

# A Study on the Development Strategy of Logistics System in E-Commerce in China\*

Moon-Kap OH<sup>1</sup>, Myoung-Kil YOUN<sup>2</sup>

<sup>1</sup> *First Author* Professor, Department of International Trade, Professor Semyung University, Korea  
E-mail: [kiaomk@hanmail.net](mailto:kiaomk@hanmail.net)

<sup>2</sup> *Corresponding Author* Professor, Dept. of Medical IT & Marketing, Eulji University, Korea. Tel: +82-31-740-7292, E-mail: [retail21@daum.net](mailto:retail21@daum.net)

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## Abstract

**Purpose** – Along with the rapid growth of the economics and IT industry, E-commerce appears as the next potential area of world economics. For this no-entity shops commerce style, logistics is crucial for the success of E-commerce.

**Research design, data and methodology** - In this paper, Dangdang.com, the largest online marketplace in China, is studied and a conceptual model is present, to develop a practical way to develop the logistics system in E-commerce situation.

**Results** - This research finds that following 4 factors are critical success factors for E-commerce logistics: 1) logistics centres are very important to control the inventory management; 2) keep good cooperation with third-party logistics (3PL) can guarantee good quality shipping service and also can reduce delivery costs; 3) build strong information system; 4) quick response system also needed for an efficient logistics system. When E-commerce firms are developing their logistics systems, they should pay more attention to these 4 critical success factors.

**Conclusions** - In summary, successful 3PL management is vital for competing regionally and globally throughout the logistics value chain. We see information system as an enabler in logistics management to get the right products to the right place in the right quantity at the right time and to provide quality services to satisfy the customer's needs.

**Keywords:** Logistics, E-commerce, Case Study.

**JEL Classification Code:** F01, L91, L92.

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## 1. Introduction and Literature Review

In today's highly competitive environment, many companies are entering the global arena to gain market share and take advantage of higher production and sourcing efficiencies. E-Commerce has brought new challenges, as well as opportunities for logistics management. The cost of logistics and transportation has a large impact on a company's profitability. A global market, outsourcing, and operations place tremendous pressure on the logistics function to deliver the goods as quickly as possible at the lowest cost (Gunasekaran & Ngai, 2004). Therefore, a key

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determinant of business performance is the role of the logistics function in ensuring the smooth flow of materials, products and information throughout a company's supply chain (Sum et al., 2001). More recently, logistics has become more prominent and is recognized as a critical factor in competitive advantage due to the nature of a physically distributed operations environment and global markets.

Logistics can be defined as an operational process that includes inputting, storing, transporting and distributing physical goods (Stratton, 2001). Over the years, logistics has developed from single party logistics (self-managed) to Third-party logistics (3PL) using a logistics network. 3PL is contractual logistics focusing on regional operations. The main objectives of outsourcing logistics services are to (a) reduce operating costs, (b) meet demand fluctuations, and (c) reduce capital investment (Calza & Passaro, 1997; Hess, 2002; Gunasekaran & Ngai, 2004). The general problems that arise in corporate logistics include delayed and inaccurate information, incomplete services, slow and inefficient operations, and high product damage rates. This indicates the importance of accurate information exchange among different parties along the logistics value chain. Under such circumstances, the role of information technologies including the Internet and World Wide Web (WWW) in providing shared-information platforms for improving logistics performance is significant (Ngai & Wat, 2002).

## **2. Problems of Logistics Management in China**

It would be difficult to over-exaggerate China's economic power and potential. The Economist recently forecasted that, within 20 years, China would become the second-largest economy in the world. But China is still a developing nation, full of potential, yet catching up rapidly. It is believed that logistics is a very important part of economic systems and influenced the growth of economics intensively (Shawn & Lindsay, 2003). For China, there are also several important barriers to the development and expansion of the logistics industry in China. In particular, there is a severe shortage of experience in quality management and sophisticated logistics infrastructure in China (Jefferson & Rawski, 1994). On the software side, IT applications, internet and information system have not been built very well, education and research about logistics stay at a low level.

In summary, China has much to gain from improving its logistics capacity. Morgan Stanley estimates that China annually spends 20% of its nominal gross domestic product (GDP), or US\$215 billion on logistics. This compares unfavourably with total logistics costs in the US market which, at the end of 2000, were 10.1% of nominal GDP, or US\$1,006 billion (Ho & Lim, 2002). If China could achieve the 10% benchmark set in the USA, the savings would amount to approximately \$108 billion per annum.

In the other word, the rise of e-commerce has opened an entirely new front in which the Chinese economy must catch up. The Internet has become an important tool in supply chain management, with everything from vendor catalogues to shipment and order tracking to scheduling handled electronically.

Is China ready for the quickly evolving present and not-so-distant future of e-commerce and logistics? Given the size, strength and potential of the Chinese economy, combined with the changing economic, legal and technological environment, it is crucial for distribution and logistics personnel to be continually updated on the state of logistics in China. In this paper, an attempt has been made to highlight the importance of logistics in E-commerce and attempt to build up the efficient logistics system with the research about Dangdang website shop – the biggest website shop in China.

## **3. Background for the Research**

The Internet has created a new economic ecosystem, the e-commerce marketplace, and it has become the virtual main street of the world. Providing a quick and convenient way of exchanging goods and services both regionally and globally, e-commerce has boomed.

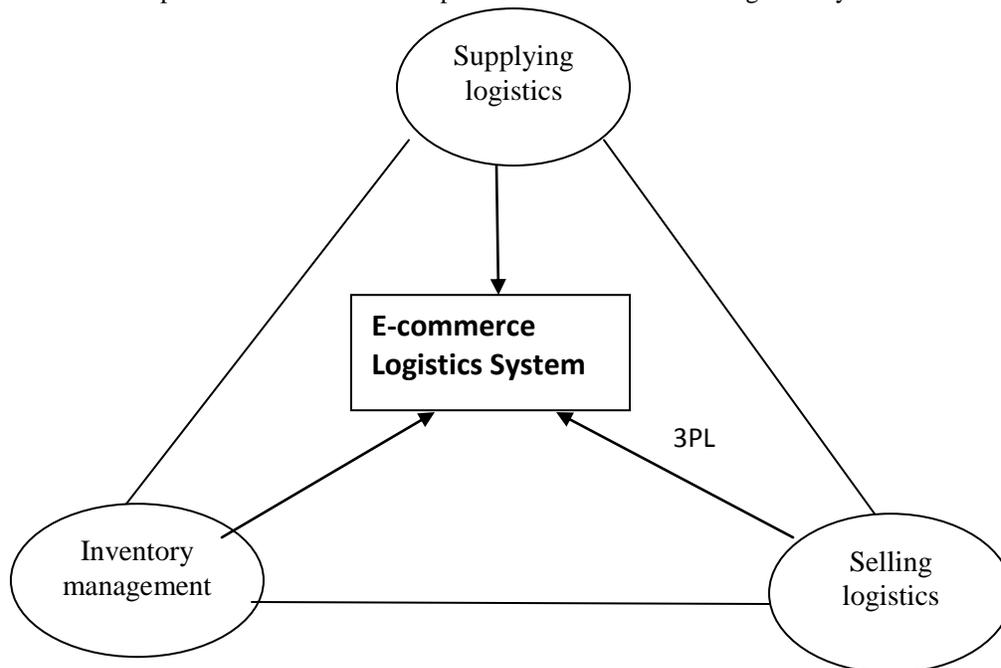
China's e-commerce market is growing strong, along with the rapid economic growth. According to a China Tech News report from last week that summarizes market research firm IDC's recent report, the trade volume of China's e-commerce market increased approximately 20% in 2008. It is expected to reach CNY3.22 trillion in total trade by 2010, up from CNY1.951 trillion in 2008. China e-commerce giant Dangdang's B2C website was one of the greatest beneficiaries of this growth in 2008.

Dangdang online business (Dang Dang, 2017) was set up in 1991 and focused on books, videos and such similar things. But now, with the great development of China economics and internet, its business areas expanded many different products, including clothes, shoes, cosmetics, digital products and so on. It has more than 15 billion customers in the entire world.

There have also been other similar online marketplaces in China, but only Dangdang.com has so strong and efficient logistics system. Dangdang.com cost 7 years to build such a huge support logistics system. Near 50 thousand square meters warehouses located in eastern, southern, and northern parts of China. It also developed financial software, customer management software and logistics software and built up an efficient information system based on internet and wireless technology by its self. With the help of these high technology facilities, Dangdang.com delivered thousands of products to different places for varies of customers efficiently. In Dangdang.com group, every detail has its features and is costumed. All of these efforts make Dangdang.com be one of the most famous online businesses in China.

#### 4. A Conceptual Framework for E-commerce Logistics System

In this section, a conceptual framework for logistics in E-commerce is present. For E-commerce, the main logistics system consists of 3 important parts: 1) supplying logistics; 2) inventory management; 3) selling logistics. Figure 1 illustrates a conceptual model for the development of an E-commerce Logistics System.



**Figure 1:** A conceptual model for the development of an E-commerce Logistics System

For most E-commerce firms, suppliers will send its products to the right places directly. So these firms need not to put so many efforts in supplying logistics. Such companies will devote themselves in the second and the third steps, inventory management and selling logistics. For Dangdang online business faces the same situation. So I investigated and analyzed the E-commerce logistics in inventory management and selling logistics.

##### 4.1. Inventory management

Dangdang.com already set up three logistics centres in Beijing, Shanghai and Guangzhou. The warehouses in these 3 cities covers more than 290 thousand square meters. In Shanghai and Guangzhou, the area of the warehouse is about 10 thousand square meters. Soon, it will set up another inventory centre in Chengdu, which will cover southwest of China. From that time on, the logistics system of Dangdang.com will cover northern part of China; Logistics centre in Shanghai will cover middle and eastern parts of China; Logistics centre in Shanghai will cover middle and eastern parts of China. Logistics centre in Guangzhou will cover the southern part of China; Logistics centre in Chengdu will cover the western part of China. Logistics centres in different cities can cover all of China and that can guarantee the customers can get their products as soon as possible.

For each warehouse, it has been separated into normal inventory area, special inventory area, separating area, packing area, picking up area and returning area strictly. Main inventory area is about 20 thousand square meters, returning area is about 3 thousand square meters, other area is about 6 thousand square meters. It has more than 120 staff in each warehouse. To manage this huge system well, Dangdang.com brings in ERP and JIT system to build up information system. All of these supports the inventory management

#### **4.2. Selling logistics**

There are millions of people will login in Dangdang website and order the products. How to deliver these products to different places is crucial for such an E-commerce online business.

Dangdang.com, the same with other online business, doesn't have entity shops. So, it relies on the logistics centre and sends all products to customers, and the basic model can be shown:

First, suppliers send all products to right logistics centre;

Second, distribute from 3 logistics centres to different customers;

Third, deliver the products to the sub-cities, then to the next and to the customer;

Fourth, when local logistics centres lack expected products, headquarters will relief enough good to support this logistics centre.

Based on this kind of logistics model, Dangdang.com cooperated with different delivery companies. Cooperating with other delivery companies is called third-party logistics (3PL). This strategy not only can reduce delivery costs but also can provide high-quality delivery services. Dangdang.com has very good quality delivery partners, such as China Railway Express, Feibao China Rail Express. These partners are in charge of delivery service among big cities. On the other hand, Dangdang.com also has another kind of delivery companies, who will provide delivery service between small cities or in cities.

To guarantee the products will arrive at their customers on time and exactly, Dangdang.com required every express company and its member deposit some money and it will return the money after they finished the delivery job. For example, in the city delivery, each delivery car or bus has a kind of tracking equipments; the next stop knows what time the package will arrive.

#### **5. Summary of Findings and Conclusions**

In this paper, a conceptual framework was developed based on a literature survey and a study of Dangdang.com, the biggest online marketplace in China. The main objectives of the research are: 1) to find what the real situation is in E-commerce logistics; 2) identify the main factors supporting the whole logistics system; 3) try to develop a model to build an efficient logistics system in E-commerce situation.

Based on the case study and its results, the following were seen as critical success factors for E-commerce logistics: 1) logistics centres are very important to control the inventory management; 2) keep good cooperation with third-party logistics (3PL) can guarantee good quality shipping service and also can reduce delivery costs; 3) build strong information system; 4) quick response system also needed for an efficient logistics system, especially in E-commerce situation.

In summary, successful 3PL management is vital for competing regionally and globally throughout the logistics value chain. We see information system as an enabler in logistics management to get the right products to the right place in the right quantity at the right time and to provide quality services to satisfy the customer's needs. There is no doubt that E-Commerce is the catalyst across the supply chain network, E-Commerce logistics is different from normal logistics. From our literature review and case analysis, it is clear E-Commerce has an enormous impact on the performance of a logistics system. It changes and redefines some traditional roles in a logistics system from cargo ordering, invoicing, to global cargo tracking, monitoring, etc.

With the rapid growth of E-commerce, the logistics system will become more and more complicated and flexible. But the crucial factors influencing the success of logistics system will be the same. We see IT applications like the Internet, WWW, and information system as a major source of logistics productivity, especially in E-commerce situation.

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