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## DETERMINING THIRD-PARTY LOGISTICS FOR B2C COMPANIES THROUGH TRUST

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### ABSTRACT

As a new business model in the business society, E-commerce takes an important place in now and future business activities. Third party logistics is a very successful way to implement the logistics concerned with E-commerce. In developing the cooperation and alliances relationship between the third party provider and the companies trust plays an important role. The article described the role of trust in developing relationships between the third party logistics providers and the ecommerce companies. A four dimension of trust model is provided and the proposal methodology is given.

### INTRODUCTION

As a new business model in the business society, E-commerce takes an important place in now and future business activities. The development and the trends of it are very critical to the whole progress of the economic society. Ecommerce mainly takes two forms, B2B (Business to Business) and B2C (Business to Customer). For B2B businesses use the Internet to integrate the value-added chain that can extend from the supplier of raw materials to the final consumer. For B2C businesses use the Internet to service customers in a new channel. Examples of B2C are e-book stores, e-retailer, e-banking, etc. Since B2B is an extension of traditional business models there's less difficulty to implement than B2C. History and current data show that revenues from B2B took most part in the total revenues of E-commerce now [16]. Although business-to-business electronic commerce represents the bulk of all electronic commerce, most attention and speculation about e-commerce has focused on the B2C segment. As a totally new business model the development of B2C represents the trend of the future E-commerce.

Since B2C is a new business model what form it takes and what kind of relationship between participants are very crucial to the B2C models. B2C use Internet as a virtual media to communicate with customers. The way it does business is very different from traditional business. Among all of these new aspects, Supply chain, or E-logistic is such a kind of factor that is different from traditional business. For a traditional business the most common feature of its supply chain is bound or integrated with the business itself. Every business has its own supply chain to server itself. With the evolvement of business environment the interaction between businesses is deeper than before. The higher and higher level service demand from customers and

diversified business concerns lead the business to focus on specialized area. Now the managers are attracted more and more by the third-party logistics. A third-party logistics, or contract logistics, is the way that a company manages its supply chain not by itself but by a third party.

Lieb notes that during the past few years, interest in the concept of third-party logistics has increased substantially [9]. The concept involves the use of outside contractors to perform logistics functions, which historically have been performed within a company. Functions performed by the third party can encompass the entire logistics process or selected activities within that process. Many Fortune 1000 manufacturers in the U.S. are using third-party logistics services more extensively than they did in 1991, and their commitment to the use of such services has increased, according to a recent survey conducted by Professor Robert C. Lieb of Northeastern University, in conjunction with Mercer Management Consulting Inc [9].

Increased with the wide adoption of 3-party logistics is the question as what's the factor influencing the adopting of 3-party logistics in E-commerce companies? Steven [14] did a survey on the 3-party logistics provide and identify out the main influential factors are customer orientation, dependability, improved service, mutual trust & consideration, cost-saving, long-term relationship, etc, more that 10 factors. Larry pointed out that trust played an import role in Buyer-Supplier relationships [11]. Teng [15] pointed out that in partner cooperation in alliances relationship confidence to the other partner has major influence on the relationship between each other. In Teng's analysis trust and control can influence the confidence on the mutual parties.

In previous articles all authors have pay attention to the effect of trust in the partner relationship or alliances between organizations. But whether this trust is applicable in newly born e-companies? Few studies have paid attention to this aspect. Whether trust also serve as a very important factor in determining the relationship between the logistic services provider and the e-commerce companies? We identify out trust as a main factors in determinant the buyer-seller relationship and discussed it from its origin meaning. Then our paper will deepen our discussion and developed a model of trust for alliances between e-commerce companies and its 3-party logistics providers.

### LITERATURE REVIEW

Many papers have discussed the determinants of third

party logistics. The relationship exists between the 3<sup>rd</sup> party logistics provider and the Ecommerce company itself is a kind of cooperation and alliance relationship between organizations [14]. Steven discussed the problem from the providers' perspective. He identified out 3 levels of determinants according to their importance to the influence they produce on the relationship between provider and companies. Among Steven's list constructs like cost-saving, management expertise, sharing relevant information, Mutual trust & consideration are in the first level and of first importance to the development of the relationship between logistics providers and companies. Teng thought that mutual confidence between two parts is very important in partner cooperation in alliances [15]. In Teng's analysis trust and control affect each other and their relationship is of a supplementary character in generating confidence. Since 3<sup>rd</sup> party logistics services are considered as a kind of cooperation and alliance between organizations, trust, as an important factor in determining long and short term cooperation relationship between organizations, could be identified out as a main factor to have influence on the successful implementation of 3 party logistics relationships.

Many researchers have discussed the determinants of 3rd part-logistics. Like other aspects it has p Factors like cost-saving, pressure from competitors and improvement of customer service are the major factors concerned. Some other factors like firm revenue and firm size are also mentioned. Though much research has done on the work of this there are some point that hasn't been touched. Especially less attention has been taken on the trust factor. This is due to the difficulties of measuring trust. As Larry pointed out that it will be necessary to develop appropriate measures for trust [11]. Additionally most research is conducted in the early of the 1990s, when the e-commerce didn't develop as fully as today. Much of the current empirical knowledge about *third-party* users is based on research conducted among Fortune 500 manufacturing firms [7]. Left unanswered is whether these results can be applied to a broader audience of businesses, to include (a) smaller organizations and/or (b) non-manufacturing organizations such as B2C companies. Although many articles have predict the optimistic future of using the third-party logistics for B2C companies to manage their supply chain. Few studies have done on this. Also the characteristics of the businesses make the determinant of adopting third-party logistics for B2C companies are different from those of manufacturers. Which factor is more powerful in determining the adopting of the third-party logistics? The question for those SME (small-to-medium enterprises) is even essential because SME can't afford the cost for developing their single supply chain. Let's examine the logistics of current B2C companies. [www.amazon.com](http://www.amazon.com) is an e-book stores and has it's own logistics network. Dell is a very successful B2C company selling customized PC and also has it's own logistics network. [www.8848.com](http://www.8848.com) is an e-retailer in China and has it's own logistics network and set the post

system as its major channel of delivery cargo. In United States some companies use Federal Express to delivery the cargo. Since many companies outsource their logistics networks to third-party, this can be applicable for B2C companies. That is each company does not has to build it's own logistics network instead a third-party will provide the logistics work for it. A third-party logistics center allows leasing of information infrastructure and physical facilities or logistics services without requirement of ownership. The following figure is the model for the third-party logistics network.

With the above description of the third-party logistics center the question arises why is it that a third-party logistics center will be the major logistics trend in the future B2C e-commerce? What factors influence the trend of the third-party logistics now and future? Answers to these questions are the main issues concerned by many IT Managers and researchers. Firm size has been examined as a factor affecting the adopting of the third-part logistics. With respect to firm size, Sheffi suggests that "very small" (defined as less than \$50 million in revenues) and "very large" (greater than \$5 billion in revenues) companies may tend not to employ the services of third-party logistics providers [10].

### CONCEPTUAL MODEL

There are many factors influence the managers on adopting the third-party logistics. Factors like cost of building logistics network by the B2C companies themselves, cost of outsourcing from third-party logistics centers, trust problem with the third-party logistics center, managers' acceptance of new technology, firm size, firm type, etc. Here I want to focus on the firm size factor.

#### Cost

Cost of building the logistics network by the B2C companies themselves is obviously the main factor determining the adoption the third-party logistics center. According to the transaction cost theory a transaction will occurs outside the organization on the condition that the cost of the transaction will be less than the cost of doing the business insider the organization. Here the adoption of the third-party logistics doesn't fall out of this theory. Now days B2C is a new trend of doing business and most of the B2C companies are newly born venture capital-driven high-tech company. The size of them is small to medium. Money for them is very important. What's more few B2C company gain profit though the stock price of them is potentially high. Investing in infrastructure of logistics is highly cost and the benefit couldn't be returned in short time. If the third-party logistic center provides the specialized logistics infrastructure and services with a relatively lower price it will be well welcomed by the B2C companies.

#### Trust

The trust problem is another factor affecting the adoption of the third-party logistics. Trust can be

showed by many behaviors. A lot of previous paper discussed the meaning of trust and viewing trust from different perspective [4, 5, 11, 13]. The behaviors decreasing trust will lead to less or none adopting of the third-party logistics, vice versa. The problem is that adopting the third-party logistics means that B2C companies have to expose some of their business information to the third party. Some services are fulfilled by the third-party directly or indirectly instead of by the B2C companies themselves. Furthermore the specialized third-party logistics centers have the information about the customers and clients of the B2C companies. Whether they will disclose the information intentionally or unintentionally is really an important factor for the managers of B2C companies to hire the third-party to do their logistics work.

In much discussion about the meaning of trust Larry points out that the origin of trust in the buyer-supplier relationship can be traced into the conception of identity, image and reputation of the organization. The three

constructs will affect the buying organization's buying decision [11]. But the definition of the trust from the purchasing managers is very different from that of the academic. Ring and VanDeVen state that two views on trust can be found in management and sociology literature: (a) a business view based on confidence or risk in the predictability of one's expectations, and (b) a view based on confidence in another's goodwill [12]. In the risk-based view of trust, parties hedge against uncertain states of nature, adverse selection, and ethical hazard through formal contractual means such as guarantees, insurance mechanisms, and laws. The second view of trust emphasizes faith in the moral integrity of others' goodwill.

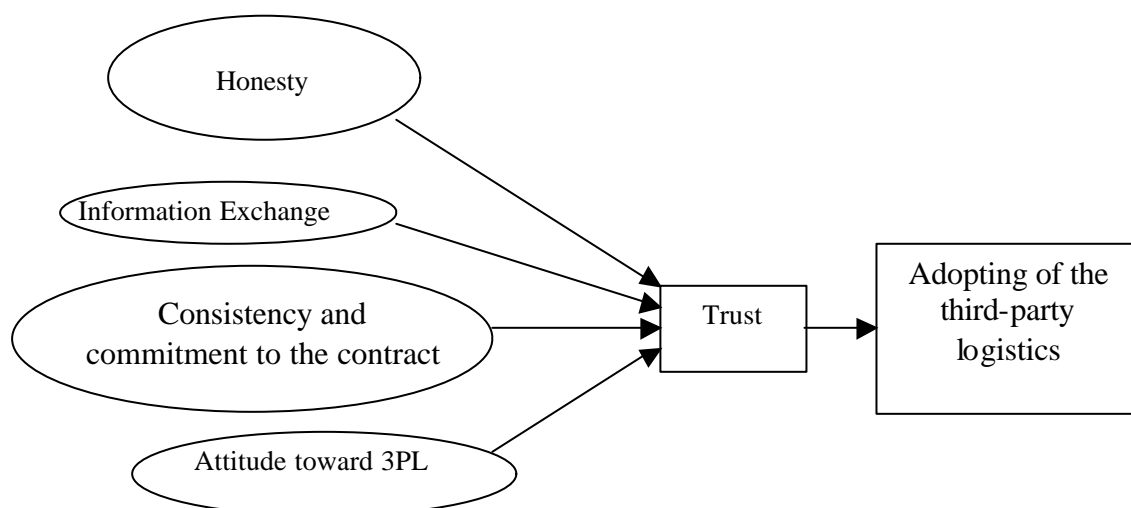
A research done by Larry showed that purchasing manager has different perception about the trust. Four attributes that increase the trust and four attributes that decrease trust respectively are getting from the survey done on the purchasing managers [11].

Attributes that increase trust	Attributes that decrease trust
Consistency and Follow-through	Lack of commitment to contract
Sharing ideas, technology, information and cost-saving	Poor Communication
Open Communication and listening	Poor attitude
Multiple respect and honesty	Dishonesty

Table 1. Trust dimensions

The above 8 attributes can be combined into 4 that has a positive and negative value respectively. The fours constructs are honesty, information exchange, consistency and commitment to the

contract, attitude toward the 3PL. These four attributes can affect trust, which will affect the adopting of the third-party logistics. The relationship can be showed by the following graph.



H1: Trust will positively affect the adopting of the third party logistics services.

**SURVEY DESIGN**

**Definitions**

In this design, two variables, adopting the third-party logistics and trust, are concerned. The definition and how to measure them is given in the following.

**Adopting the third-party logistics services**

Typically the extent of the third-party logistics includes outsourcing the warehouse and transportation, and

information networks. For example, most 3PLs can run their load-optimization software with the freight from multiple clients. So the 20,000-pound load from customer An in Cleveland and the 20,000-pound load from customer B in Akron can be consolidated on a single truck and save both companies money. The more customers a 3PL finds with similar geographic needs, the greater the opportunity. Other supplementary services provided by the third-party logistics provider, such as the package and customization of the goods, account for

only a very small part of logistics. Here the degree of adopting the third-party logistics is measured by how many services being adopted by the e-commerce companies. Since the warehousing and transportation are the major large fraction of the third-party logistics services, we assign them 40% weight each for the

adopting of the third-party logistics. For the information network service we give it a 10% weight of adopting it. And the other supplementary service accounts for 10% of service.

Adopting parts	Warehousing	Transportation	Information Network	Supplemental Service
Percentage	40	40	10	10

Table 2. The definition of Adopting third party logistics

For each detail percentage of each part there's a detail percent for it. Say that a company only adopts part of warehousing then the degree of adopting should be less than 40%. The same is true for others.

### Trust for the third-party logistics services provider

To better understand and discuss a concept, it must first be defined. Although trust is frequently mentioned in discussions about buyer-supplier relationships, it is seldom defined. As one researcher stated, "Nobody probably understands what is meant by the word trust."<sup>12</sup> Several researchers have made tentative attempt to define trust. Hosmer thoroughly analyzed the definition of trust as it is used from various approaches in organizational theory and philosophy. He concludes that: Trust is the expectation by one person, group, or firm of ethically justifiable behavior - that is, morally correct decisions and actions based upon ethical principles of analysis - on the part of the other person, group or firm in a joint endeavor or economic exchange.<sup>14</sup> This definition, however, may not be of much use in this discussion because purchasing professionals may not be clear or agree on the meaning of ethically justifiable behavior.

Using these definitions and perspectives, it is possible to say that a trustworthy buyer or supplier is one that displays the following characteristics:

1. Does not act in a purely self-serving manner
2. Accurately discloses relevant information when requested
3. Does not change supply specifications, standards, or costs to take advantage of other parties
4. Generally acts according to normally accepted ethical standards

Using the 4 constructs above we can define trust. Here the four variables, honesty, information exchange, consistency and commitment to the contract, attitude toward the 3PL are measured in the ordinal level and each has two levels, 0 and 1.

### Survey Design

What we want to analysis is the effect of trust on adopting the 3PL services. Here we want to our result can be generalized to all the B2C companies and can get use this as a reference on decision with purchasing 3PL services. Some B2C companies have partly or fully adopted the 3PL services and some are the potential

buyers. Make a sample survey on them will get the actual data about trust. At the same time such other variables that affected trust will be controlled.

### Controlled variables vs. survey variables

The main variable effect we want to see is the effect of trust on the adopting of the 3PL services. Trust is measured through 4 variables, honesty, information exchange, consistency and commitment to the contract, attitude toward the 3PL. At the same time we should control other variables in our survey in order to see the main effect of the trust. From the literature above we know that the variables we should control are cost, pressure from the competitor, improved customer service, firm size and firm type. In our design we control these five variables as constant.

### Sampling Method

Since we can't go on a survey on all the B2C e-commerce company, we must choose a sample frame. Here I want to select the B2C companies in Hong Kong as the sample. I can get the list of the B2C companies from the Hong Kong Enterprise Bureau. Since we want to control firm size and firm type we use the stratified sampling method to get 200 B2C companies each from the 3 districts, Kowloon, Shatin and HK Island. Through this method we can avoid the non-equal distribution of the firm size and firm type. The selection within the district is done by computer program. Then questionnaire will be sent to the selected companies. To get the high responsive rate a cover letter saying the importance of the research is implied and I guarantee that the study results will be shared for them. The strength of this method first lies in that it can get not only the data of the whole population but also can get the data according to the districts. Second it's a very convenient way to get the sample. Third the diversity of the B2C companies is potentially large than other methods thus sample errors can be reduced. No matter what kind of method used for selecting samples there must be the sample errors. For this method the potential sample errors may be the sample from Hong Kong may not the represent of the whole B2C companies.

The questionnaire will be used for the survey. The questionnaire will be structured to three parts. The first part will be the current status of adopting the 3PL services, which is about the dependent variable; the second part is about the subjects' decisions on the conditions that 3PL providers provide or not provide honesty, information exchange and commitment to contracts, the subjects' attitude toward the adopting

3PL is asked at the same time. This part is designed around the independent variables.

#### Analysis of the result

After the questionnaire is sent back the encoding work is beginning. First I will check the consistence of the answers. If the inconsistency answer is found I will call the companies to ask them again. Given that the above question the major part are the first and the second party. The first is about the status of adopting 3PL. After getting the data I will calculate the percentage of adopting 3PL services for each company and the mean and the standard deviation. For the second part, since the measurement for trust is the four variables honesty, information exchange, attitude toward the 3PL and the commitment to contracts, the question are mainly on this four aspects. After getting data, for each variable we calculate the mean for each variable and use regression to analyze the effect of the four variables on the adopting of the 3PL services.

Some skeptics may say that this design may not reflect that trust has an effect on the purchasing manager's decisions. There may be many other major factors, like cost, the professions, etc, that will affect the manager's decisions. As I have mentioned I have control the main variable cost so this explanation can be ruled out.

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