rapid innovation and development in information technology, people are no longer satisfied by traditional means of learning and obtaining knowledge. Digital technology has provided a new paradigm to society and changed life through Internet. After decades of technological development, the Internet is now rapidly reshaping industries and changing business models (Deng and Wang, 2016). With increased usage of the World Wide Web (WWW), on-line shopping is becoming a new trading mode and preferred by consumers. Consumers just need to surf on the Internet, browse some information, and then compare the prices of different merchandise and retailers. Digital technology has provided a new paradigm for our society and changed our lives through interaction with the Internet. As an efficient and flexible sales channel, companies can use auction sites to liquidate unwanted inventory, as well as to assist in pricing new products, acquiring new markets for low-margin items, and reaching markets that would be too costly using traditional distribution methods. Compared to brick-and-mortar environments, the Internet retailers have lower operation cost, and they also offer a more flexible and convenient way for consumers to shop. On-line shopping is now established as a major trend for suppliers and consumers.

Internet has changed people's consumption habits (Gabrielsson and Gabrielsson, 2011). The development of e-commerce is an efficient business model that enables new relationship between consumers and suppliers. Electronic stores are becoming popular for online shopping. As more and more consumers use Web channels, companies must focus on their e-services, including all cues and encounters that occur before, during, and after transaction (Parasuraman, Zeithaml and Malhotra, 2005). Managers of companies with a Web presence are recognizing the issue of service quality as strategically important. To deliver superior service quality, managers of companies with a Web presence must first understand how consumers perceive and evaluate online customer service (Parasuraman *et al.*, 2005). Delivering goods to customers is a critical activity in any business. Regarding the organization of e-commerce transaction and physical distribution (PD), it is extremely important to distinguish between customer-related

activities, such as order receiving, sales and marketing, and the processing and shipment of the ordered goods (Mentze and Williams, 2001). The B2C environment is unpredictable with dynamically changing customer orders. At the same time, reliable and timely delivery is one of the fundamental objectives for online shoppers. Online shoppers make their orders at their office or home anticipating quicker delivery than offline purchasing, and timely delivery at convenient times.

As this percentage continues to increase, how to deliver goods to customers is a more critical activity in any business. In the Internet, consumers can place orders at any time anywhere through the Internet, and the delivery service response is expected to be fast. Therefore, e-retailing needs a quick-response logistics system to support the order deliveries. In Taiwan, convenience stores provide a 24-hour purchasing environment for consumers and are distributed everywhere with high-quality information system. Convenience stores in Taiwan have integrated e-commerce with the logistics system of convenience stores to a new retail delivery model: “Shop online in an electronic store and pick-up goods in a convenience store”, and have made many remarkable successes. Because the ways of payment are safe and the delivery is quick, the RD service offered by convenience stores has become substantial for the electronic commerce logistics in Taiwan. The main retailing delivery (RD) providers in Taiwan are 7-11.com<sup>1</sup> and CVS.com<sup>2</sup>. CVS.com is a joint venture by four families of convenience stores including Family.com, Hi-Life.com, Okcvs.com and Nikomart.com<sup>3</sup>. In the present day, over 9,000,000 orders have been complete by the electronic commerce of the retail delivery model.

In comparison with other countries, the major logistic difference between Taiwan and other countries is the RD system. The RD system provides an easy on-line shopping process, safe payment method and quick delivery service for e-retailing (Feng and Huang, 2006). The RD service also provides consumers with a self-pick-up approach for delivery of merchandise, so it is popular for those who cannot conveniently use home delivery service. Therefore, shopping on the Internet and picking-up at convenience stores is the major logistics model for on-line bookstores in Taiwan, and more than 95% of the customers who order books from on-line bookstores will choose the RD service for their logistics way.

Online bookstore is one of the most important business model of e-commerce (ex: amazon.com, dangdang.com.cn, and books.com.tw). With growth in electronic commerce, there are more and more consumers ordering books from on-line bookstores. Recently, many online bookstores began to provide retailing delivery logistics services in several countries, for example: amazon.cn provide the RD service from 2012 in Shanghai; and the Kingstome.com also provide the RD service for readers who live in Hong Kong since 2013. Due the RD logistics service for e-commerce is exist not only Taiwan, but also the Japan, China and Hong Kong. How to evaluate the RD logistics service quality, and compare the satisfaction for RD service for different customer who live in different country become an interesting research issue and a key management topic.

The quality of logistics service performance is an important key marketing component that helps create customer satisfaction (Srini, Srinivasan and Kishore, 2002). Customer satisfaction is fundamental to business (Sharma, Grewal, and Levy 1995; Shu and Yi, 2012). The quality of logistics service performance is an important key factor to create customer satisfaction. In the past decade, several investigations on the theoretical domain of service quality to a business-to-business context, especially in the area of logistics service quality, have been published (Mentzer, Flint, and Hult 2001; Huang and Feng 2005, Rao, Goldsby, Griffis

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<sup>1</sup> <http://www.shopping7.com.tw>

<sup>2</sup> <http://www.cvs.com.tw>

<sup>3</sup> Nikomart.com was merged with Family.com in 2007.

and Deepak2011). However, research on the retailing delivery for the online shopping and compare different country environment is scarce in the literature.

Some studies suggest that customer satisfaction provides the foundation of a company's sustained competitive edge, and the developing and increasing customer satisfaction is a crucial factor for companies' growth and performance (Lee and Feick, 2001). Consumer behavior is quite complex, because of many variables involved and their tendency to interact with & influence each other. Satisfaction is one of the important issues for marketing practitioners because of the rapid business environment (Urien, & Kilbourne, 2011; Kidwell, & Jewell, 2008).

Other studies suggest that most consumer choice behavior can be regarded as a discontinuous catastrophe phenomenon. The behavior can be nonlinear and complex, and the satisfaction or the dissatisfaction thresholds that may not be occurred at the same point (Guastello, 1981; Oliva, Oliver, & MacMillian, 1992; Byrne, Mazanov, & Gregson, 2001; Homburg, Koschate, & Hoyer, 2006). In general, most consumer choice behavior can be regarded as a discontinuous catastrophe phenomenon. The behavior can be nonlinear and complex, and the satisfaction or the dissatisfaction thresholds that may not be occurred at the same point (Zeeman, 1977). According to Oliva et al. (1992), the relationship between satisfaction and loyalty is both linear and nonlinear, to investigate the system with respecting to transitional, discontinuous behavior, a powerful mathematical tool is needed to analyze the nonlinear system.

The internet represents a growing and huge market and the development of e-commerce is an efficient business model which enables new relationship between consumers and suppliers. Recently, the cross-border e-commerce is obviously becoming a noticeable market. In Taiwan, Kingstone.com provide a new service for Hong Kong's readers: online shopping through website and pick-up goods in convenience store in Hong Kong. RD service will more and more popular logistics service in the future of the three different city: Shanghai, Taipei and Hoang Kong. Based on the above-mentioned research background, we focus the satisfaction of RD serve of the three different city: Shanghai, Hong Kong and Taipei, explore the RD service quality and the relationship among service, switching barrier and satisfaction base on the cusp catastrophe theory, the main purposes of the study are:

- 1) Explore the structure of retailing delivery service using by factor analysis.
- 2) Using Importance-Performance Analysis to discuss the relations of level of customers' expected logistics service quality and level of customers' perceived logistics service quality for the three different city.
- 3) Applying catastrophe theory to modeling cusp catastrophe model for consumer satisfaction on the pick-up point and developing satisfaction strategies.

## **2. LITERATURE REVIEW**

### **3.1 Logistics Service Quality**

Service quality can be defined as a consumer's overall impression of the relative efficiency of the organization and its services. Understanding exactly what customers expect is the most crucial step in defining and delivering high-quality service (Parasuraman , Zeithaml and Malhotra, 2005). SERVQUAL is one of the best models for evaluating customers' expectations and perceptions (Pakdil and Aydm, 2007; Chen, 2008). Despite criticism from other research, SERVQUAL remains the most commonly used diagnostic model for evaluating service quality. SERVQUAL has five main dimensions to measure service quality: tangibles, reliability, responsiveness, assurance, and empathy (Rao, Goldsby, Griffis and Deepak, 2011). In addition to SERVQUAL related studies, many scholars have measured airline service quality through

various quality dimensions. Gourdin (1988) categorized airline service quality in terms of three items: safety, timelines and price. Hsieh and Kuo (2014) proposed timely luggage transport, seat comfort, the check in process, and people service dimensions for delivery system. Chen and Qi (2016) used the processing of luggage, seat cleanliness, and the check-in process, the convenience of transit, timeliness, and handling of customer complaints as the standards of service quality.

Customer service has become a crucial measure of competitiveness in logistics markets throughout the world. There are many definitions and descriptions of how logistics customers' satisfaction (Hess, 2011). On the past decade, there have been many studies published concerning the theoretical domain of service quality to a business-to-business context, specifically in the area of logistics service quality (Joseph and Elliot, 2005). Logistics can be considered as a service industry. The quality of logistics service performance is an important key marketing component that helps create customer satisfaction [21]. Logistics excellence has been recognized as an area in which firms can create competitive advantage, to successfully leverage logistics excellence as a competitive advantage to customers, logisticians must coordinate with marketing departments. However, there is a lack of research on the retailing delivery for the online B2C environment.

Logistics excellence has clearly been recognized as an area in which firms can create competitive advantage, in part because of its visible service impact on customers (Mentzer *et al.*, 2011) To successfully leverage logistics as a competitive advantage to customers, logisticians must coordinate with marketing (Mentzer and Williams 2001). The quality of logistics service performance is a key marketing component that helps create customer satisfaction, develop market segmentation strategies, and has been recognized as such for some time (Huang, Kuo and Xu, 2009).

There are many definitions and descriptions of how logistics creates customer satisfaction. The most traditional are based on the creation of time and place utility (Mentzer *et al.*, 2011). This conceptualization implies that part of the value of a product is created by logistics service. However, these all focus on the provider firm, not on the customer. Although this research incorporates internal and external customers, it predominantly involves provider firms-that is, how logistics executives and quantify the value they create for customers. A process is needed to measure customers' perceptions of the value created for them by logistics service, because it is the customers' perspective of service quality that determines their satisfaction level.

Mentzer, Gomes, and Krapfel (1989) argued that two elements exist in service delivery: marketing customer service and physical distribution service (PDS). Here, PDS is composed of three crucial components: availability, timeliness, and quality. Bienstock, Mentzer, and Bird (1997) proposed that business-to-business logistics services are offered in a context in which people are replaced with "things", and the customer and provider are physically separated. They maintain that the former is appropriate for the SERVQUAL's emphasis on "functional or process dimensions", but the latter logistics service context is composed more of "technical or outcome dimensions". They conclude that an alternative conceptualization of physical distribution service quality (PDSQ) dimensions: availability, timeliness, and condition with service quality process are necessary for logistics service quality.

Mentzer, Flint and Hult (2001) conceptualized and tested LSQ as a second-order construct, with two categories of nine dimensions:

- Order placement-personnel contact quality (PQ), order release quantities (OR), information quality (IQ), ordering procedures (OP), and
- Order receipt-order accuracy (OA), order condition (OC), order quality (OQ), order discrepancy handling (OD), timeliness (TI) (Table 2.4).

Mentzer *et al.* (2001) proposed and tested a "process of LSQ" and found that all nine

components were important for at least one of the customer segments tested. This research revealed that LSQ is a complex concept demanding a great deal of attention from supplying firms. They also found that LSQ is a process, rather than a single concept or second-order construct. When viewed as a process, suppliers can identify the drivers of various LSQ perceptions.

PZB's SERVQUAL scale has been widely tested in various conventional marketplaces and received good empirical results. It has also been argued that, however, it is improper to directly employ SERVQUAL on the area of logistics service quality. Logistics services not only include cycle time, on time delivery, and inventory availability, but also any handling of individual customer requests beyond traditional service measures (Huang, 2008).

### **3.2 Switching Barrier**

Switching barriers refer to the buyer's perceived costs of switching from the existing to a new supplier (Gupta, Su and Zhiping, 2014). The domain of switching barriers encompasses both monetary expenses and nonmonetary costs (e.g., time spent and psychological effort) (Dick and Basu 1994). Furthermore, the domain could include the loss of loyalty benefits as a result of ending the current relationship. (Ram and Wu, 2016). Thus, as switching barriers increase, the intention of customer loyalty increases.

Blut, Frennea, Mittal and Mothersbaugh (2015) based on the literature reviews to distinguish the switching barrier to eight facets, and comprised into three higher-order types. The study of Burnham et al. proposes that the regression intercepts to represent switching barriers not only combines the effects of multiple switching barrier types but also confounds switching barriers with other possible influences on repeated purchase behavior.

Jones, David, Mothers and Sharon (2000) argued that switching barriers including interpersonal relationships, perceived switching barriers, and the attractiveness of alternatives are important factors impacting the decision of a customer to remain with a service provider. They also found that the effect of core service satisfaction on repurchase intentions was reduced when customers perceived high switching barriers. That is, when it is under the conditions of high switching barriers, the influences of core-satisfaction on repurchase intentions decreases.

### **3.3 Satisfaction**

Customer satisfaction (or dissatisfaction) has become an important issue for marketing practitioners because of the rapid business environment. Customer satisfaction can be defined as a judgment made on the basis of a specific service encounter. Satisfaction and loyalty are not surrogates for each other (Oliver, 1999). It is possible for customers to be loyal without being highly satisfied (e.g., when they are few other choices) and to be highly satisfied and yet not loyal (e.g., when many alternatives are available). Airlines need to gain a better understanding of the relationship between satisfaction and loyalty in the online environment and to allocate the online marketing efforts between satisfaction initiatives and loyalty program.

Customer satisfaction is fundamental to the practice of consumer sovereignty. However, the definition of consumer satisfaction is not so clear in the marketing literature (Choi, Cho, Lee and Kim, 2004). While there is not a clear consensus regarding the definition of satisfaction, most definitions would involve "an evaluative, affective, or emotional response" (Oliver, 1999). Chen (2008) view satisfaction as the customer's response to the evaluation of perceived discrepancy between prior expectations and the actual performance of the product as perceived after its consumption.

There seems to be consensus that customer satisfaction and service quality are unique

constructs, but distinctions in their definitions are not always made clear in the literature. The lack of clarity in the definitions of service quality and customer satisfaction is linked to the ongoing controversy surrounding the causal order of service quality and customer satisfaction.

Oliver (1999) proposed a model that is intended to integrate the satisfaction and the service quality. He proposes that while service quality is formed by a comparison between ideals and perceptions of performance regarding quality dimensions, satisfaction is a function of the disconfirmation of predictive expectations regarding both quality dimensions and non-quality dimensions. Further, perceived service quality is proposed to be an antecedent to satisfaction.

### **3. RETAILING DELIVERY SYSTEM**

Convenience stores in Taiwan have had remarkable successes with retailing delivery services by integrating E-Commerce and logistics systems to form a new retail delivery model: “On-line shopping with pick-ups at convenience stores.” In Taiwan, portal sites such as Yahoo.com and Pchome.com currently provide retailing delivery services for their on-line customers, and have made many remarkable successes. In Taiwan, most of the e-commerce-related delivery is operated by 3PL. In most cases, these providers do not exclusively serve e-commerce firms but also offer distribution and warehousing services for a number of customers. Because of the need for timely delivery system, perfect information system and low logistics operations cost due to of economic scale, 3PL providers have had to improve the flow of information both internally and externally and integrate their logistics services into the retail delivery provided by convenience stores. In comparison with other countries, the major difference in the logistics of e-commerce between Taiwan and other countries is the RD system.

Because of safe method of payment way and the quick delivery, RD services by convenience stores have become a substantial provider of the electronic commerce logistics in Taiwan. The RD system has two special features. First, consumers can shop on-line even without a credit card. This is important for young people who have no credit cards, or for those who are concerned about the safety of other payment methods for on-line shopping. The second special feature is that the RD service provides consumers with a self-pick-up approach through convenience stores. This is popular for two different types of consumers, one is women who are concerned about the safety of home delivery (HD) systems, and the other is students who do not like home delivery because they do not want their parents to know their purchases. In Taiwan, the first retailing delivery of online bookstore is providing by books.com and 7-11.com, recently, the amazon (in China) and kingstone.com for Hong Kong, always provide the retailing delivery service for their customer, for example, the amazon.com is corporate with alldays.com (convenience store), and the RD service of Kingstone.com is based on the Circle K in Hong Kong.

Retailing delivery service provides an easy on-line shopping process, safe pick-up points and quick delivery service for e-retailing. The retailing delivery includes four functions: (1) e-map, (2) packing process, (3) delivery system and (4) pick-up point (see Figure. 1). According to Figure 1, details about the goods flow and information flow of retailing delivery is presented in the following:

- 1) Step 1 (D day): An on-line shopper chooses one convenience store to pay the money and pick-up the merchandise via the e-map website.
- 2) Step 2 (D+1 day): The e-retailer uploads the order information to 3PL. Then 3PL must finish the packing process of all orders by 3:00 pm of the D+1 day and transport the orders to the delivery center before 4:00 pm of the D+1 day.
- 3) Step 3 (D+2 day): The delivery center collects the orders from different e-retailers



and transports the orders to the different convenience stores before the 12:00 noon on the afternoon of the D+2 day.

- 4) Step 4 (D+2 day): According to the information uploaded from the convenience store delivery center, the e-retailer will notify the customer by e-mail or cell phone about pick-up.
- 5) Step 5 (D+2 day~D+5<sup>4</sup> day): If on-line shopper picks the goods from the convenience store, the e-retailer can download the data from the server of RD provider. If not, the RD provider will return the goods to the e-retailer after D+5 day.

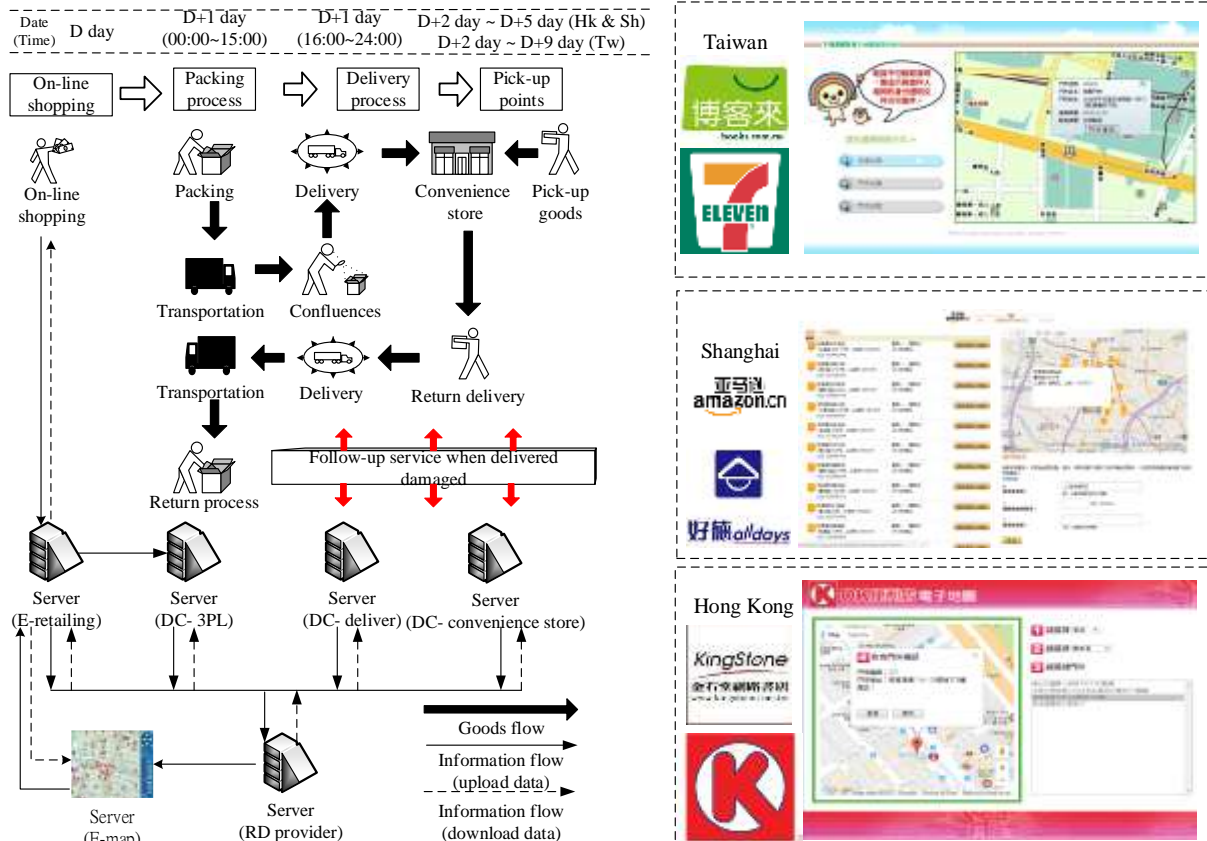


Figure 1. Retailing delivery system (Taipei, Shanghai and Hong Kong)

## 4. DATA AND ANALYSIS RESULTS

### 4.1 Questionnaire Design and Data Select

The design of the survey questionnaire is based on multiple-item measurement scales. The measurement items are adapted for measure scale and all of the measurement items are based on a 7-point Likert scale related from 1 = strongly disagree/unimportant or nonsatisfaction to 7 = strongly agree/important, satisfaction. Table 1 shows the measurements of research constructs, it including the retailing delivery logistics service quality (second-order CFA), switching barrier, and satisfaction.

Table 1. Measurements of Research Constructs

Constructs	Index	Measurement Items	Literature Based
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<sup>4</sup> In Taiwan, the product will stay 7 days in convenience store, but Shanghai and Hong Kong just stay 3 days.

Information	LSQ <sub>11</sub>	The e-map interface lets me choose a pick-up point conveniently.	Feng <i>et al.</i> (2007); Huang <i>et al.</i> (2009)
	LSQ <sub>12</sub>	After my books arrived at the convenience store, it will send a message to remind me.	Mentzer <i>et al.</i> (2001); Huang <i>et al.</i> (2009)
	LSQ <sub>13</sub>	I can follow the conditions of my orders.	Rao <i>et al.</i> (2011)
Order Condition	LSQ <sub>21</sub>	Time between ordering books and receiving books is short.	Mentzer <i>et al.</i> (2001); Chen and Qi (2016)
	LSQ <sub>22</sub>	Books arrive on the date promised.	Huang <i>et al.</i> (2009)
	LSQ <sub>23</sub>	The books I received are undamaged.	Zavareh <i>et al.</i> (2012)
Personnel Contact Quality	LSQ <sub>31</sub>	When I pick up, the convenience store staff have good manners.	Subramanian <i>et al.</i> (2014)
	LSQ <sub>32</sub>	When I pick up, the convenience store staff can quickly find the books I ordered.	Hsieh and Kuo (2014)
	LSQ <sub>33</sub>	When there is a problem with delivery, the convenience store staff can immediately tell me what to do.	Feng <i>et al.</i> (2007); Huang <i>et al.</i> (2009) ; Chen and Qi (2016)
Satisfaction	SA <sub>1</sub>	In general, I am satisfied with the RD service the convenience store provided.	Huang <i>et al.</i> (2009); Deng <i>et al.</i> (2010)
	SA <sub>2</sub>	Choosing on this convenience store for my pick-up point is a wise decision.	Deng <i>et al.</i> (2010); Lin(2013)
	SA <sub>3</sub>	The RD service from this convenience store conformed to my expectations.	Stank <i>et al.</i> (2003); Rao <i>et al.</i> (2011);
Switching Barrier	SB <sub>1</sub>	I am used to choosing the same convenience store of my pick-up point.	Feng <i>et al.</i> (2007); Huang <i>et al.</i> (2009)
	SB <sub>2</sub>	I feel troublesome about some procedures for joining a new convenience store to pick-up my books.	Deng <i>et al.</i> ; (2010) ; Huang <i>et al.</i> (2009)
	SB <sub>3</sub>	If I choose another convenience store, I will lose some personal relationship.	Feng <i>et al.</i> (2007); Shao and Wu(2016)

To investigate the issues presented above, an empirical study was undertaken for Taipei, Hong Kong and Shanghai. Data was collected via an online questionnaire and based on the samples of the college students of the three cities: Taipei, Shanghai and Hong Kong. The three major retailing delivery providers examined in this empirical research were 7-11.com (Taipei), alldays (Shanghai) and Circle K (Hong Kong). An online questionnaire was sent out and with enclosed questionnaires were 2 and 4 weeks, the final survey yielded a total of 684 valid questionnaires. All of the 684 samples, there are 251 samples from Shanghai, 213 samples from Hong Kong and 220 samples from Taipei. A demographic analysis is presented in Table 2.

Table 2. Profiles of the Sample

	Shanghai	Hong Kong	Taipei
Gender			
Male	23.90%	34.70%	29.50%
Female	76.10%	65.30%	70.50%
Education			
University	63.3%	86.4%	65.9%
Graduate school or more	36.7%	13.6%	34.1%
Frequency of ordering books in on-line bookstores			
1 month	3.60%	21.60%	29.10%
1-3 months	23.90%	61.00%	51.40%

6 months	14.70%	15.50%	15.50%
1 year	31.90%	0.97%	0.50%
Few	25.90%	0.93%	3.50%
Average amount of money that spent in on-line bookstore one time one time			
Less than NTD 249	37.10%	1.40%	5.50%
NTD 250~500	42.60%	11.30%	58.20%
NTD 501~1000	10.70%	33.80%	31.80%
NTD 1001~1500	5.60%	26.80%	2.30%
More than NTD 1501	4.00%	26.70%	2.20%

## 4.2 Factor and Importance-Performance Analysis

In this section, the reliability of research constructs was also tested. Reliability refers to the consistency of a measure, whereas internal consistency is that the individual items of a scale should be measuring the same construct and be highly interrelated. Validity refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure. In addition to the reliability test, the validity for the variables was explored by confirmatory factor analysis (CFA). In logistics service quality construct, there were three factors including information, order Condition, and personnel contact quality. A second-order CFA is used for validity analysis. Table 3 and Table 4 shows the reliability, validity and importance-performance analysis results.

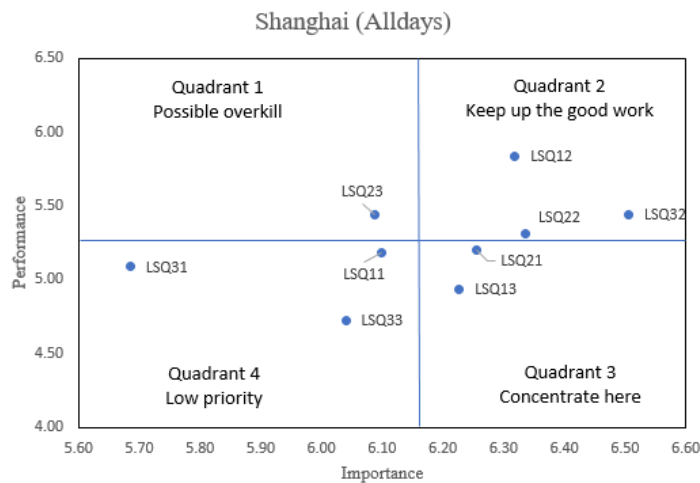
Table 3. Reliability and Validity Analyses

	Shanghai				Hong Kong				Taipei			
	Loading	C. R. <sup>a</sup>	AVE <sup>b</sup>	Alpha <sup>c</sup>	Loading	C. R.	AVE	Alpha	Loading	C. R.	AVE	Alpha
LSQ <sub>11</sub>	0.65	0.931	0.820	0.764	0.62	0.894	0.745	0.873	0.79	0.921	0.797	0.914
LSQ <sub>12</sub>	0.79				0.94				0.95			
LSQ <sub>13</sub>	0.71				0.99				0.93			
LSQ <sub>21</sub>	0.84	0.952	0.870	0.904	0.97	0.968	0.910	0.968	0.97	0.972	0.920	0.971
LSQ <sub>22</sub>	0.91				0.96				0.94			
LSQ <sub>23</sub>	0.86				0.93				0.97			
LSQ <sub>31</sub>	0.58	0.918	0.790	0.704	0.88	0.907	0.765	0.988	0.84	0.907	0.766	0.91
LSQ <sub>32</sub>	0.73				0.94				0.89			
LSQ <sub>33</sub>	0.64				0.79				0.89			
SA <sub>1</sub>	0.90	0.931	0.818	0.931	0.96	0.961	0.892	0.961	0.98	0.978	0.937	0.976
SA <sub>2</sub>	0.94				0.93				0.99			
SA <sub>3</sub>	0.88				0.93				0.93			
SB <sub>1</sub>	0.81	0.702	0.482	0.637	0.80	0.699	0.455	0.674	0.69	0.936	0.832	0.787
SB <sub>2</sub>	0.85				0.76				0.88			
SB <sub>3</sub>	0.25				0.39				0.66			

<sup>a</sup>: Construct Reliability; <sup>b</sup>: Average Variance Extracted; <sup>c</sup>: Cronbach's alpha

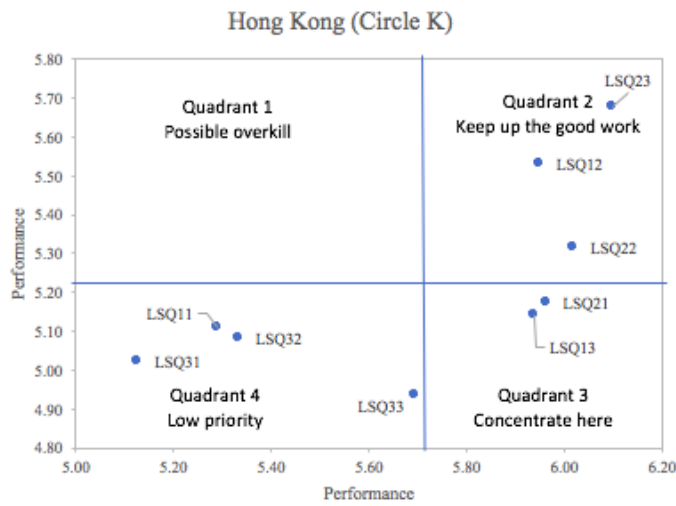
Table 4 Importance-performance analysis for logistics service quality

IPA map (Shanghai: alldays)	LSQ Items	Mean Imp.	Mean Per.	Quad.
	LSQ <sub>11</sub>	6.10	5.18	4
	LSQ <sub>12</sub>	6.32	5.84	2
	LSQ <sub>13</sub>	6.23	4.93	3
	LSQ <sub>21</sub>	6.25	5.20	3
	LSQ <sub>22</sub>	6.33	5.31	2



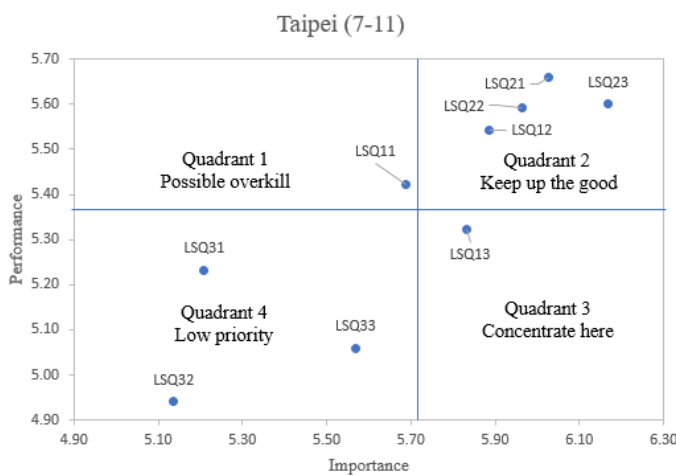
LSQ <sub>23</sub>	6.51	5.44	1
LSQ <sub>31</sub>	5.69	5.09	4
LSQ <sub>32</sub>	6.09	5.44	2
LSQ <sub>33</sub>	6.04	4.73	4

IPA map (Hong Kong: Circle K)



LSQ Items	Mean Imp.	Mean Per.	Quad.
LSQ <sub>11</sub>	5.29	5.11	4
LSQ <sub>12</sub>	5.95	5.53	2
LSQ <sub>13</sub>	5.94	5.14	3
LSQ <sub>21</sub>	5.96	5.17	3
LSQ <sub>22</sub>	6.02	5.31	2
LSQ <sub>23</sub>	6.10	5.68	2
LSQ <sub>31</sub>	5.13	5.02	4
LSQ <sub>32</sub>	5.33	5.08	4
LSQ <sub>33</sub>	5.69	4.93	4

IPA map (Taipei: 7-11)



LSQ Items	Mean Imp.	Mean Per.	Quad.
LSQ <sub>11</sub>	5.69	5.42	1
LSQ <sub>12</sub>	5.89	5.54	2
LSQ <sub>13</sub>	5.83	5.32	3
LSQ <sub>21</sub>	6.03	5.66	2
LSQ <sub>22</sub>	5.96	5.59	2
LSQ <sub>23</sub>	6.17	5.60	2
LSQ <sub>31</sub>	5.21	5.23	4
LSQ <sub>32</sub>	5.14	4.94	4
LSQ <sub>33</sub>	5.57	5.06	4

Table 3 shows that all standardized factor loadings are greater than 0.5<sup>5</sup>, and all of the

<sup>5</sup> For the case of Shanghai and Hong Kong, the index SB<sub>3</sub> of switching barrier is less than 0.5, so we will delete

items are significant at the 0.01 level. All composite reliability values greater than 0.8 and all average variance extracted values exceed the threshold of 0.5. Confirmatory factor analysis is employed to develop a measurement model that achieved an acceptable fit to the data. Table 1 show the average variance extracted (AVE) for each construct was greater than 0.5, thus providing support for the convergent validity of the measure for each construct. Composite reliability (CR) was estimated to evaluate the internal consistency of the measurement model. All of the composite reliability measures were above the suggested level of 0.6. As a result, all construct was reliable. Finally, the reliability of each construct was assessed by using Cronbach's alpha measure which is in the experiment ranging from 0.6 to 0.9, indicating that the scale is internally consistent and reasonably free of measurement error. These results described that logistics service quality, switching barrier and satisfaction are all have good validity.

Importance-Performance Analysis (IPA) is a simple and useful technique for identifying those attributes of a product or service that are most in need of improvement or that are candidates for possible cost-saving conditions without significant detriment to overall quality. To complete the Importance-Performance analysis, a series of paired-samples t-tests were conducted to evaluate whether the mean performance scores differ significantly from the mean importance scores.

One of the advantages of using a weighted performance measure is that attributes can be plotted graphically on a matrix, and this can facilitate faster and more efficient interpretation of the results. Table 4 highlights the relative positions of attributes in matrix format, with the importance values on the vertical axis and performance values on the horizontal axis. Airline service quality original questionnaire items are classified into quadrants as shown in the graph: quadrant I (possible overkill), quadrant II (keep up the good), quadrant III (concentrate here) and quadrant IV (low priority). Table 4 shows the mean importance and performance ratings of the 9 items of LSQ for the three cities.

As shown in Table 4, retailing delivery service provider of alldays.com (Shanghai sample) should maintain the advantage of quadrants II (LSQ<sub>12</sub>, LSQ<sub>22</sub> and LSQ<sub>32</sub>). On the other hand, their resource allocation should be changed from quadrants I (LSQ<sub>23</sub>) to quadrant III (LSQ<sub>21</sub> and LSQ<sub>13</sub>) on the other hand. Retailing delivery service provider of Circle K (Hong Kong sample) should maintain the advantage of quadrants II (LSQ<sub>12</sub> and LSQ<sub>22</sub>). On the other hand, their resource allocation should focus on quadrant III (LSQ<sub>21</sub> and LSQ<sub>13</sub>). As for the 7-11.com of Taipei, the retailing delivery provider should maintain the advantage of quadrants II (LSQ<sub>12</sub>, LSQ<sub>21</sub>, LSQ<sub>22</sub> and LSQ<sub>23</sub>). On the other hand, their resource allocation should be changed from quadrants I (LSQ<sub>11</sub>) to quadrant III (LSQ<sub>13</sub>).

### **4.3 Catastrophe Model Fit and Analysis Results**

Catastrophe theory was developed and popularized in the early 1970's. Initially, it attracted attention very quickly in 1978; an entire issue of behavioral science was devoted to the approach. After a period of criticism, the catastrophe theory is well established and widely applied. The models' strengths include that complex behavior can be captured by using significantly fewer nonlinear equations than the number of linear equations needed to describe the same phenomena. Past research indicates that the link between customer satisfaction and loyalty is not straightforward. Oliver et al. (1997) demonstrated that extremely satisfied customers are much more likely to remain loyal to firm than those who are merely satisfied. According to Oliva et al. (1992) and Huang (2008), the relationship between satisfaction and loyalty is both

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the measure item of SB<sub>3</sub> in the following analysis of Shanghai and Hong Kong sample.

linear and nonlinear. Investigation of the system with respect to transitional, discontinuous behavior and the catastrophe theory is a powerful mathematical tool to analyze the nonlinear system.

Cusp catastrophe model can be formalized by potential or gradient structures, a potential function  $F(x, c)$  is a function of both the system state  $x$  and the control parameter(s)  $c$ . In mathematical terminology, the Cusp Catastrophe Model consists of one behavior variable and only two control variables. The three dimensional phase space of the cusp model can be described by the following potential equation:

$$F(v, u, x) = \frac{1}{4}x^4 + \frac{1}{2}ux^2 + vx \quad (1)$$

where  $v$  and  $u$  are the two control dimensions and  $x$  represents the behavior space. In Zeeman's terminology  $u$  is a splitting factor and  $v$  is normal factor. The equilibrium surface  $M$  is determined by Eq (2):

$$\begin{aligned} \frac{\partial F}{\partial x} &= x^3 + ux + v = 0 \\ M_F &: \{(v, u, x) \mid x^3 + ux + v = 0\} \end{aligned} \quad (2)$$

The values of  $x$  in correspondence to which attains a local maximum or minimum satisfaction of the condition as in:

$$3x^2 + u = 0 \quad (3)$$


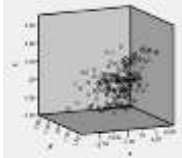
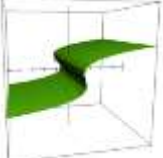
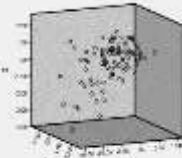
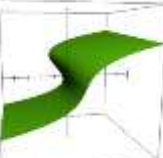
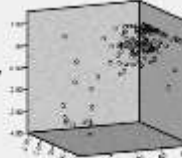
To obtain the bifurcation set, project the equilibrium surface  $M$  into the control space by eliminating  $x$  from Eq. (2) and Eq. (3), the bifurcation set is express by Eq. (4)

$$\Delta = \{(v, u): 4u^3 = 27v^2\} \quad (4)$$

A switch in topology takes place at the values of  $u$  and  $v$  satisfying Eq. (4), which constitute the catastrophe set. In the equation Eq. (4)  $x$  is the state variable, and  $u, v$  are control parameters. The parameter  $u$  determines whether the system has one or can have two stable equilibria. When  $u > 0$  only one stable equilibrium can exist whatever the value of  $v$ . When  $u < 0$  it depends upon the value of  $v$  whether the system has a single low level of stable equilibrium, or a low level and a high-level equilibrium, or a single high level of equilibrium.

The validity and reliability constructs was evaluated via confirmatory factor analysis (CFA). Then, the structural relationships among satisfaction, logistics service quality and switching barrier will be tested using the GEMCAT II software, which provides an extension of the latent variable approach described in Oliva *et al.* (1987). GEMCAT allows  $x, u, v$  in the cusp catastrophe model to represent "latent" variables consisting of arbitrary linear combinations of more elementary "indicator" variable. Our operationalizations of the dependent and independent indicator are measure is as follows: (1) the normal variable  $v$  is defined in terms of retailing delivery logistics relative service, and (2) and the splitting variable  $u$  uses the switching barrier, and the state variable  $x$  is satisfaction. Data were fitted using GEMCAT II software (version 1.3), substitution of these weights yields as Table 5. Table 5 also shows the 3D relationships between control variables and dependent variable that provides the estimation results produced by the RD service satisfaction models.

Table 5 Estimation Results of the Indicator of Control Variables and State Variable

City (Convenience Store)		CCM estimate ( <i>weight</i> )				
Shanghai (alldays)		Logistics Service Quality			Switching Barrier	Satisfaction
Cusp model	Data fitted of 3D	LSQ <sub>1</sub>	LSQ <sub>2</sub>	LSQ <sub>3</sub>	SB	SA
		-	0.1613	-	-1.6672	1
Hong Kong (Circle K)		Logistics Service Quality			Switching Barrier	Satisfaction
Cusp model	Data fitted of 3D	LSQ <sub>1</sub>	LSQ <sub>2</sub>	LSQ <sub>3</sub>	SB	SA
		0.4422	1.9928	-	-1.7984	1
Taipei (7-11)		Logistics Service Quality			Switching Barrier	Satisfaction
Cusp model	Data fitted of 3D	LSQ <sub>1</sub>	LSQ <sub>2</sub>	LSQ <sub>3</sub>	SB	SA
		1.8351	1.9928	-	-0.7563	1

## 4.4 Discussion

### 4.4.1 Scenario Analysis

In the cusp catastrophe model, we can find that the same not satisfaction toward RD logistics service but different switching barriers (Fig. 2), respondents were questioned as to whether they would be willing to satisfaction for RD service if RD vendors provided better service value to readers. Below, we explain this behavior using the cusp catastrophe model.

Considering the three sample groups  $S_{11}$ ,  $S_{12}$ , and  $S_{13}$ , Fig. 2 shows that state space point  $S_{11}$  is in Area C, whereas points  $S_{12}$  and  $S_{13}$  are in Area G. Applying an identical marketing stimulation to the three sample groups moves the control variables from  $C_{11}$ ,  $C_{12}$ , and  $C_{13}$ , to  $C_{21}$ ,  $C_{22}$ , and  $C_{23}$ , respectively, causing these groups that originally had lower perceived service value toward RD service to switch to a higher perceived service value toward RD service. Consequently, the states of the three samples move from  $S_{11}$ ,  $S_{12}$ , and  $S_{13}$  to  $S_{21}$ ,  $S_{22}$ , and  $S_{14}$ , respectively. Figure 2 shows the sample with highest switching barriers. After adjusting the control variable,  $C_{23}$  remains within the bifurcation set, implying that this group maintains its preference toward not satisfaction of RD service, even if they acknowledge that the RD service provider is improve their logistics service.

We can also use Newton's Second Law of Motion ( $F = m \times a$ ) to describe the state of higher switching barriers: given the same marketing stimulation ( $F$ ), for readers with different switching barriers (different  $m$ ) the results will be different ( $a$ ). Therefore, for higher switching barriers (the state  $C_{31}$  corresponding to  $S_{31}$  parameter combination) the same type of marketing

stimulation does not produce the desired effects. In other words, the marketing expense is frequently higher when influencing readers with higher switching barriers compared to readers with lower switching barriers. Furthermore, market barriers can easily reduce the intended service value transmitted by marketing activities.

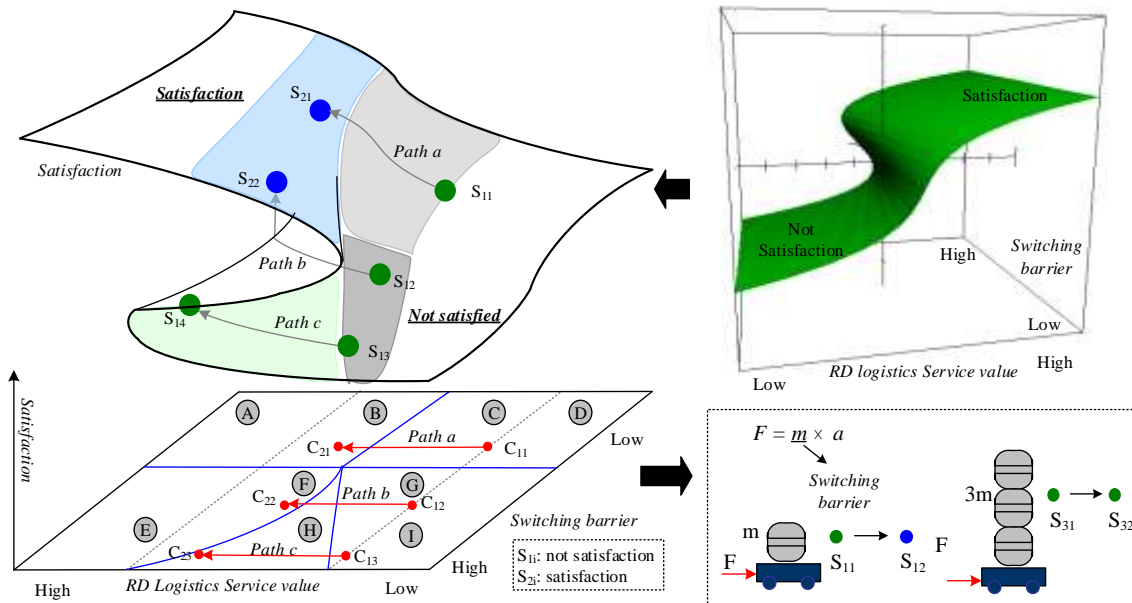


Figure 2. Scenario Analysis

#### 4.4.2 Theoretical Implications

Having customers switch from competing companies is a common strategy that boosts company performance, whereas providing greater service value to improve customer satisfaction has been a common corporate strategy. Retailing delivery service vendors seeking to expand their market share can attract new customers, and increase repeat purchases made by existing customers or customer unit price. To attract readers who prefer to use RD logistics service when online shopping, they can improve the perceived service value of RD service to make RD service users, thereby inducing switching behavior and subsequently increasing their market share. This strategy of increasing service value to improve customer satisfaction is considered typical strategic thinking. Path A in Fig. 3 is representative of this type of marketing logic.

Consider the control variable space Point C (corresponding to state space point  $S_{11}$ ) in Fig. 3. The readers assigned to point  $S_{11}$  show not satisfaction to RD service. Therefore, Point C in the control space corresponds to point  $S_{11}$  in the bottom half of the state space. With effective RD service vendor service enhancement plans and increase their service value, the parameter space is displaced from Point C to Point  $C_1$  (Path A) and state variables produce discontinuous sudden changes after passing outside the bifurcation set. This converts readers who originally not satisfaction to adopt satisfaction. Path A in Fig. 3 describes the abrupt characteristics this marketing strategy produces in behavioral intentions.

The cusp catastrophe model shows that the splitting factor is a major factor that induces sudden change. This study sets all splitting factors as switching barriers; therefore, in addition to the discussed retailing delivery logistics service value enhancement strategy, RD service vendors should attempt to reduce the switching barriers of not satisfaction readers before



developing appropriate marketing activities or service quality improvement strategies to influence the behavioral intention of these readers. Path B in Fig. 3 describes the marketing strategies that consider reader switching barriers.

This type of strategy attempts to reduce consumer switching barriers (e.g., Path B<sub>1</sub> in Fig. 3, state variables are displaced from point S<sub>11</sub> to S<sub>12</sub>) before implementing coordinated RD service quality improvement activities. Service value enhancement strategies alone are insufficient in producing a significant sudden change (e.g., state space S<sub>23</sub> in Fig. 3), although they are suitable for achieving minor changes. As Path B<sub>2</sub> in Fig. 3 shows, the state space Point S<sub>12</sub> displaces to Point S<sub>23</sub> and causes discontinuous change after moving outside the bifurcation set. When readers who are originally more not satisfied with RD service (e.g., Point S<sub>11</sub> in Fig. 3) have already become more satisfied with RD service (e.g., Point S<sub>23</sub> in Fig. 3), the switching barriers of these RD consumers must be improved to ensure that their inclination toward RD service are not influenced by logistics service marketing activities. Path B<sub>3</sub> shows that as switching barriers are increased state variables displace from Point S<sub>23</sub> to S<sub>24</sub>.

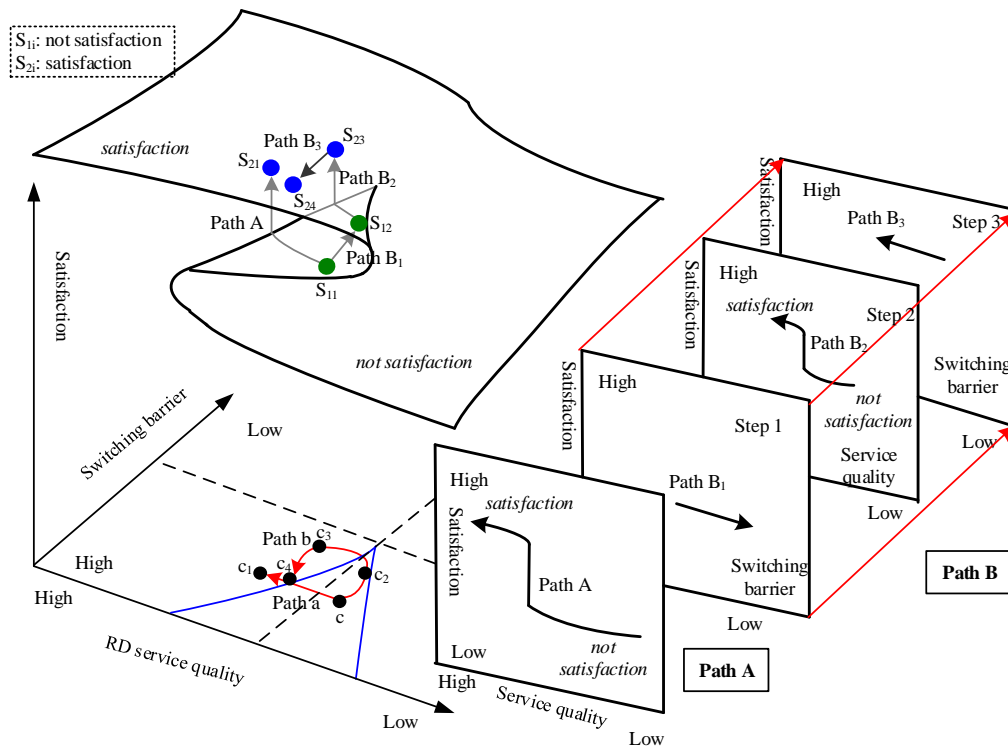


Figure 3. Representation of the Switching Behavior between Different Strategies

The following two strategies can be employed by the RD industry to influence readers' RD satisfaction:

- 1) Increase the switching barriers of readers who already use RD service frequently. For example, RD service vendors can continuously increase retailing delivery service quality, such as information, order Condition or personnel contact quality. Vendors must avoid service value reductions that can immediately impact readers' RD service choice behavior.
- 2) For readers who not satisfaction of RD service, the RD service industry should try to reduce the switching barriers of by increasing RD genres to the target population. The advantages RD service should be emphasized through marketing activities to the targeted segments. In addition to encouraging the readers who are not satisfaction of RD service to acknowledge the advantage of retailing delivery service value.

Once the switching barriers of not satisfaction readers have been reduced, RD service enhancement strategies can achieve the desired results. When these not satisfaction readers have switched to satisfaction, the RD industry can further develop marketing schemes to increase the switching barriers of newly acquired customers.

## 5. CONCLUSIONS

Digital technology has provided a new paradigm of our society and changed our lives interaction with the Internet. Online shoppers make their orders at their office or home anticipating quicker delivery than offline purchasing, and timely delivery at convenient times. Convenience stores in Taiwan have made remarkable successes with retail delivery services by integrating E-commerce and logistics systems to form a new retail delivery model: “On-line shopping with pick-ups at convenience stores.” Retailing delivery is one of the successful business models in the electronic commerce. Recently, the e-commerce in Shanghai and Hong Kong also provide the retailing delivery service. The purpose of this study was to identify potential components of LSQ on retailing delivery service for online bookstore. In order to analyze the effects of retailing service quality and switching barrier on customer satisfaction, cusp catastrophe is proposed using in this research. Based on the confirmatory factor analysis, the LSQ scale developed in this study appears to adequately fit the data, and cusp catastrophe model also fit and analysis results are as follow:

First, for managers who are involved in supply chain management, this study offers a clear conceptualization of logistics service quality on retailing delivery service for e-retailing. The logistic service quality of retailing delivery was containing three concepts such as information, order condition, personnel contact quality. Additionally, the Importance-Performance attributes of logistics service quality were examined. The key result is that RD provider should be put the focus in the following works to improve their retailing delivery service: information quality (LSQ<sub>13</sub>: I can follow the conditions of my orders.) and order condition (LSQ<sub>21</sub>: Time between ordering books and receiving books is short.). Retailing delivery managers who focus their business on e-retailing can use the findings to improve their logistics service quality. In conclusion, it should be emphasized that this study was a first effort to develop logistics service quality on retailing delivery for electronic commerce. The robustness of the measurement items in terms of validity and reliability and the strengths of the relationships between the latent variables can always stand improvement. Therefore, future research is called for to continuously refine the measurement scales and strengthen the findings of this study.

Second, this study uses retailing delivery service and switching barriers as control variables to construct a cusp catastrophe model of influences on reader satisfaction of RD logistics service. In the cusp catastrophe model, the switching barrier was found to have an adjustment effect on retailing delivery service quality and customer satisfaction. In a mature market, building a switching barrier emerges as a necessary strategy to safeguard one’s market. Hence, the RD carrier must increase the barrier of switching in order to increase its market proportion. With high switching barrier, whether a person is dissatisfied, it is very difficult to change to the opposite state. On the other hand, if a change is effected, our model would predict that it will persist with the same degree of “inertia” which maintains the original state.

Previous marketing strategies have focused primarily on increasing customer satisfaction or service quality, with less consideration of consumer switching barriers. However, the cusp catastrophe model analysis has allowed us to understand that switching barriers have a crucial role in acquiring new customers. Any consumer strategies attempting to switch consumers from

competing products (or opponents) and increase its market share must consider “lag” factor. This is because these strategies are less likely to achieve the desired effects due to the short-term “switching barrier” factors. Compared to the methods of previous research on choice behavior, a significant contribution of the cusp catastrophe model is that it provides a mathematical model to describe discontinuous change in behavior.

From the results of the catastrophe model analysis, we recommend that RD service marketing managers seeking to attract readers who dissatisfaction of RD service into becoming satisfaction readers must reduce the switching barriers of dissatisfaction readers and then increase readers’ satisfaction with appropriate retailing delivery service quality improvement plans and marketing activities. Finally, they should attempt to increase the switching barriers of newly acquired RD service consumers to maintain consumer satisfaction. We also recommend that RD industry officials address two crucial items when formulating marketing strategies: (1) different marketing strategy order of execution obtains different results; and (2) overlooking reader switching barriers can render numerous marketing programs ineffective or reduces their efficiency.

We hope that we made clear that the catastrophe approach to discontinuous behavior has fruitful implications. Catastrophe theory concerns qualitative behavior of continuous variables. It is suggested that other researchers could consider the cusp catastrophe theory and other nonlinear techniques, especially when standard approaches do not adequately capture the underlying dynamics.

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## 管理學院文創系 黃昱凱 移地研究說明

移地研究時間：2018/1/22-2018/1/31

移地研究地點：日本武藏野大學

研究經費來源：科技部計畫（MOST 106-2410-H-343-009 -）<sup>1</sup>

共同研究人員：武藏野大学院，張巧韻任准教授

移地研究說明：文創系黃昱凱副教授執行之科技部計畫，獲得科技部補助進行移地研究，移地研究的共同研究學者為武藏野大学院張巧韻特任准教授。移地研究期間，除了進行資料收集、田野調查、參加與研究議題相關之會議與展覽外，並會拜訪明治大學許佑旭特任准教授，針對研究議題進行意見交流。研究日程如下：

### 預計研究日程

- 1/22：台北搭機前往日本明治大學
- 1/23：前往武藏野大學大学院張巧韻特任准教授實驗室並與研究生進行專題討論
- 1/24：拜會明治大學大学院許佑旭特任准教授
- 1/25：田野調查（考察東京實體書店，含紀伊國書屋、三省堂書店、Book Off 等）
- 1/26~1/30：研究時間
- 1/31：日本東京搭機返回台灣

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<sup>1</sup> 計畫名稱：變遷中的網路書店：邁向調適與反脆弱之路

106年度專題研究計畫成果彙整表

計畫主持人：黃昱凱			計畫編號：106-2410-H-343-009-				
計畫名稱：變遷中的網路書店：邁向調適與反脆弱之路							
成果項目			量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)		
國內	學術性論文	期刊論文		1	篇	黃昱凱 (2018)，網路書店跨境服務消費者選擇行為分析，運輸學刊(審查中)。	
		研討會論文		1		黃昱凱、周詩好、林香蘭 (2018)，跨境網路書店服務品質分析模型－以金石堂網路書店為例，第十三屆海峽兩岸華文出版與文化創意論壇。	
		專書		0	本		
		專書論文		0	章		
		技術報告		0	篇		
		其他		0	篇		
	智慧財產權及成果	專利權	發明專利	申請中	0	件	
				已獲得	0		
			新型/設計專利		0		
		商標權		0			
		營業秘密		0			
		積體電路電路布局權		0			
		著作權		0			
		品種權		0			
		其他		0			
	技術移轉	件數		0	件		
		收入		0	千元		
	國外	學術性論文	期刊論文		1	篇	Y. K. Huang* and C. M Feng (2018), A Cusp Catastrophe Model for Developing Logistics Service Satisfaction Strategies: Multi-Case Study of Taipei, Shanghai and Hong Kong, Journal of the Eastern Asia Society for Transportation Studies, Vol. 12, pp. 2233-2251.
			研討會論文		0		
			專書		0	本	
專書論文			0	章			
技術報告			0	篇			
其他			0	篇			
智慧財產權		專利權	發明專利	申請中	0	件	

及成果		已獲得	0		
		新型/設計專利	0		
		商標權	0		
		營業秘密	0		
		積體電路電路布局權	0		
		著作權	0		
		品種權	0		
		其他	0		
	技術移轉	件數		0	件
		收入		0	千元
參與計畫人力	本國籍	大專生	0	人次	
		碩士生	0		
		博士生	0		
		博士後研究員	0		
		專任助理	0		
	非本國籍	大專生	0		
		碩士生	0		
		博士生	0		
		博士後研究員	0		
		專任助理	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。)					



# 科技部補助專題研究計畫成果自評表

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（簡要敘述成果是否具有政策應用參考價值及具影響公共利益之重大發現）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（請於其他欄註明專利及技轉之證號、合約、申請及洽談等詳細資訊）

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200字為限）

本研究成果已經發表一篇國際期刊(Journal of the Eastern Asia Society for Transportation Studies)與一場兩岸學術研討會(第十三屆海峽兩岸華文出版與文化創意論壇)，並有一篇已經投稿在運輸學刊(TSSCI)，審查中。

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）

跨境電商是全世界電子商務產業共同的重要發展趨勢，本研究以我國重要的網路書店金石堂網路書店為研究個案，分析影響香港與臺灣兩地消費者選擇網路書店的因素及其結構關係，並進一步以蝴蝶劇變模型建構選擇行為之模型。本研究的技術創新為整合結構方程模型與蝴蝶劇變模型來分析選擇行為的非線性特徵，對於學術與後續相關研究具有一定程度的創新價值，而分析的結果亦可以提供相關產業的管理者在制訂相關行銷策略時的參考依據。

#### 4. 主要發現

本研究具有政策應用參考價值：否 是，建議提供機關文化部, 經濟部, 交通部,

(勾選「是」者，請列舉建議可提供施政參考之業務主管機關)

本研究具影響公共利益之重大發現：否 是

說明：(以150字為限)

本研究發現若能先降低消費者的轉移成本將有助於管理者藉由後續增加滿意度來提升忠誠度的效率，而改善配送速度、貨物追蹤系統與異常處理則是提升滿意度的重要服務屬性。建議業者制定行銷策略時需注意兩關鍵要項：(1)不同行銷策略執行的順序會造成不同的選擇行為；(2)忽視顧客轉移成本會使行銷計劃無效或降低其成效。