

# LOGISTICS SYSTEM AND PROCESS IN EXPRESS DELIVERY SERVICE COMPANIES

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Abstract <p>Express delivery services (EDS), as a young industry, are currently experiencing a rapid growth to fulfill the increasing demand. With the aims of being fast, safe, controllable and traceable, EDS companies have developed a quite different logistics network and systems in their logistics process. The purpose of this study was to describe EDS network models, like the spoke-hub paradigm, as well as the way of EDS processing. It was also studied how much of advanced and automated technologies and methods, like geographical information system, are used for optimizing the network, accelerating the delivery speed and improving services. The whole logistics chain of EDS was to be presented in this thesis.</p> <p>Express Mail Service (EMS), a large Chinese express delivery corporation, plays an important role in this market. Its significant part, EMS of China Post corporation, is now experiencing hard competition. This thesis went deeper inside the Chinese EMS company and found reasons that have led to competitive advantages and weaknesses through using the SWOT analysis. The research material included a lot of information and data from EMS company and its market and from the author's internship experience.</p> <p>As a result, it can be stated that the Chinese EMS company should become more independent and keep learning from foreign EDS companies and adopt a differentiated strategy based on its advantage in the domestic network. In the end, development suggestions to improve the company's network and services and conquer the current challenges are given. The clients expect faster, safer and more reliable EDS services with a good customer service to meet their different requirements and growing demand.</p>		
Keywords Express delivery services, express mail services, logistics system, spoke-hub paradigm, network.		
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# 1 INTRODUCTION

## 1.1 Background

Express services, which are also called express delivery services (EDS), are known to most of us. But 50 years ago, it was a brand new area for people. It was born in the United States in 1960's. In its short history, express services have experienced a rapid growth and have expanded all over the world. United States International Trade Commission (USITC) defines this industry that "*The express delivery services industry comprises firms that provide expedited movement of document, parcels and other goods. These firms maintain control over the shipments throughout the delivery process and often use technology to monitor the location of each item.*"(U.S. International Trade Commission 2004, 6-1.)

Nowadays, there are many express service companies playing important roles in the field of express service. The most famous groups, such as UPS, FedEx, DHL and EMS, are known for the rapid and accurate delivery. Integrating ground and air networks, they provide a world-wide range of door-to-door services and specialized services. As the air transport develops, the express services can reach longer distances and fulfill the "time-sensitive" delivery. The modern express services are not only the rapid goods delivering, but also the financial and information exchanging. Development of information technology and computer science will benefit this industry.

Express delivery services industry is still growing today and will, probably, keep growing in the near future. That is why this topic was chosen as the target of this bachelor's thesis.

## 1.2 Objectives and Goals

Among the express services companies in today's market, EMS, as a special express mail and package service group, is formed by 154 countries' post systems. This cooperative became my target in finding out about the general express delivery service process as well as the differences with other express service companies.

In this thesis, the whole logistics chain, including warehousing, transportation and picking in the express delivery service process is presented. Through reading, the characteristics and features of logistics system in the EDS industry could easily be found. Based on my internship experience, the dissertation is focused on the Express Mail Service company of China Post. Their logistics process was studied in this thesis, and it was described what had been seen and what had been found. The logistics systems concerning package handling, processing supervision, warehousing, transport and distribution and information management were examined more closely.

From this point of view, the discussion expanded to the whole field of express delivery service aiming at showing characteristics and specific requirements of the logistics system in express services companies. It could find many differences between express delivery services and other express logistics services as well as the differences in their strategies and operations.

Then, the target company was examined to find out the competitive advantages and potential threats. EMS's strengths and weaknesses were also analyzed comparing them to their competitors in the Chinese market. Based on a market investigation, a result was arrived at in order to check the current operation and develop their management.

## **2. RESEARCH**

### **2.1 Research Methods**

The bachelor's thesis was mainly based on the internship experience at Xi'an Express Mail Service of China Post in the summer of 2009. The analysis was based on what was seen and experienced. During this period, I observed the whole logistics process from the starting point to the destination. According to these researches, the author tried to rebuild a completed delivering process in the research part.

Besides, this thesis applied the knowledge which is learnt from school and the needed information which is searched from proper sources. These sources are mainly from some related literature, reports and annuals. The logistics operation of some international express delivery companies also enlightened me as to the SWAT analysis. That made that EMS's competitive advantages and the place which need to be improved can be seen. When writing this thesis, part of information is from their websites and from the e-mail contact with DHL and FedEx.

I really thank my contact person Tang Puyu, the manager of networking monitoring department of Xi'an EMS cooperative. He conducted and taught me during my intern period and gave me some good advice while I was doing the thesis. He has worked for China post and EMS for 20 years. His experience and opinion stimulated me to find some fresh ideas and bring me into deeper consideration.

Based on the experience and information the author gained, the thesis will analyze the current situation to arrive at the conclusion. The suggestions are

also given at the end.

## **2.2 Research tools**

In the analysis, some tools were used to help the author to evaluate and analyze the EMS's current situation and strategies, which are discussed in the following.

### **2.2.1 ABC Analysis**

Vilfredo Pareto (1848-1923), an Italian economist, discovered that 20 percent of the people controlled 80 percent of the wealth approximately 100 years ago. Pareto's law refers to not only wealth, but also critical issues, importance and so on. In the management, that means "approximately 20 percent of the products and customers generate 80 percent of the revenue". (Viale 1996, 36.)

So, the 20% of the customers who created 80% of the company's revenue are called "A" customers. The 30% of the customers and 50% of the customers who created 15% and 5% company's revenue respectively are seen as "B" and "C" customers. The same classification can be used in products or parts for inventory planning or investment. (Op. cit. p, 36-37.) Otherwise, the classify level can be more than three according to situation.

It is no doubt that companies should first pay attention to the customers in the A level, and then to the customers in the B level and C level. But all classifications should be based on careful investigation. Sometimes, there are no clear differences between "B" customers and "C" customers. So, it is important to remember that, when you facing the customers, the services



should be the same. Do not let your customers know that they are “B” or “C” customers.

### 2.2.2 SWOT Analysis

“The key process used in situation analysis is SWOT analysis. SWOT stands for: **S**trengths and **W**eaknesses as they relate to our **O**pportunities and **T**hreats in the marketplace” (Westwood 1997, 19.)

When analyzing a company or a product, it can be done from these four aspects. Strengths refer to issues which attribute the person or company to achieve the objectives, whereas issues which are harmful to achieving the objectives can be considered as weaknesses. Opportunities refer to some cases or conditions that can help company to achieve some possible goals. On the other hands, some threats could do damage to the goals or the current situation.

SWOT analysis includes finding your current strengths and weaknesses and analyzing opportunities and threats that they will influence in future. “You can then attempt to exploit your strengths, overcome your weaknesses, grasp your opportunities and defend yourself against threats.” (Op. cit. p. 19.)

Before making a strategy plan, most people would list the Strengths, Weaknesses, Opportunities and Threats on the same page like in this following table:

TABLE 1. Presentation of SWOT analysis

<b>STRENGTHS</b>	<b>WEAKNESSES</b>
<b>OPPORTUNITIES</b>	<b>THREATS</b>

### **3 LOGISTICS PROCESS IN EXPRESS DELIVERY SERVICES**

#### **3.1 Characters & Specific Requirements of Logistics System in Express Delivery Services Companies**

Different with other logistics services, express delivery services focus more on speed, safety and accuracy. To fulfill these goals, the whole logistics process has to contain ground, sea and air network. That means cooperating with other companies and other countries' groups is necessary. Spreading the range of services, express services companies have developed more types of businesses. To save the customer's time and work, the service is started from the customer's door. These services increase the width and depth of express services, but also give high requirements to the logistics system.

So, the logistics system in express delivery services has the following specialties:

1. Each parcel has its own process and different speed. So, there are some nodes to sort these different parcels in the logistics process.
2. Because of the different requirements from a number of customers and for various goods, the system should handle these cases with a large amount of information.
3. The geographic location of distribution centers, post offices and warehouses is not concentrated.
4. Expanding the logistics service in new areas is always needed.
5. The location of each branch office is far away from others, which sometimes leads to difficulty of management.
6. To cut the costs, express services companies do not use direct transport from sender to receiver. They operate some logistics hub in which parcels of

many customers are concentrated.

7. Door-to-door services need more staff and increase workload.

### **3.2 Information Management**

According to these features, express delivery services companies have developed an information network to fulfill the demand. In the network, they can supervise and trace each package. They set many nodes in the process and put the data into the system in each node. In this way, they can find the mistake in time and know the responsibilities well.

This information network is formed by computers basing on the internet. When receiving the parcel from customers, workers make the initial data concerning the delivering information and weight. These data will be taken by a barcode and a tag on parcel. At the same time, the information will be input into local computers and transferred to the company's main server. For the safety reasons, this information should not stay in the local computer after transferring. On the other hand, except the basic information about the parcel, the information about the payment will also transfer to another computer, which just handles the financial issues, connected with main server as well. The third computer client is responsible for customer services including responding to the inquiries and informing about the details. When the goods arrive in warehouses and picking centers, they also have local computers to input the information, and their operation is generally the same with what they have done in the first step. So the same work is repeated in every node.

To publish the service's price and computer news and to provide tracking service, the express service company has its own website server connected with the main server, too.



From the software aspect, EDS companies prefer using their own integrated networking systems, which are based on EAI technology. This system could integrate the company's ERP (Enterprise Resource Planning), CRM (Customer Relationship Management), SCM (Supply Chain Management) and the database, to make communication and data exchanging freely between different departments and branch offices. When adopting this system, an EDS company would obey the following rules:

1. Align Plans to Strategy
  2. Consolidate First, Integrate Second
  3. Use a process-driven approach to develop end-to-end solutions
  4. Establish clear lines of ownership and accountability
  5. Enforce EAI architecture
  6. Mandate integration requirements for new applications
  7. Develop a common representation of data and process
  8. Test early and often
  9. Re-factor interfaces constantly so they never become legacy
  10. Evolve business practices through experimentation
- (Gable 2002)

### **3.3 Distribution and Delivery**

#### **3.3.1 Spoke-hub Distribution Paradigm**

Many successful express delivery services companies, like UPS, Federal Express and EMS, are implementing spoke-hub distribution. So, what is the spoke-hub distribution paradigm and how does it works?

The spoke-hub distribution system arranges the logistics network like a bicycle's wheel. In the center is a hub which connects many nodes linked by spokes, and the goods are transported following the spokes. (Hudson 2003.) The following diagram shows a typical spoke-hub diagram. In this figure, there are two hubs, Los Angeles and Denver, linked with many nodes around them. All parcels should be sent to the hub firstly, and then they are delivered to another hub like Denver or Los Angeles. At last, parcels will be fetched by these cities from the hubs.

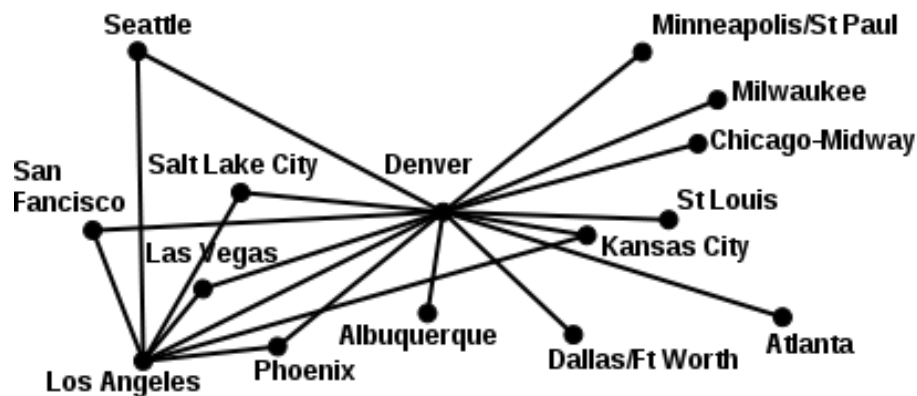


FIGURE 2. Airline spoke-hub paradigm (Stannard 2008)

Express delivery companies have lots of nodes, which play roles of customer services, distribution centers, warehouses, picking centers and so on. In their network, a spoke-hub paradigm is a good way to cut the routes between different nodes. In a network with  $n$  nodes and one hub, only  $n$  routes are available, and each node only connects with the hub. But in a point-to-point network with  $n$  nodes, it probably has  $n(n-1)/2$  routes. (Babcock 2002)

The obvious advantage of using this distribution system is that it can cut off the transportation costs, improve cycle time and reduce the inventory. Because the goods are more concentrated, transport resource can be used

more efficiently. For example, the goods flow between a node in city A and a hub in city B. Every parcel from city A should be sent to city B by airplane. And in this airplane's return round, it can take all of the parcels whose destination is city A. So, the airplane can fly between two nodes with a full capacity. For the same reason, the warehouse and facilities are also used efficiently. Moreover, creating a new spoke is easy, rather than building a direct point-to-point link. That is considered as an advantage for expansion.

Nevertheless, because each spoke is responsible for full capacity transport, it could have risks, like a serious delay, if an accident happened. And, in this network, the longer journey will not be suitable for the next-day delivery or other express delivery. This system lacks in flexibility somehow, because the spokes are mainly stable (Babcock 2002).

So, this system requires a careful traffic analysis and risk management. In this way, a good route scheduling is needed.

### **3.3.2 Node Set and Route Plan**

Nodes in an express network refer to receiving stations, distribution centers, warehouses and other activity points in the delivering process. They are always a logistics chain's start points as well as its end points. The transport of parcels between the origin node and destination node is called line-haul. The origin and destination nodes form an od-pair. The parcels of one service transferred between two nodes are called the flow of the od-pair, and this stable flow in the network becomes a regular route. ( Armacost, Barnhart, Ware 2002.)

In express services, all parcels have to arrive at their destination on time.

That is, all parcels of one service, including such as the picking-up process, line-haul transport and final delivery to consignees, should be done before the cut-off time of the corresponding service. It is important to arrange and design nodes in a reasonable way, and to plan the routes well, because they affect work efficiency, costs and customer services.

Generally, these origin and destination nodes would be set near the customers to reduce regional transport. When setting a new node, companies could carefully think about the land and labor costs and infrastructures around. However, sometimes, setting too many nodes makes inventory being dispersed, and that leads to more costs and longer transport.

A more important thing is the hub network design. The construction of a line-haul network is better known as the hub network design. Designers always face two problems. The first problem is the assignment of nodes to hubs, arcs between hubs, and routes plan. The second one concerns the number and the location of the hubs. (Meuffels et al. 2009)

A good hub network design will minimize the sum of transport cost, the sum of transport time and the number of hubs. So, the designer will account all the elements above by using some design models. For instance, designers could use a hub consolidation model. Hub consolidation was introduced in literature by O'Kelly. The idea is that flows between hubs might decrease the transport rate arising from the greater capacity on these arcs. (O'Kelly 1986.) This model will be used to decrease the unit transport cost for inter-hub flows.

Moreover, many big express companies are using the Geographical Information System (GIS) to help them design hub networks nowadays, considering logistics operation is inherently concerned with geographical



information. This system, which is based on information technology, can store, analyze, check, integrate and display the data related to the position on the Earth's surface. Users can integrate different sets of data through a common geographical database such as latitude and longitude. The results will be displayed on a map. The same thing could happen when you enter the fleet information, so that the system calculates your fleet savings. (Forster 2000.)

Companies could, through this system, optimize the routes, manage variable costs, track the mobile assets and meet customer's requirements. Besides, the GIS usage can spread to human resources management, production development and procurement in the fields of producing, sales, marketing and services. For example, Federal Express has used ArcInfo and GenMap (two GIS software) to measure the services standard and to build a warehouse location model using the Visual Basic programming language together with ESRI's Map Objects mapping components. The revolution has already come accompanied with the development of information technology. That is why articles in US trade journals suggest that companies are using GIS in supply chain management. (Forster 2000.)

### **3.4 Transportation**

#### **3.4.1 Air Transport**

Because the delivering speed, somehow, reflects a company's competitive advantage, most express delivery services companies prefer using air transport in long-distance delivery, especially in cross-border delivery; air transport is no doubt a dominator. Many large express companies own airplanes and airlines and usually set transshipment centers in airports. These transshipment centers are in charge of picking and transferring. Small

EDS companies have to rely on transport agency, which have right to handle air transport.

In many countries, the goods transport and customers transport are not separated. The same airplane can take customers together with goods. That means this operation, however, has to follow the airport arrangement and flights' schedule. Besides, air transport is always influenced by whether. So, when train's speed is accelerated, some companies put more goods on trains.

### **3.4.2 Railway Transport**

As the most safe transport way, railway transport becomes another main choice for EDS companies. Railway transport is a kind of regular transport way with high efficiency. It has obvious advantage in large capacity delivery and in large scale goods delivery. Otherwise, some EDS companies provide railway transport to fulfill different requirements. This type of transportation can balance the speed and costs that become popular in domestic delivery.

Recently, the develop of cold-chain in railway transport encourages EDS companies to choose this way when delivering goods like fresh foods, medicines and flowers. EDS companies could also design carriage following their requirement, such as setting temperature and humidity indicator, GPS, temperature alarm and different temperature area inside carriage. It makes the whole delivery process under control as well under monitoring anywhere. Besides, considering discussion about global warming nowadays, railway transport is an environmental friendly choice.

Railway transport, however, hardly be used in cross-border delivery. Firstly,

the scales of railway are different in different countries. Companies have to arrange trains change. Secondly, the geographic elements affect delivery a lot. Then, it is limited by complicated regulation and check when crossing border. At last, train's speed limits itself used in express delivery services.

Railway transport and air transport merely reach the area which has railway or airport. As a door-to-door service, EDS companies have to use other transport way to finish "the last one kilometer" delivery.

### **3.4.3 "The last kilometer" Transport**

Comparing with long distance transport, more and more companies focus on "the last kilometer" transport. That relies on a huge network and transport tools. Currently, the first and the last journey of delivering from or to customers use vehicles frequently. Vehicles are usually responsible for the way from door to warehouse, train station and airport.

As a flexible transport way, vehicles dominate this range with low investment, developing road transport technology and mature operation. But in some big cities, the streets are so crowded that vehicles are unable to move sometimes. In rush hours, government even limit amount of haulage vehicle in some districts. Motorcycle and bicycle, sometimes, become transport tools that faster than vehicles. Otherwise, express companies can solve problems through increasing the frequency of delivering or changing delivering schedule. To earn good reputation, most companies are willing to delivery on time and diversify risk through this way, even it is costly.

### **3.4.4 Others in Transportation**

Except limitation of transport ways, cooperating between long-distance and

short-distance transport, coordinating of warehousing and transporting, communication among different departments, information transferring and passing customs influence the transporting costs and speed as well. A good EDS company would regulate every transport step to keep goods moving and accelerate transport process. Everything should be prepared before each parcel enters the next step. And EDS company enable to track airplanes, trains and vehicles any time.

Besides, transport process face the highest risk in the whole process of EDS. Lost and damage would happen at any time, related with reliability of network. The fine in this process could be considered as potential costs for express services companies. (Most customers do not insure for their goods. If damage or lost happened, EDS company will be in charge of fine which is 5 or 6 times of service fee).

As companies pursuing speed and efficiency mostly, express services companies can not only rely on itself to handle the whole delivering process. Therefore, cooperating other transport groups and using social transport resource play important roles as well. Nowadays, more and more professional air-freight companies and shipping agencies have appeared becoming important players in this field. Cooperation is a good way to cut investment and earn partners who are familiar with local condition. Sometimes, new expansion always accompany with new cooperation.

### **3.5 Warehousing**

Generally speaking, warehousing plays the five roles in logistics activities.

- Store goods

It means that we store goods in a particular place to prevent goods from any kind of damage. This is the basic function of warehousing.

➤ Control circulation

Warehousing can be divided into long-term and short-term, and the term of warehousing decides the circulation. Otherwise, the market situation defines whether companies store goods or let them into circulation.

➤ Amount management

Firstly, it should balance the total amount of goods in and out. However, clients can decide the amount of each time when fetching goods. The managing amount of warehousing is important for express delivery services.

➤ Quality management

One of warehouse's responsibilities is that no or less quality changes happened during storing.

➤ Point to connect two steps

Because warehouse makes goods stop, it lefts enough space and time to combine two steps as a buffer.

➤ Business intermediary

Using the asset in warehouse, the owner can do business and accelerate the circulation.

Meanwhile, developing warehousing can research more types of services, increase products value-added, reduce costs and make the whole logistics chain efficient.

### **3.5.1 Warehousing Characters in Express Delivery Services**

The same with warehousing in other logistics activities, warehousing in express delivery services aims at in time, accurately and economical. As an industry that focuses on speed, express services need to conquer the time waste in every step. Warehousing has been considered as a good way to increase the “third profit”. But, in express delivery services, the problems are more complicated.

Firstly, the goods that express companies in charge are various. From foods to medicine, from products to gifts, different goods have different size and requirement. Secondly, each parcel has its own delivery time, which has to be followed strictly in express delivery. Different types and different delivery requirement lead to main problems of warehousing. So, that requires EDS companies use separated strategy to handle delivery and information flow for the purpose of cutting delivering frequency and distance and balancing costs and profits.

Considering most warehousing in this field is short-term warehousing, delivery companies always adopt sealed package to store goods. Besides, training to staffs is another effective way to keep parcels from damage when they are loading, unloading and carrying inside warehouses. Nevertheless, the best way is to accelerate the circle time and keep low inventory. That's why good warehousing strategy and operation is so important for EDS companies.

### **3.5.2 EDS Companies' Warehousing Strategy**

Warehousing strategy that includes warehouse's design, parcels management and rules has closed relationship with warehousing operation's

efficiency.

Being suitable for rapid delivering, the design of warehouse need to arrange storing place and working place reasonable that convenient for goods in and out. Normally, the pass space in their warehouses is large being suitable for equipments operation and goods in and out at the same time. On the other hands, using the room of warehouse is another character in modern warehouses, because many of EDS companies' warehouses are located in urban.

Moreover, managers of warehouses bring ABC analysis into parcels management. Finding out type "A" parcels, companies could make the specialized managing ways. Under this strategy, "A" parcels enjoy the priority in warehousing operation, which are transporting inside warehouses, information flow and goods in and out. Through this way, it reduces the warehousing costs effect.

Besides hardware requirements, some EDS companies, like DHL, make quota management. Warehousing quota can be considered as economic index in warehouse's activities, and managers can qualify each step by number. These indexes not only reflect warehousing requirement but also set objectives to staffs. Managing warehouses with numbers is convenient to account and evaluate the process. But the quota is not unchangeable, it would fluctuate with develop of warehousing level. As the flow amount of goods become larger and larger, the quota management will play more important role in warehouse.

Only having warehouses is not enough for EDS companies. To achieve the goals of strategy, integrating warehousing technology, information

management and cost accounting is needed. Nowadays, warehousing is not only an activity of storing goods, but also activities including sorting, packaging and assembling. But these value-added services are always ignored by EDS companies.

### **3.5.3 EDS Companies' Warehousing Operation**

Basically, every big EDS company has a strict standardized warehousing operation rules. These rules could structure and limit operation for the purpose of less damage and time waste and more efficiently.

Before the goods coming, warehouse managers already receive the detailed information, which includes type, scale, package statement, arriving time, storing time, warehousing requirement and so on. Based on this information together with current statement of warehouses, warehousing department would make a warehousing plan. When goods arriving, everything starts running follow the plan based on warehousing regulation. Firstly, the goods will be delivered to prepared area. Then, workers will check the goods as well as scale and weight them. This is the core process in warehousing operation. Sometimes, even manager will be responsible for this part. Company's monitoring department monitor and report checking process regularly. After that, warehouse will centralize the goods and sort them generally.

The first principle of EDS operation is always pursuing speed. So, in EDS warehouses, companies try to use more automated equipments under the investment limitation, like using elevated forklift, stacker, automatic transmission system. In order to decrease frequency of loading and transmission, measurement and operation should be done at the same time. But, somehow, as other processes, warehousing has to balance the



investment and profit. When choosing equipments and designing warehouses, they always obey the rule that choosing the way which can get back investment in the shortest time. (DHL Company 2007)

Otherwise, express delivery companies also divide warehouse into several parts according to goods' delivering time, destination and brand.

For example, most EDS companies have contracts with some big customers, which are usually big companies' sale department and customer service department, online shop and local business agencies. In those cases, EDS companies normally have a warehouse area to handle specific products from them.

In conclusion, the whole warehousing operation should obey the four principles:

#### 1. In time

Loading, transmission and checking should be done in a limited time. For example, goods would not appear in account without checking. Goods could be in storage and money could transfer into account only if checking is accelerated. Meanwhile, the payment and compensation has its own allotted time. If operations exceed the deadline, bank and companies will no longer take responsibility.

#### 2. Accurate

No matter checking or other operations, making sure of accuracy is important for warehousing. The wrong information could not only cause chaos but also mislead the judgments.

#### 3. Strict

It means every operation should follow the rules and laws that require workers working with a good attitude and professional skills.

#### 4. Economic

When checking goods, generally, checkers need to cooperate with loading and carrying workers for saving costs. In addition, protecting the own packages and preventing rude operation would avoid unnecessary costs.

## **4 EMS COOPERATIVE**

Express service refers to a kind of delivery service that provides customers to faster delivery with some surcharge. Express service, in general, is mainly divided into two parts: express mail service and express package service. Nowadays, the domestic mail service is usually governed by a country's own postal administration, while the international accelerated mail service is governed by the EMS Cooperative since 1998. For the express package service, the market is being shared by many competitive companies includes many local companies and international express groups, which has received the high reputation and have powerful express ability.

### **4.1 History**

Before talking about EMS cooperative, an international organization has to be mentioned – Universal Postal Union (UPU), which was founded in 1874. According to the UPU's website, this organization is in charge of coordinating postal policies among member nations and contribute to build worldwide postal system. With 191 member countries, this multi-national agency plays an advisory, mediating and liaison role. (UPU at a glance 2010)

As a much profitable part, comparing with traditional mail services, Express service had been dominated by private companies. Some countries postal department began to realize that they could also enter this area by using their “natural” advantages that the existed network, good reputation and some experience. So, they started their business providing express services.

UPU definitely realize the opportunities from combination of these express

services companies. Therefore, in 1998, Universal Postal Union created EMS Cooperative. Currently, the EMS Cooperative enrolls 154 of the 191 UPU member countries' postal agencies and integrates part of their normal postal services. Besides, seven EMS delivery agents are responsible for delivering EMS items.

#### **4.2 EMS in China: History and the Present**

In China, China Courier Service Corporation (CCSC) provides EMS services. This corporation is a 100% state owned company, which is a subordinate company of China Post, and is the largest provider in China's express service industry currently.

The express services were brought in China after China's reform and opening up in the 1980's with the age less than 30 years. EMS services were started in 1980 and have witnessed continuously development. Different with some western companies, EMS take much market share both in domestic delivery market and international delivery market. In domestic market, EMS dominated the market, keeping more than 70% market share. In cross-border delivering market, EMS had taken 80% market share in a long term until 1990's. From 1990's, the express market developed faster and faster as the growth of Chinese economy speed up. International express groups entered Chinese Express Market that lead to the drastic decrease in market share, which is around 20%, of EMS cross-border express services. EMS has to share the cake with companies like DHL, FedEx and UPS. But EMS still control their field in domestic market. Actually, EMS has had its huge competitive advantages. They have to face another competitor – the local private express companies. Despite that most of them are still in small size, they together have taken 75% market share in intra-city delivery market.

Now, EMS has established a continuously growing network. This network covers over 200 countries and regions and up to 2000 domestic cities. EMS currently employs over 20,000 courier staff and more than 15,000 courier collection and delivery vehicles. In the domestic market, supporting by China Postal Airlines, the company can fulfill the next-day delivery in 200 cities. EMS, besides following the normal working area, has its own service such as accepting order, cash on delivery, flower and gift express, warehousing, settlement and so on.

## **5. ANALYSIS OF CHINESE EMS LOGISTICS SYSTEM AND PROCESS**

### **5.1 Parcel Delivering Process**

How exactly does a logistics system work at Chinese EMS? In the following several sections, I will describe a whole delivery process from post office to destination.

#### **5.1.1 Post Office**

The main work in post office is to pack the goods, input the data of each parcel, weight the parcel and receive the payment. According to different regulations for different companies, they sort parcel in many ways. For example, according to the size and weight, the parcels can be sorted into two types: big ones and small ones. The small type refers to the package that the sum of length, height and width is no more than 100 cm and the weight is no more than 10 kg. Otherwise, it will be thought as the big one. Besides, every country or area has its own size and weight limits. This table shows some limits to certain areas.

TABLE 2. EMS Size and Weight Limits (Source from Japan post website)

Country	Size		Weight (kg)
	Maximum length	Length + Circumference	
India	1.5m or less	3m or less	30
Rep. of Korea	1.5m or less	3m or less	30
Singapore	1.5m or less	3m or less	30
Taiwan	1.5m or less	3m or less	30
China	1.8m or less	3m or less	30
Finland	1.5m or less	3m or less	30
France	1.5m or less	3m or less	30

According to the customer's requirement about speed, the parcels are divided into fast type and slow type. In domestic delivery, the parcel of fast type always can reach the destination within 1 day by using air transport, except some parcel's destinations are small town or village. But the slow type would take longer time by using railway and vehicle transport.

All the works above including packing, weighting, accounting and basic sorting should be done inside the post office. At the same time, EMS staff input the information to computer using scanners and makes the barcode, which will accompany these parcels in the whole process. The information of these parcels will be transferred to EMS main serve that delivery step can be traced by EMS staff and customers.

EMS also provides on-the-spot service that carrier will take over goods by visiting customers. Some work of post office will be finished in customers'

side. Besides, some big customers' goods pass post office regularly or even don't pass post, because its operation is confirmed by contracts that they don't need this step at all.

Post office is the first line facing with customers. The employees have to keep good attitude which stand for EMS company's appearance. Many new staffs begin their career from there. Moreover, post office can reflect EMS services, competitive advantages and marketing information when contacting customers. That is why EMS requires post offices report this information and analysis regularly.

### **5.1.2 Distribution Center**

EMS is adopting spoke-hub paradigm. All parcels and goods are centralized to distribution center firstly, and then they, after sorting, are sent to destination distribution centers. At last, nodes will fetch parcels whose destination are them.

In China, such a big area, China Post has two levels of spoke-hub network, based on division of province and big region. Now, there are 8 big region-level distribution centers and 37 province-level distribution centers as the following map shows.



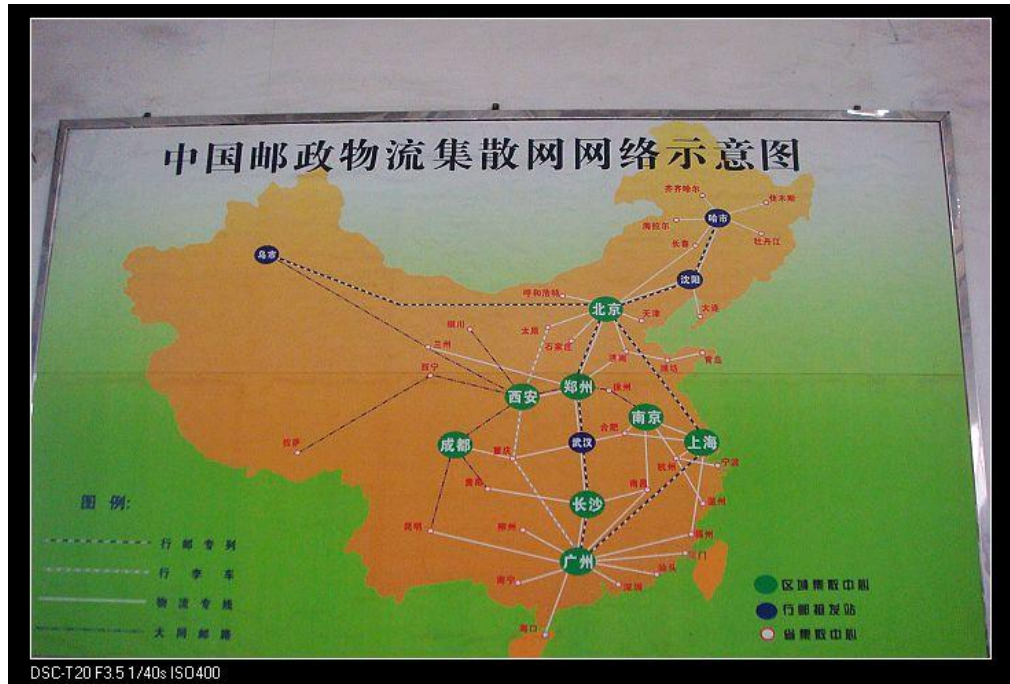


FIGURE 3. Logistics network and distribution centers of China Post (Photo was taken by the author, 2009)

Each province own 1-3 distribution centers which is responsible for collecting parcels in province and finish the inter-province delivery. The regional distribution centers, which connect with province-level centers, has helped to finish the regional delivery and collect parcels in the region. Parcels would be transferred between different distribution centers of different level in domestic delivery, and, in international delivery, parcels should be centralized in few cities like Shanghai and Guangzhou, which has export airport.

Fortunately, the author got an opportunity to visit the distribution center in Xi'an, which is one of the most advanced centers that cover all picking issues of northwestern part of China. The whole picking and distributing process is completely done by computers. The only work run by human is scanning the packages and put them on conveyer. The computer would send them to different parts, which is assorted with different destination. This is Xi'an distribution center.



FIGURE 4. Distribution center of China Post (Photo was taken by the author, 2009)

Interesting thing is that DHL and some other EDS companies also use this center. For some reasons, EMS company have priority in this center, comparing with other international express companies. The same thing appeared when the packages through Customs. It would be thought as an advantage for EMS when facing some big customers that has plenty of parcels.

### **5.1.3 Warehouse**

EMS warehouses are always located in urban area. Some of them used to be old warehouses that belong to state-owned company. The new warehouses generally are stereoscopic warehouse, thinking about higher and higher land price, with automated equipments.



FIGURE 5. EMS warehouse in Xi'an (Photo was taken by the author, 2009)

Warehouse is a place to sort parcels as well. The arriving parcels would be sorted according to their destination or next delivering node, like distribution center or delivery department. Sometimes, these warehouses will also take over some companies' goods and manage those obeying contracts.

Nowadays, most warehouses handling EMS parcels still belong to China Post. The warehousing department of China Post is managing warehousing issues. Considering EMS transport issues rely on China Post as well, somehow, Chinese EMS is still a department in China Post.

## 5.2 Department Coordination and the Flow of Work

As a company with high efficiency, EMS company requires good coordination and cooperation between departments. The main arrangement of work flow is in charge by Business Operation department, Data Collection department and Delivery department, and the whole process is under Monitoring

department's control.

Generally, the flow of work runs like that:

- a). Delivery department arranges taking over parcels —————→
- b). Business Operation department inputs the data and transfer data to Data collection department. (At the same time, carrier's notes are sent to Monitoring department) —————→
- c). Makes receipts and sends them to Business operation department in 3 hours (Copies of receipts are sent to Monitoring department) —————→
- d). Operation department fills delivery notifications, and sends notifications together with receipts to Delivery department in 24 hours. (except some special cases) —————→
- e). Delivery department delivers parcels —————→
- f). Delivery department reports work to Monitoring department, and sends notifications together with receipts to Monitoring department in 48 hours. —————→
- g). Monitoring department spot-checks the parcels and sends report to Data collection department (All reports will be saved in company for analysis). —————→
- h). Data collection department sends receipts to Business operation department. —————→
- i). Part of receipts need to be checked by customers, others are saved by Data collection department.

In this flow of work, we can define different departments' responsibilities and the roles that they are playing in the whole process. To make every step run well, EMS company has made detailed and standardized regulations, which limit the working time and working schedule, and all the work flow is controlled by the monitoring department.

### 5.3 Network Monitoring

When working in Xi'an EMS company, the author was in the network management department. In this department, there are two people monitor the networking and mail flow process and check some cases. Their responsibilities are monitoring the whole process, checking some mistake, spot-checking parcels in different step and report current situation and analysis to headquarter.

In office, they are working with EMS Track & Trace system, which use EAI (Enterprise Application Integration) method. This system combine hardware, software, data and processing of different branch offices and nodes, making them like a unitive group. Offices in different area can share and trace the data freely. And the office staff use computer with the model of client serve, comparing with browse serve for big customers. Besides, they also keep frequently phone connecting with other departments.

On the other hand, part of information is published on EMS website, and each customer could trace the process of delivering through Active Data Warehouse (ADW) system. From June of 2006, EMS begin to use ADW system, which is built by Teradata Corporation. As one of the biggest data warehouse manufacturers, Teradata Corporation, the company from United States, develop the first Active Data Warehouse in Chinese region to fulfill that EMS deal with large amount of data and a number of visits. This system not only handles the active delivery data, but also provides statistical analysis, tariff management, billing and accounting, and customer relationship management.

In 19 May. 2007, this data warehouse finished the first enlargement. In year



of 2008, this system dealt with more than 8 million information and 1.3 million online inquiry per day. In rush hour, the visiting amount can reach 30 thousand per hour. Now, this ADW system can show the delivery information in 5 minutes after finishing a delivery step or activity. It has increased the timeliness of inquiry and meets customer's requirement better. Moreover, this ADW could help EMS to collect information and data for analyzing, in order to develop services and management.

**EE141314298CN**

**Your item was delivered(REPUBLIC OF FINLAND 40000451) at 2010-05-17 13:46:00**  
**Signed for by : ZHU HONG QING**

Timing	Site	Status
2010-05-09 10:04:00	WUHAN	Posting
2010-05-09 10:51:00	WUHAN	Despatch from Sorting Center
2010-05-09 16:39:37	WUHAN	Arrival at Sorting Center
2010-05-10 00:23:47	WUHAN	Despatch from Sorting Center
2010-05-10 20:59:18	BEIJING	Arrival at Sorting Center
2010-05-11 04:45:33	BEIJING	Despatch from Sorting Center
2010-05-12 15:50:00	REPUBLIC OF FINLAND HELSINKI	Arrival at Sorting Center
2010-05-12 15:50:00	REPUBLIC OF FINLAND HELSINKI	Handed over to Customs
2010-05-14 10:23:00	REPUBLIC OF FINLAND HELSINKI	Released from Customs
2010-05-17 13:46:00	REPUBLIC OF FINLAND 40000451	Delivery

FIGURE 6. EMS online tracking web page

Besides online monitoring, monitoring department has to visit and check the parcels in different steps and departments regularly. Every week, staff from monitoring department should visit post office, distribution center, customs and some warehouse (most warehousing issues are in charge by China Post warehousing department). In there, they check parcel's weight randomly to

find any appreciable error. And financial respect is another check point to monitoring staff. The staff would check receipts and notifications and bind them up. As the sub-unit, post office has to report the situation and information to monitoring department regularly. If some mistakes happened, especially to big customers, monitoring department would take over the case and be responsible for dealing with problem arising from a mistake.

### **5.3 EMS Strategy Analysis**

Chinese EMS has been an important part of China Post, trying to become more independent group in management. But now, as the most profitable part in China Post, the profit from EMS comprise over 90 percent of total profit and 47 percent of total turnover of China Post, and this money has helped development of China Post. It leads to China Post focus on express delivery area and put more resources in EMS.

In EMS's profit, the big customers, including big companies, government departments and e-commerce companies, contribute most of profit. So, in EMS strategy, it uses ABC analysis to define the type of customers and focus on the "A" customers. Actually, every regional office or post office has been assigned quota of confirming the old customers and develop the potential customers. In this way, most big customers have been taken care with excellent services, enjoying priority in every step. That makes EMS running in a high-speed development in profit.

Facing with such a big marketing cake, however, other EDS companies will not let EMS dominate the huge profit. The drastic competition has appeared in Chinese land.

## **6 COMPETITIVE**

Until 2007, there were, in China, over 150 EDS companies handling international delivering together with more than 10 thousand local companies running business in domestic delivering. It forms a fragmented industry because of three reasons. Firstly, China has a large market accompanied with the most rapid growing of economy. The needs and potential needs of EDS attract a number of EDS companies to enter this market. According to Chinese Post Bureau estimation, in the near future, the growth of the EDS market in China will develop over 30% yearly. Secondly, the low barrier to enter this industry stimulates new comers and investment forwarding this area for entry. Especially in inter-city delivery, small investment may earn big repayment that more than expect. Then, the difference among EDS companies' services is small. The services and products can be copied and replaced easily. Based on these characteristics of this industry, the dissertation will go deeper inside EMS of China Post.

### **6.1 SWOT Analysis for EMS of China Post**

For further analysis, the following table shows the general strengths, weaknesses, opportunities and threats in Chinese EMS.



TABLE 3. SWOT Analysis of Chinese EMS

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>➤ Using postal system</li> <li>➤ Can reach remote place</li> <li>➤ Good relationship with other government departments</li> <li>➤ Dominate internal delivery in Chinese market</li> <li>➤ Government support</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>➤ Strategy and operation inflexible</li> <li>➤ Lack of professional workers</li> <li>➤ Overstaffing</li> <li>➤ Costs accounting</li> <li>➤ Types of goods in charge</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>➤ Company reform</li> <li>➤ Learn management system from international big companies</li> <li>➤ Change equipments</li> <li>➤ Training staffs</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>➤ New comers from abroad</li> <li>➤ Local companies</li> <li>➤ New technology revolution</li> </ul>

### 6.1.1 Strengths

China Post, starting business in 1911, has built the network for nearly 90 years. Until now, the network, which is the biggest postal network in the world, formed by 57136 post offices (41196 post offices in the countryside), 1047 postal airlines (takeover one third air transport), 481 postal trains and 15 postal ships, can cover the whole area of the Chinese region. Chinese Express Mail Services is a sub-unit of China Post, which is influenced by State Post Bureau, relying on the postal network and system. It makes that EMS can reach some remote places, which other EDS company cannot

reach, and become a dominator in EDS in some area. Nowadays, Chinese EMS still has a huge advantage in network such that it is dominating the domestic delivery.

Besides, as a state-owned company, Chinese EMS keeps good relationship with other government departments, such as the Customs, Ministry of Railways and some airline companies. For example, the parcels from EMS enjoy priority in Customs. And EMS could easily make a business contract with airlines companies (In China, all of airline companies having domestic airline are state-owned companies).

For the purpose of protecting mail security, especially the mail among government departments, the latest Chinese postal law, started from 1 October 2009, regulates that the parcels weighted less than 50 gram in inter-city delivery and the parcels weighted less than 100 gram in city-to-city delivery should only use Chinese EMS services.

Moreover, Chinese EMS has developed various services according to Chinese market demand, like delivery service for student studying abroad, flower and gift express, next-day delivery and so on. On the other hands, EMS has business relationship with some electronic commerce companies. To assure the products and services quality, EMS provides service of cash-on-delivery. EMS has rights to receive and keep products payment from buyers, and transfer them to suppliers when deal is done.

### **6.1.2 Weaknesses**

Nevertheless, Chinese EMS has lots of weaknesses as a young EDS company, comparing with some mature international EDS companies. Firstly,

under the control of China post, EMS does not have a flexible strategy. Chinese EMS do not have its own logistics system, even its own internet inquiry system. If they deal with an emergency, the complicated decision-making process and bureaucracy will become barriers. In addition, when facing with some big customers, EMS does not have too much space to change the original price. Other EDS companies, however, usually provide much lower price than normal in this situation. Another reason leading to this situation is that EMS's parcels are delivered through postal network together with normal mail. That means the same postal vehicle could take both China Post's mail and EMS's parcel. The same situation would happen that EMS's staff work in the China Post buildings and EMS's goods are stored in China Post warehouses. So, until now, Chinese EMS could hardly account the accurate delivery costs, and it cannot cut the price too much.

Because EMS has been developed from postal system, it has its own limitation in the type of services. Generally, EMS could only deliver the small goods that below 30 kilogram with low value, comparing other EDS companies take over high-value goods up to 68 kilogram. In this way, EMS cannot satisfy many customers.

Besides, the Chinese EMS delivery depends on China Post staff. It lacks of professional EDS workers with advanced EDS knowledge. There has been rough handling in many places of Chinese EMS as well as its bad attitude to normal customers. Somehow, like some other Chinese government department, Chinese EMS has the problem of overstaffing.

So, when international competitors entered Chinese market and expanded their services in 1995, large amount of customers have been moved to other companies. In a long period, the growth of EMS is only 2%, comparing over

20% growth of DHL, TNT, UPS and other international companies.

### **6.1.3 Opportunities**

China Post has realized the situation and decided to reform the structure of management. Xi'an Express Mail and Logistics Services company is one of the first independent Chinese EMS companies. Most staff is from the China Post and some professional workers were brought in. This company is only responsible for EMS issues and has plenty of rights to deal with EMS cases.

From 2002, China post began to update and invest in its network through purchasing and using plenty of automated and electronic devices. At the same time, Chinese EMS received government support and grew rapidly. As the only profitable part, EMS has been continuously invested by the Chinese government to fulfill the growing demand.

Moreover, EMS has begun to learn from international EDS companies, built the same logistics system and EDS management. Besides simulating, Chinese EMS has also trained its staff regularly. In slow business season, some EMS staff would be sent to universities learning professional EDS knowledge, or visit other EDS companies.

In these two years, due to the growing of the Chinese economy, recovering of the world's economy and developing of some new industries, Chinese EMS has been greatly developing in the Chinese market. In the first season of 2010, EMS's turnover reached 12.4 billion RMB (1 Euro=8.58 RMB) with 23.7% increase rate. Among that, the turnover of cross-board delivery is increased by 29.3%, even though the price of each cross-board delivery went up 11.1 RMB.

#### **6.1.4 Threats**

When joining WTO (World Trade Organization), Chinese government promised that international EDS company could do business in the Chinese market cooperating with Chinese company as a joint venture in the first 3 years. From the fourth year after joining WTO, that is 2005, international EDS can do business in Chinese market independently. Besides, as Chinese EDS market growing, more and more Chinese EDS companies join this competition. It can be estimated that EMS of China Post will face more drastic competition in Chinese market.

On the other hand, international delivery in Chinese EMS contributes most profit. It is very important to confirm the customers. How to build and expand its network through more closed cooperation with other EMS groups is another problem for Chinese EMS.

In 2009, the amount of complaint increase to 3865, comparing 979 complaints in 2008. The rate of increase is 294.79%. The complaints are centralized in problems of delay (1918 complaints) and cash-on-delivery (932 complaints). Except some unpredictable factors, like whether, the main reason is that the current hardware and software cannot meet the growing demand of EDS and higher requirement from customers. In some busy seasons, like festivals or college entrance exam, a number of delay appeared even EMS staff worked overtime.

#### **6.2 International Competitors**

Generally speaking, the most competitors threading EMS business in Chinese market are from abroad. They are UPS, FedEx, DHL and TNT.

Considering the particularity of EDS and EMS of China Post, the following analysis will compare these competitors from aspects of Market scale, Network, Services and Price.

TABLE 4. General comparison between Chinese EMS and four International EDS groups. (Source from these companies WebPages)

<b>Express Delivery</b>	<b>Chinese EMS</b>	<b>FedEx</b>	<b>TNT</b>	<b>DHL</b>	<b>UPS</b>
<b>Turnover (in billion dollar)</b>	0.7	28	9	0.25 (euro)	30
<b>Market share (international delivery)</b>	22	24		36	18 (UPS and others)
<b>Network Coverage</b>	200 countries	215 countries	235 countries	228 countries	215 countries
<b>Network Coverage in China</b>	2000 cities and towns	224 cities	500 cities	50 cities	120 cities
<b>Transport Ability</b>	9 airplanes and more than 10 thousand vehicles	650 airplanes and 140 thousand vehicles	50 airplanes and 19 thousand vehicles	250 airplanes and 18 thousand vehicles	Own 250 and rent 350 airplanes, 149 thousand vehicles
<b>Staff (thousand)</b>	20	138	100	71	370

➤ Market scale

According to the table above, we could find their market share in Chinese market. Since 2005, the year that international EDS companies have entered the Chinese market, the four international companies' increasing rate of

market share has been over 20 percent yearly, comparing to 2 percent of increasing rate of Chinese EMS. Especially DHL has occupied 36 percent of the market share in international deliveries in the Chinese market. Besides, to fulfill customer's requirements, international EDS companies can handle high-value goods, special goods and provide various value-added services.

In domestic delivery, EMS still has 70 percent of the market share. As Chinese EDS market opened to foreign companies, DHL and UPS already have rights to do business in domestic delivery. For example, in this area, DHL provides "2-30 kilogram parcel delivering in 24 hours" and "30-1000 kilogram parcel delivering in 48 hours" that two kind of services, to avoid competition with EMS in "parcel under 2 kilogram delivery", which is thought as Chinese EMS's most competitive area.

➤ Network

In world-level network, EMS is formed by different operators, as a loose organization. Chinese EMS's abroad delivery should be taken over by local EMS operators or cooperators following UPU's regulation. So, in this way, EMS has weakness in global network compared to other four competitors. But in domestic network, Chinese EMS has great advantage.

Nowadays, all of big EDS companies provides online inquiring and tracking system, to monitoring every step in delivery. Besides, FedEx firstly uses wireless monitoring method that big customer can track its goods in office anytime. The FedEx operation center in Beijing has built automated customer service system. This system connected with Beijing Customs' parcel checking system in purpose of sharing information and communication. UPS has the same system connected with Chinese Customs from 1994. Chinese

EMS already built computer tracking system in 318 Chinese cities, but, in international delivery, it only can track parcels to members of Kahala Posts Group (KPG).

➤ Price

TABLE 5. Average international delivery price of EMS and four international EDS groups. (Source from: report of China Post and these companies WebPages.)

	EMS		DHL		FedEx		UPS		TNT	
	First 500g	Additional	-	-	-	-	-	-	-	-
Average Price (RMB)	224	80.1	220.7	77.1	233	79.2	236	88.7	88.7	71.6

In the table above, the difference of prices is big, and EMS's price is in the average level. Recently, however, international EDS companies begin to adopt low-price strategy. In international delivery, these four EDS groups' price is lower than EMS from 10% to 15%. On the other hands, DHL and FedEx provide huge discount for heavy goods. For example, delivered 25 kg parcel to Japan, the price of FedEx and DHL are 1200 RMB and 1188 RMB, compared 2144 RMB for EMS.

➤ Services

Chinese EMS service still has some distance in services with international big EDS groups. DHL, UPS and TNT come to customer place to receive the goods, and FedEx needs to phone reservation. Most customers, however,



have to go to post office to post their parcels, except some big customers. In countryside, customers need to fetch the arriving parcels in post offices.

UPS, TNT and FedEx allow various ways of payment including pay in advance, cash on delivery, paid by the third party and so on. DHL even allows accounting payment in the end of month. Most customers using EMS have to pay on the spot, even EMS also provide some new types of payment recently.

UPS, TNT and FedEx handling one parcel would take 1-2 minutes in average, and DHL would take 30 seconds in average. In compare, the time of handling a parcel in EMS is around 5 minutes in average. In other aspects, the services of EMS has not strong competitive. Take an example, if delivery parcel to Japan from China, UPS and DHL can take over up to 68 kg parcel, comparing that EMS can take over up to 30 kg parcel. Moreover, UPS and DHL promise that the parcel will be delivered in 2 days in comparison with no promise from EMS. EMS would deliver parcels on Saturday as usual, but DHL and UPS will have a rest on Saturday.

### **6.3 Local Competitors**

The growing of Chinese EDS market also attracts plenty of investors to enter this area. Nowadays, over 10 thousand private EDS companies with more than 1 million staffs join competition. Limited by capital and financing, most private EDS companies are small-scaled companies. According to report from National Investigation Bureau, in Shanghai, there were 467 private EDS companies in 2006, and 90 percent of them are small companies whose registered capital is below 200 thousand RMB. Among these private companies, the number of companies which staff is less than 20 are 373,

comprising 79.9%. It leads to most operation in these companies is handled manually with few automated equipments. Besides, most employees in these companies are from other fields lacking professional EDS knowledge.

There is not a comprehensive national EDS regulation in China now, EDS companies need to regulate business operation with their own laws. But some private EDS do not have detailed regulation that caused chaos on the operations.

Comparing EMS, private EDS companies adopt flexible strategy in price and services. In the regional delivery, sometimes, some private EDS companies provide low delivery price from 6 to 8 RMB. And in domestic delivery between big cities, private EDS company is faster 50% than EMS. Besides, the attitude of customer service of private companies is usually better than that of EMS.

The latest Chinese Express Delivery Services Standard regulates the range of price that threads business of local EDS companies. Moreover, Chinese postal law, started from 1 October 2009, requires that the parcels weighted less than 50 gram in inter-city delivery and the parcels weighted less than 100 gram in city-to-city delivery should only use Chinese EMS services. These kinds of parcels had comprised 90 percent of private companies' business.

## 7 DEVELOPMENT SUGGESTIONS

According to the comparisons and analysis above, some development suggestions are made to Chinese EMS.

Firstly, Chinese EMS should keep updating and developing its network both in domestic and international deliveries. It should not be blind or excessive expansion like in the current situation. This kind of investment does not bring more profit; however, it makes more operation costs to EMS. The current advantage of EMS is based on low labor costs and big network coverage that is easy to simulate and replace. So, making the network standard and modernized could increase the competitiveness of EMS. To achieve this goal, EMS needs to follow the continuous technology revolution and use advanced technology and method. Chinese EMS should also begin a deeper cooperation with foreign EMS companies to enhance the link of global EMS members. If EMS runs in that way, the closed cooperation relationship and information share will make the EMS global network no worse than any big international EDS companies' and even better.

On the other hand, Chinese EMS could develop its own network based on the current network of China Post to be able to offer faster and safer delivery. This way, EMS could become more independent from China Post and have more rights to handle the EDS business. Then, the independent Chinese EMS will have clearer costs accounting and more flexible strategy. We can expect that the service with a low price and high quality might appear.

Then, Chinese EMS needs to develop various services as an international EDS company does. According to the previous comparisons, Chinese EMS lacks in sense of marketing. Facing a market full of various demands, EMS

should adopt a differentiated strategy and introduce new products. From this aspect, international EDS companies have mature products management with fertile experience. Chinese EMS may learn about advanced management and operation methods from them.

Moreover, professional staff is another important factor that decides a company's competitiveness. Chinese EMS, as the biggest Chinese EDS company, can attract more professional staff as well as train its old staff. Chinese EMS has already begun to set new staff assessment standard to improve customer service and operation level.

Last but not the least, Chinese EMS should also build a customer record and select cooperating partners carefully. It is better to cooperate with some companies with a high reputation. After EMS started having cash on delivery service, some swindler companies, which are electronic commerce companies, deliver their low-quality products. They will receive a payment when the customer receives parcels. Sometimes, customers find problem with the products after receiving them. More complaints come to EMS, and it is a damage to the Chinese EMS reputation. To protect its reputation and customers' profit, building a detailed cooperators and customer record is needed as well as setting up regulation of selecting partners.

## 8 CONCLUSION

Express delivery services industry is experiencing a rapid growth. In this profitable industry, opportunities together with competition form EDS companies' environment. More and more modern technology will bring big changes in this area. From the previous study, the huge potential market and better industry prospects can be seen. In this process, various logistics systems have been presented, like spoke-hub paradigm, as well as new information technology, like GIS method. Adopting these systems, EDS companies optimized their logistics process in controlling costs and speeding up delivery. Besides, according to its characteristics, the EDS industry has shown some differences in logistics process and operation.

EDS in China will grow faster than ever, and EMS company has to face great challenges accompany with reforms and development. Following the previous description and analysis, the competitive strengths and weaknesses that Chinese EMS appeared has been shown already. The change will happen if Chinese EMS makes effort in the way of optimizing network, following new technology, developing customer services and becoming an independent business group. From the current data I gained, there are enough reasons to believe that Chinese EMS will conquer the hardship and occupy a significant position in the world-wide market.

As a huge industry with barriers of network building, reputation and experience, the situation of the current main players will not probably change in the near future. As economy and technology are developing, EDS can face a further revolution. It will go further in the way of safe and rapid delivery.

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## APPENDIXES

### Appendix 1. EMS Cooperative members

<b>EMS Cooperative members (Updated 15 March 2010)</b>	
<b>EMS member</b>	<b>Operator name</b>
Afghanistan	Afghan Post
Albania	Albanian Post sh.a - EMS Service
Algeria	Algérie Post
Angola	EMS Angola
Anguilla	Anguilla Postal Service
Antigua and Barbuda	Antigua and Barbuda Post
Argentina	Correo Argentino
Armenia	Haypost - EMS Armenia
Aruba	EMS Aruba
Australia	Express Courier International
Azerbaijan	EMS "Azerexpresspost"
Bahamas	Bahamas Postal Service
Barbados	Barbados Post - EMS
Bangladesh	Bangladesh Post - EMS
Belarus	RUE "Belpochta" - EMS Belarus
Belgium	Taxipost s.a.
Belize	Belize Postal Service
Benin	Benin Post
Bermuda	International Data Express - Bermuda
Bhutan	Bhutan Post Express Mail Service



Bosnia and Herzegovina	Public Enterprise BH Post
Botswana	Botswana Post - EMS
Brazil	Correios do Brasil
Brunei Darussalam	Brunei Darussalam Postal Services
Bulgaria (Rep.)	EMS Bulpost
Burkina Faso	Sonapost - Burkina Faso
Burundi	EMS Burundi
Cameroon	Campost Express Mail Service
Canada	Xpresspost - Canada Post
Cape Verde	Correios de Cabo Verde
Cayman Islands	Cayman Islands Postal Service - EMS
Central African Rep.	Central African EMS
Chad	Chad Postal Administration
Chile	Correos Chile
China (People's Rep.)	China Postal Express&Logistics Corporation
Colombia	EMS Internacional
Congo (Rep.)	Congo EMS
Costa Rica	EMS Costa Rica
Croatia	Croatian Post - EMS
Cuba*	Correos de Cuba
Cyprus	EMS/Datapost Cyprus Post
Czech Rep.	Czech Post State Enterprise
Dem. Rep. of the Congo	EMS Congo/CD
Djibouti	La Poste de Djibouti
Dominica	Dominica Post
Ecuador	Ecuador EMS
El Salvador	EMS El Salvador Post

Eritrea	EMS - Eritrean Postal Service
Estonia	Estonian Post Ltd
Ethiopia	EMS - Ethiopian Postal Service
Fiji	Post Fiji
Finland	Itella Corporation
France	Chronopost
Gabon	EMS Delta+
Gambia*	Gambia Postal Services
Georgia	EMS Georgia
Germany*	Deutsche Post
Ghana	EMS Ghana
Gibraltar	EMS Datapost Gibraltar
Great Britain	Parcelforce
Greece	Tachymetaphores ELTA S.A.
Grenada	Grenada Postal Corporation
Guyana	Guyana Postal Corporation
Hong Kong, China	Hongkong Post - Speedpost
Hungary (Rep.)	Magyar Posta Zrt.
India	India Post
Indonesia	PT Pos Indonesia (Ltd)
Iran (Islamic Rep.)	Pishtaz Post
Iraq	Iraq Post
Ireland	An Post
Israel	Israel Postal Company Ltd - EMS
Italy	Post Italiane
Jamaica	Jamaica Post
Japan	Japan Post EMS

Jordan	Jordan Post
Kazakhstan	Kazpost
Kenya	EMS Kenya
Korea (Rep.)	Korea Post
Kyrgyzstan	Kyrgyzstan Post
Lao People's Dem. Rep.	Lao Express
Latvia	Latvia Post EMS
Lesotho	Lesotho Post
Lithuania	Lithuania Post
Macao, China	Macao Post - EMS
Madagascar	EMS Mailaka
Malawi	EMS Malawi
Malaysia	EMS - Poslaju Malaysia
Maldives	Maldives Post
Mali	EMS Mali
Malta	Malta Post Express International
Mauritania	Mauripost
Mauritius	EMS Speedpost Mauritius
Mexico	Mexico EMS
Moldova	EMS Moldova
Mongolia	Mongol Post
Morocco	EMS Chronopost International Maroc
Mozambique	EMS Mozambique
Myanmar	Myanmar Posts and Telecommunications
Namibia	Namibia Post Limited
Netherlands*	TNT Post
Netherlands Antilles	Post Netherlands Antilles

New Zealand	New Zealand Post Limited
Niger	EMS Niger
Nigeria	Nigerian Postal Service
Pakistan	Pakistan Express Post
Panama (Rep.)	Panama Post
Papua New Guinea	Post PNG
Paraguay	EMS Internacional
Peru	Serpost - Express Mail Service
Philippines	Phil Post - International Express Mail Service
Poland	Polish Post S.A.
Portugal	CTT Expresso
Qatar	EMS - Mumtaz Post
Romania	Posta Rapida (a division of C.N. Posta Romana S.A.)
Russian Federation	EMS Russian Post – Subsidiary of FSUE Russian Post
Rwanda	EMS Rwanda Express
Saint Christopher and Nevis	Express Mail Service
Saint Lucia	Saint Lucia Expedited Mail Service
Samoa	Samoapost Company Limited
Sao Tome and Principe	Sao Tome and Principe Post
Saudi Arabia	Saudi Post
Senegal	EMS Senegal
Serbia (Republic of) *	Serbia Post
Sierra Leone	Sierra Leone Postal Services
Singapore	Singapore Post Limited
Slovakia	Slposta
Slovenia	Pošta Slovenije, d.o.o. (Slovenia Post)
Solomon Islands	Solomon Islands Post

South Africa	South Africa EMS
Spain	Postal Exprés internacional (EMS)
Sri Lanka	EMS Speed Post - Sri Lanka
Sudan	Poste Rapide EMS
Sweden	Posten AB
Switzerland	Swiss Post International
Syrian Arab Rep.	Syrian Post
Tanzania (United Rep.)	E.M.S. Tanzania
Thailand	Thailand Post EMS
The former Yugoslav Rep. of Macedonia	EMS - Macedonia Post
Togo	EMS Togo
Trinidad and Tobago	TT Post
Tunisia	Rapid-Poste Tunisia
Turkey	PTT
Uganda	EMS Courier Services - Uganda Post
Ukraine	EMS Ukraine
United Arab Emirates	Emirates Post - EMS
United States of America	United States Postal Service/EMS
Uruguay	Correo Uruguayo
Uzbekistan	EMS Falcon
Vanuatu	Vanuatu EMS
Venezuela (Bolivarian Rep.)	Venezuela EMS
Viet Nam	Vietnam Express Mail Service Company
Yemen	Yemen Post
Zambia	EMS Zambia
Zimbabwe	EMS Zimpost

**Appendix 2. EMS Cooperative contracted delivery agents**

<b>EMS Cooperative contracted delivery agents</b>	
<b>Selected delivery agent</b>	<b>Operator name</b>
Austria	Österreichische Post AG
Denmark	Post Danmark A/S
Germany	Deutsche Post AG
Netherlands	TNT Post
Norway	Posten Norge AS
Switzerland	Swiss Post International