

# Insert Modern Logistics Business into CCA

Yindong Jin

Bachelor's Thesis  
Feb 2013

Degree Programme in Logistics Engineering



Author(s) Yindong, Jin	Type of publication Bachelor's Thesis	Date 04/02/2013
	Pages 47	Language English
		Permission for web publication ( X )
Title Insert Modern Logistics into CCA		
Degree Programme Degree Programme in Logistics Engineering		
Tutor(s) Petri, Vauhkonen		
Assigned by Jyväskylä University of Applied Science (JAMK), Tommi Franssila		
<p>Abstract</p> <p>With yearly GDP growth and the acceleration of global integration, China Cargo Airlines entered a new round of the upward cycle, the requirement for air cargo increases rapidly in China's national economy, which promotes the transformation of traditional China's air cargo enterprises into modern logistics ones. However, foreign air cargo companies also pitches into China's air cargo market, which could intensify the competition and force domestic company to develop modern logistics system. The main question for narrowly focused China's air cargo companies is how to compete with foreign air cargo companies which have advanced management experience, completed logistics network and advanced technology. Base on this question, combining with research of theory and demonstration analysis, the thesis describes how to insert modern logistics business into a China's air cargo company.</p> <p>The thesis combines relevant theorization about logistics management, first providing a brief introduction to the status of air freight logistics and focusing on the relationship between air freight and modern logistics. Afterwards it analyzes and discusses in details about the state of the air freight market, development tendency and air logistics so that teasing out the necessity of inserting modern logistics business into air freight company, the adoptable measures and the operating mode. According to the present circumstance of China Cargo Airlines, the thesis ends with if the subject can be operational and make the company more competitive in China's air cargo market.</p>		
Keywords: air freight, third-party logistics, aviation logistics		
Miscellaneous		



## CONTENTS

<b>1</b>	<b>INTRODUCION OF THE PROJECT .....</b>	<b>4</b>
<b>2</b>	<b>THEORY OF AIR FREIGHT LOGISTICS .....</b>	<b>5</b>
2.1	The relationship between freight and modern logistics.....	5
2.1.1	The relationship between freight and logistics.....	5
2.1.2	The difference between freight and modern logistics .....	6
2.2	The theory of air cargo logistics.....	12
2.2.1	Air logistics.....	12
2.2.2	The status quo of air logistics .....	13
2.2.3	The characteristics of air logistics .....	14
2.2.4	The difference between air freight and air logistics .....	15
<b>3</b>	<b>THE SWOT ANALYSIS OF INSERTING LOGISTICS CONCEPT INTO CCA.....</b>	<b>16</b>
3.1	The main characteristics of air freight.....	16
3.2	The development trends of air freight.....	18
<b>4</b>	<b>THE CHARACTERISTCS OF AIR FREIGHT AND ITS DEVELEOPEMTNT TRENDS.....</b>	<b>20</b>
4.1	The profile of China Cargo Airlines .....	20
4.2	The advantages of transforming CCA into logistics industry .....	21
4.3	The disadvantages of transforming CCA into logistics industry..	23
4.4	The chance for developing CCA to air logistics industry.....	25
4.4.1	Rapid growth of Chinese air freight volume.....	25
4.4.2	Rapid growth of Chinese airport's cargo & mail throughput .....	27

	2
4.4.3 Construction of freight infrastructure speeds up .....	28
4.4.4 More attention on air freight.....	29
4.5 The threats to develop CCA to air logistics industry.....	29
4.5.1 Intense competition in domestic air freight trade .....	29
4.5.2 Foreign air freight enterprises capture market share .....	31
4.5.3 Other transportations scramble for freight market .....	32
5 THE TRANSITION TACTICS FROM TRADITIONAL FREIGHT ENTERPRISE TO MODERN LOGISTICS ONE FOR CCA .....	33
5.1 The development paths for CCA .....	33
5.2 The combined logistics operating mode for CCA's transformation. .....	34
6 ADOPTABLE SAFEGUARDS .....	36
6.1 Improvement on service combination .....	36
6.2 Building the logistics network.....	38
6.3 Construction of freight network information platform.....	40
7 CONCLUSION .....	42
REFERNCES .....	44

**FIGURES**

<b>FIGURE 1. The freight turnover volume from 2006 to 2010.....</b>	<b>26</b>
<b>FIGURE 2. The cargo &amp; mail freight volume from 2006 to 2010 .....</b>	<b>27</b>
<b>FIGURE 3. China airport's cargo &amp; mail throughput from 2006 to 2010 .....</b>	<b>28</b>
<b>FIGURE 4. The number of freight airports in regions in 2010 .....</b>	<b>29</b>
<b>FIGURE 5. The shares of freight turnover volume in China airlines in 2010</b> <b>.....</b>	<b>31</b>

# 1 INTRODUCTION OF THE PROJECT

During the thesis study in China Cargo Airlines (CCA), there were plenty of questions I thought about. Among them, two main questions really need to be improved are single service mode and low competitiveness.

Single service mode shows up that the product varieties of air freight service in CCA are not rich. It doesn't provide particular clients with personalization services, and it might be a reason that CCA has smaller market share when comparing with the same class of air freight enterprise, Air China. Single service mode is caused by traditional freight concept and results in low competitiveness, how to insert modern logistics concept into CCA becomes a necessary topic to discuss. In the project, I will describe the path in my mind for CCA to update its system and to expand its own service field.

The replacement of traditional concept of freight delivering improves both entire logistics chain and value chain, value-added services expands the basic profit value. They are helpful to enhance the core competitiveness for CCA.

## **2 THEORY OF AIR FREIGHT LOGISTICS**

### **2.1 The relationship between freight and modern logistics**

Freight is one kind of general cargo transport and it is offered by carrier and air freight is an important part of modern logistics. Air freight, delivering comprehensive logistics services, provides safe, convenient, fast, high – efficient and reliable services and plays a major role in lowering production and operational costs of goods, improving products' quality, protecting the environment and accelerating the turnover.

Freight industry and logistics industry have close relationship. Freight is the core component of logistics and it cooperates with other processes closely. Generally, the logistics includes all stages within the company as whole, for example stocking, each process during producing process, delivery and so on. But freight generally means goods transport, not including internal corporate operations.

#### **2.1.1 The relationship between freight and logistics**

Under market economy, freight industry will certainly be merged into the development of logistics industry. The logistics has a long process of development and during this process freight industry can accelerate logistics industry's booming. In this period, freight industry and logistics industry will coexist, but in the end, freight will be merged into logistics service system.

Modern logistics is an extension of traditional freight and combines all stages scientifically and reasonably, integrating road freight, sea freight, air freight and warehousing organically. It provides more comprehensive supply chain services such as adding product processing, packaging, uploading, storage, transport, distribution, customs clearance, reporting for examination and so on. These bundling services make modern logistics' operation efficiently, at low cost and integrated.

Besides that, to traditional freight, modern logistics possesses an integrated information system of freight network. The information system can deal with the activities from raw materials to final customers, for example, the communication of bulk raw material between manufacturers and merchants, components and finished products. Jun Yun (2001) states that in the various elements of transport, modern logistics focuses more on management of transport processes and high-tech information, the transport information becomes open and transparent. Information tracking system infiltrates into all aspects such as production, processing and distribution so that companies can provide timely information and high quality logistics service while it also guarantees companies themselves might obtain better economical benefits. Based on modern information technology, logistics services shorten transit time and reduce tie-up of working funds effectively, speed up fund turnover to achieve the integration of logistics, information flow and personnel flow.

### **2.1.2 The difference between freight and modern logistics**

Freight transport refers to one or multiple-combined transport mode of road, railway, sea, air, pipe and so on to satisfy the economic activities of goods



moving. And modern logistics refers to a new integrated management of combination of information, transport, storage, stock, loading & unloading and packaging. Its main task is to minimize logistics cost and provide best services to customers. With a concrete analysis of the difference between freight and modern logistics, several points are listed below:

1) Different goals and services

Traditional freight transport just provides simple displacement, but modern logistics provides value-added services. Traditional freight usually just works in loading & unloading and transport after products manufactured and the goal is only to achieve delivery service for customers. Air freight just provides the service of moving goods from one airport to another, a simple air transport. In general, air freight's customer is goods agency, delivering the commissioned goods from airport to specific destination. Comparing with traditional freight, modern logistics broadens the goals. Modern logistics extends the services and adds new development in transport. It involves and optimizes the whole process of supply chain, from supplying and purchasing, through manufacturing, sales as well as the operation of the storage, processing, packaging, loading & unloading to customers. Modern logistics pays attention to the benefit of operation of the fund and working efficiency in the supply chain, and there is no need to deliver the goods through intermediary agents, the company can deal the business directly with customers. Responding to a customer need, logistics company provides logistics services from supply area to demand place at the lowest cost.

2) Different management methods

Traditional freight is a kind of passive transport, but modern logistics is active. Management level of traditional freight is comparatively low. Generally,

traditional freight provides passive service, which carries through in accordance with customer's demands after customer pays the funds. During the freight, there is no certain information communication, it just simply manages the goods and delivers to customers. But modern logistics take advantage of advanced science and technology and management methods to complete all the activities of logistics safely, reliably, punctually and accurately. Logistics technology comprises mainly automated warehousing, rationalization of transportation, packing standardization, mechanization of loading & unloading, integration of sales and distribution, information management network, etc. Logistics management follows the volatility of market economy initiatives and constantly adjusts its own management methods, combining the most advanced technology to formulate the management methods suiting to the company's needs accordant to the market environment at the time. Meanwhile logistics shows all the information actively to satisfy everything customers need so that customers might know the goods information, freight time, location and delivery staff, at anytime and anywhere.

### 3) Different functional orientation

Fanrong Kong (2005) states that traditional freight is a point-to-point goods delivery service, but modern logistics builds global service network. The function of traditional freight is to load, unload, deliver and temporarily store, the major business is the displacement of goods in space. Freight is the flow from production enterprise, through selling enterprise and finally to clients. The main function is transport by using relatively single transport to offer point-to-point or line-to-line delivery service. Traditional freight company maintain the development by lowering transport cost and mass of transport volume. Though traditional freight is capable of providing delivering service

according to customer needs, it divides the whole supply chain into several sections. Modern logistics just uses transport as a kind of operating model with the attention on the connection among supplier, manufacturer, sales company and final customer. Among those enterprises, logistics stresses the role of integrated coordination to complete tasks efficiently and constitute integrity of supply chain. The entire logistics service also covers transport, storing, distribution, packing, loading & unloading and delivery, data processing and other basic activities, which comprise the whole processes of goods circulation. Modern logistics provides door-to-door freight services, around the world, clients only need to convey information over the network, and then place order, deliver the goods accurately and punctually followed by customer needs.

#### 4) Different subject form

Traditional freight is single-linked management, and modern logistics is systematic management. Freight transport is mainly provided by the freight company which owns terminal building, vehicles and routes. These companies provide relatively single service and the level of informatization and standardization is comparatively low, otherwise, timeliness and accuracy of transport are not high with backward service-oriented concepts. Influenced by traditional system, all the sections work independently. It seems that there is no symbiotic relation of interest between the various sections because different responsibilities are owned by different economy entities. This leads to no unified standards for sections in freight group. But modern logistics service principal is mainly composed of multinational company or professional company with providing various logistics services. These companies integrate transport, storing, distribution and other social resources to serve manufacturers and distributors. The activities coordinate and connect

organically through the process of one project, management or command to operate effectively with minimal costs.

#### 5) Different degree of informaticization

Traditional freight is under human control but modern logistics is under information management. The degree of traditional freight is comparatively low, and whole the transport process is composed of multiple business aspects. Freight depends mainly on transport equipment such as warehouse and vehicle team, and source of information is mainly provided by clients. These businesses' information is recorded and managed by a large sum of paper. Besides, which needs more is human operation, so the information produced in the business process might not be collected and handled in time, which is influenced by human element or time effect. Modern logistics has to master advanced management technology with developed information management system. The entire business management is connected by network system so that company can communicate (obtain requirements and information) with clients through internal network and extranet. The whole process implements real time control and management of information high-tech and integrates a more effective way in internal and external resources for company, which makes transmission of information more fluent and rapid. In operation, logistics utilizes EDI (Electronic Data Interchange), automated warehouse system, real-time cargo tracking and other advanced technologies and equipments. This improves the efficiency and accuracy as well as customer service quality and administrative decision level.

#### 6) Different profit base

The price for traditional freight is relatively single. Generally, it overvalues income of transport at once. The profit base is built upon the quantity of

goods, which means more quantity of goods makes more profit, both is proportional. Modern logistics provides customers with tailored services according to the different needs of customers. Different transport goods lead to different prices. Logistics does not just pursue the quantity constantly. According to the size and weight of goods and also if it is valuable or dangerous, the profit base is connected with customers' requirement. In this community of interests, modern logistics enterprise lowers the cost with joint efforts of customers to achieve a win-win objective

#### 7) Integration and utilization of resources

The implements of both traditional freight and modern logistics demand the support of massive infrastructure and equipment resource. Not only does traditional freight company need to produce, purchase or lease the required equipments and transport, but also cooperates with highways, railways, docks and terminals to constitute an integrated system. However, various equipment and facilities might be idle because of seasonal, regional or structural reasons. Expect logistics utilizes various traffic infrastructures, and it also includes all kinds of logistics centers and distribution centers. For mobile infrastructure such as transportation equipments, container equipment, loading & unloading equipment, high informatization and advanced management tool makes them have a better utilization.

Comparing with traditional freight, modern logistics is a revolutionary breakthrough. Logistics owns a complete supply chain with multiple transport modes and it takes advantage of the management of science and technology to flow scientifically and reasonably and maximize the fitness for customers. Meanwhile, on the basis of information technology, logistics optimizes the distribution of the social resources and advantages in logistics

business through resources sharing, infrastructure and network sharing, technology sharing, knowledge sharing, information sharing and business process sharing. The level of logistics has become the important symbol of a national comprehensive strength.

## **2.2 The theory of air cargo logistics**

### **2.2.1 Air logistics**

Air logistics refers to comprehensive logistics service based on air transport links up with land transport and water transport. Air logistics relies mainly on airport and is supported by airport route network and advantages of air transportation. Comparing with road transport, rail transport, waterway transport and pipeline, air transport has the characteristics of fast, safety, punctual and accurate. So air transport plays a major role in logistics nowadays.

Air logistics is an important measure to the circulation degree of capital and goods, the development degree of economy and the level of openness. It maximizes the work efficiency with reducing total cost and helps to develop internal and external trade. Otherwise, it also distributes to national economy and social development. As national economy and development in science and technology grow rapidly, air logistics becomes more and more important. Thus, airlines industry structure has improved with constant adjusting and upgrading. Good circulation makes logistics and economy grow, moreover, both feed each other and promote common development.

The main body of air logistics consists of aviation logistics enterprise, airline, airport terminal, goods customer, consignor and consignee, and the market object is the specific transport goods. Aviation logistics enterprise accept a commission from airlines or consignors, and its main business scope includes cargo soliciting, picking up the consignment, booking, making out the documents, declaration, shipment, air transport, etc. In air logistics, air logistics enterprise owns the most important position. Air logistics enterprise may be considered as simple freight forwarder, but it works as an organizer.

### **2.2.2 The status quo of air logistics**

Wei Zhang (2010) states that with a gradual opening up of Chinese market, China's status in the world continues to rise, so foreign aviation logistics enterprise scrambles for Chinese market and grabs a slice of market. At the moment, private aviation logistics enterprise exerts more and more influence on Chinese aviation logistics market, especially in domestic air express. International aviation logistics enterprises have their eyes on wide space for development in Chinese market and they grab the chance by joint ventures or cooperation to extend logistics business scope. Air freight service develops rapidly under the circumstance.

In recent years, Chinese aviation logistics' freight volume grows briskly and enters the high-speed development period. Xueqiang Huang (2008) thinks that creative consciousness in Chinese aviation logistics enterprise is still weak and the variety of products is narrow. Foreign logistics enterprise pays more attention on high value-added products such as air express, electronics and

bio-medicine. Domestic aviation logistics enterprises do not refine the market, nor do they provide value-added services, so they get low overall revenues.

So far aviation freight enterprises do not face the customers demand, but the goods from freight forwarder. After assembling, the goods will be transferred to aviation freight enterprise. As a result, air freight can not quite understand the goods customers need to transport, only just reach the goal of delivering. In this way, the quality of aviation logistics services is comparatively low, but what modern logistics pursues is customer-centralized business mode.

Overall, Chinese aviation logistics industry is still at the stage from air freight to logistics and grows in a relatively slow speed. On the framework of cost theory, there is a simple theoretical model proposed that the paths to development for modern logistics integrates into Chinese private air freight industry. In later parts, it will describe the difference and connection among three development joints, air freight, air logistics and modern logistics and point out two phases of the paths to development which must pass. The first stage is mainly from air freight to air logistics and the second stage is caused by the power of transverse and longitudinal expansion. Aviation logistics becomes integrated into modern logistics and continues to develop.

### **2.2.3 The characteristics of air logistics**

Compared with other transportation, air logistics has its own distinctive features.

- 1) Express logistics



The pattern that aviation logistics combines with various express services does its best to meet customers' different demands. Aviation express provides door-to-door service within a short time and highlights of it are convenient, fast, punctual and efficient.

2) System integration, system optimization

Aviation logistics provides supply chain services by means of high technology and modern information. These services focus on the orientation of market, customer-centric and win-win project, the essence is system integration and system optimization.

3) Complex manipulation, high cost

Because aviation logistics is based on air transportation, compared with other transportation, which needs complex manipulation, high-accuracy and advanced technology. That leads to higher costs.

#### **2.2.4 The difference between air freight and air logistics**

Air freight just delivers the goods from one place to another, and this is one part in whole the process of logistics. Logistics is the entire system which also includes producing, packaging, loading & unloading, transport and other steps.

Air freight is the transportation model with aircraft. Air logistics is based on air freight, but in the meantime it also utilizes other transportation to achieve multiple transportation.

Ran Wei (2011) thinks that air freight does not contain production of goods, but based on modern information, air logistics provides the whole supply chain to save transit time of delivery, fasten capital turnover, which brings about the integration of goods flow, information flow, capital flow and personnel flow.

Air logistics pays attention on customer-centered strategy and provides good freight transportation services by trying everything to meet customer's demand.

Freight is the important part of logistics and it is also the determining factor of logistics development. As an important means of transportation, air freight promotes the development of Chinese logistics industry by its characteristics, convenient, fast and safe.

### **3 THE SWOT ANALYSIS OF INSERTING LOGISTICS CONCEPT INTO CCA**

#### **3.1 The main characteristics of air freight**

1) Low delivery time, convenience, high effectiveness

Air freight adopt plane as its transportation. The plane flies at a speed around 600 kilometers to 800 kilometers per hour, the speed of train, truck and ship is comparatively slow. This characteristic satisfies the requirements of some specific goods such as animals and sea food. The goods is with life or easy to

be perishable cannot take a long time of transportation, otherwise there causes some losses on goods.

## 2) Low breakage, good security

Generally, to ensure safety, air freight is much stricter in operation processes compared with other transportations. After the goods is loaded onto the plane, because the flight needs strict safety control, the placement of goods has quite high demand. The goods is impossible to be damaged due to free movement or collision during the flight. So in the whole transport process, the breakage of the goods is comparatively low and the security is high.

## 3) High flexibility

If there are airports in two places, flight route can be available. Air freight is so flexible, especially to deliver emergency supplies to disaster area. A large amount of relief goods can be delivered the first time, and air freight plays a crucial role at time like that.

## 4) Saving related expenses to production enterprise

Air freight can fasten the circulation of commodity to production enterprise because of its quickness so that the company can save warehouse expenses, insurance premium, interest payments and so on. On the other hand, fastening the circulation of commodity leads to accelerate the velocity of money, which can increase the efficiency of fund.

## 5) Quite high price

The cost of air freight is comparatively high because it owns the characteristics compared with other transportation cannot achieve so that logistics costs more. For instance, the price of air freight from China to the West Coast of

America is at least more than ten times than the price of sea freight. So in general, consigner considers the price of transport, if the goods doesn't require fast delivery or the goods itself values comparatively low, the goods should not adopt air transportation.

#### 6) Small capacity

Since the factor of aircraft model and considerations to aircraft safety, the goods' capacity of air freight has a limitation. Air freight usually loads much less goods than sea freight does.

#### 7) Easily influenced by weather

Plane is always affected greatly by the weather. If there is rainstorm, strong wind, fog and some other disaster climates in the place of departure and destination, the flights will be affected and might be unable to take off as planned or cannot land at the destination. These special circumstances lengthen the delivery time and might cause the losses or the influence to some special goods.

### **3.2 The development trends of air freight**

#### 1) The integration of resources

With increased competition of air freight in Chinese market, some small-scale, lacking of strength, low-benefit air freight enterprises are bound to be eliminated or to merger so that it forms few big-scale, internationally competitive air freight enterprises. Air freight enterprise might eliminate or reduce the logistics facilities with low efficiency of operation through

optimizing internal logistics resources to achieve the effective integration and improve the utilization of resources.

## 2) The alliance of air logistics, obvious global trends

In the tough competition of air freight market, air freight enterprises can complement each other in alliances or cooperation to avoid direct competition among interests' alliance so they can get benefits from market. So carrying out the alliance of air freight enterprises is one strategy to widen the advantage and improve competitiveness. In order to cover the world at the fast speed and with the minimum investment, some air freight enterprises have formed alliances so that air freight industry entered a new epoch. Therefore, organizing air freight alliances is one development trend for Chinese air freight industry. The cooperation between Singapore Airlines Cargo and Air China has done well in this respect.

## 3) Move from air freight industry to modern logistics industry

Compared with traditional air freight industry, modern air freight has taken place essential change. With the rapid development of electronic information industry, air freight industry has changed from simply traditional mode which was composed of planes and airports to modern integration mode which is combined with information system platform and traditional transportation method. While modern air freight enterprise plays transportation advantages, it extends the service areas to storage, packaging, distributing and other logistics service areas. This new change provides comprehensive systematic services including information flow, fund flow and so on.

## **4 THE CHARACTERISTICS OF AIR FREIGHT AND ITS DEVELOPEMNTNT TRENDS**

### **4.1 The profile of China Cargo Airlines**

China Cargo Airlines LTD. (CCA) was founded in 1998, is first professional cargo airline which specialized in air cargo transportation. CCA is a joint venture established by China Eastern Airline and China Ocean Shipping, and 70% shares is owned by China Eastern Airline, 30% shares is owned by China Ocean Shipping.

CCA was the first air freight carrier in China. From 2003, CCA joined International Air Transportation Association (IATA). In 2004, CCA was elected as the experimental unit to transport dangerous cargo and successfully won the first permit of transporting dangerous cargo.

While CCA owns multiple special freight lines, it also operates some international and domestic cargo transportation with the cargo hold of China Eastern Airlines' passenger aircrafts. CCA's network benefits its development and except for the basic services such as cargo transportation, cargo handling, cargo transshipment and others. Through the hub, Shanghai, CCA also built the cargo transshipment system, which is the domestic cargo transfers to domestic city, the domestic cargo transfers to international city, the international cargo transfers to international city and the international cargo transfers to domestic city. Besides, CCA establishes the cooperation such as freight space exchange, code sharing and signing agreement of combined

transport with a number of airlines in Asia, Europe and America. CCA operates several domestic dedicated lines, for example, Shanghai to Beijing, Xiamen, Hong Kong, etc and it also runs Europe, Japan, Southeast Asia, and America Line. The cities that cargo might arrive include Bangkok, Singapore, Tokyo, Osaka, Paris, Luxemburg, Frankfurt, New York, Los Angeles, Chicago, Seattle, San Francisco, Anchorage, etc.

However, at present, the research on transforming freight industry to logistics in CCA has not unfolded yet. While CCA's rapid development, it also faces great competition and challenge from domestic and foreign air freight logistics companies. For example, some international large-scale enterprises like UPS, FedEx and DHL have already entered into Shanghai Pudong International Airport. So scientifically developing CCA's cargo freight is essential, it is recommended to combine with modern logistics and transforms into logistics industry to update the services and win more market shares.

## **4.2 The advantages of transforming CCA into logistics industry**

### **1) Superior position**

CCA is located in Shanghai Pudong Airport, one of the three major airline hubs. Hehua Li, Yu Zhong (2010) states that Shanghai has excellent geographical location, which provides a solid foundation for developing air freight. Shanghai, the central city in the most developed Yangtze River Delta region, is at the west coast of the Pacific. Shanghai Pudong Airport can link

other airports in China to everywhere all over the world, North America, South America, Europe, Southeast Asia, Australia, etc.

## 2) Broad hinterland

Shanghai's economic hinterland has a distinct advantages and good domestic source. Shanghai is in the middle of China's long coastline, located in economically developed Yangtze River Delta region with a dense population and broad area. The amount of foreign trade and foreign investment is huge, and tourism industry, exhibition industry develops rapidly. These factors which are closely related to air transport industry have laid solid market resources base for developing Shanghai's aviation industry. With the continuing eastward of world's manufacturing center, high-tech electronics goods, automobile, textiles, pharmaceutical industry locate in Yangtze River Delta region. These industries might provide business continuously for air freight industry.

## 3) Merger and expansion

China Eastern Airlines Group's China Cargo Airline, Shanghai Cargo Airline and Great Wall Airline combined and reorganized to be new China Cargo Airline, which is the largest Chinese air freight company. New China Cargo Airline fully optimizes route network and integrates three airline companies' resources to make it stronger and better in Shanghai, the core market. In the meantime, new CCA plans to set up the truck transit center in Yangtze River Delta region and cargo terminal in Pudong. CCA will also develop high added-value freight such as express to give itself not only with air freight services but also with other transportation freight services. Since new CCA launched, it haven't happened an accident or a crash with good services and safety air freight.



### **4.3 The disadvantages of transforming CCA into logistics industry**

#### 1) Uneven regional distribution, single service

The freight network of CCA mainly connects to provincial capitals and major cities in Eastern China and Midwest area, so many areas are not covered. And the freight volume is strongly regional centralized, the distribution is not even. Imperfect network makes freight transport not smooth and can only perform point-to-point goods transport so that it brings about the two main problems, high cost and loss of competitiveness. Lack of comprehensive freight network and good support of ground transportation system is the result of increased intermediaries and decreased distributing efficiency. Simultaneously, inadequate extension services cannot provide customers door-to-door, one-stop service, for example, storage, processing, packaging, distribution, online information and some other logistics services. So it is struggled to satisfy client's demand to extension services.

#### 2) Low management level

Though Chinese aviation logistics industry grows fast, compared with foreign air freight enterprise, it should probably find that Chinese aviation logistics is still in the growth period. There is still some shortcomings in administration and management, which is mainly reflected in relatively small scale, narrow business scope, low freight capabilities, weak marketing concept, lack of professionals, low customer management level, etc. CCA is responsible only for air freight transport or freight agent while service is comparatively single

and service level needs to be improved, the level of comprehensive management and technology is low. The cargo transported is mostly low value-added or general ones, and the share of high value-added or express is not big.

3) Slow pace of informatization construction and underdeveloped information

Aviation logistics system needs the relatively high demand for informatization level. Compared to foreign aviation logistics enterprises, it is found that CCA's information system construction and informatization management system are still at an early stage. Aviation industry might just seek modern fleet and airport blindly, but it ignores that modern information technology is the most important base for aviation industry. So air freight industry has not yet an integrated information system, which leads that could not grasp first-hand information. The lack of latest information makes air freight industry cannot know about development trends and competitor enough so that it cannot change as market changes.

4) Lack of effective strategic alliance

In China, there is not much difference between the services provided by air freight enterprises. So generally, CCA's competitive way is mainly on the prize position while the service is comparatively single and has its limits. Since CCA has no its own features and advantages, freight forwarder can swoop in and take advantage of their goods by choosing among all the air freight enterprises so that freight forwarder might depress price. No alliance with other air freight enterprise makes CCA sometimes need to accept forwarder's low price.

## **4.4 The chance for developing CCA to air logistics industry**

### **4.4.1 Rapid growth of Chinese air freight volume**

In 2010, the freight turnover volume of Chinese air freight industry was 538.45 (100 million t · km), the increased volume against previous year was 111.38 (100 million t · km) and the increased percentage was 26.1%. And the cargo & mail turnover was 178.90 (100 million t · km), the increased volume against previous year was 52.67 (100 million t · km) and the increased percentage was 41.7%. The domestic routes completed the freight turnover volume of 345.48 (100 million t · km), the increased volume against previous year was 48.36 (100 million t · km), and the increased percentage was 16.3%. The routes fly to Hong Kong, Macao and Taiwan finish the freight turnover volume of 11.59 (100 million t · km), the increased volume against previous year was 2.66 (100 million t · km), and the increased percentage was 29.8%. The international routes completed the freight turnover volume of 192.97 (100 million t · km), the increased volume against previous year was 63.02 (100 million t · km), and the increased percentage was 48.5%.

Meanwhile the cargo & mail freight volume of Chinese air freight industry was 563 (10 kilo-tons), the increased volume against previous year was 117.5 (10 kilo-tons) and the increased percentage was 26.4%. The domestic routes completed the cargo & mail freight volume of 370.4 (10 kilo-tons), the increased volume against previous year was 51.0 (10 kilo-tons), and the increased percentage was 16%. The routes fly to Hong Kong, Macao and

Taiwan finish the cargo & mail freight volume of 21.7(10 kilo-tons), the increased volume against previous year was 5.8 (10 kilo-tons), and the increased percentage was 36.2%. The international routes completed the cargo & mail freight volume of 192.6 (10 kilo-tons), the increased volume against previous year was 66.5 (10 kilo-tons), and the increased percentage was 52.8%. From 2006 to 2010, the freight turnover volume grew at a rate of 15.82% on average and the cargo & mail freight volume grew at a rate of 12.9% on average. The two histograms are shown the freight turnover volume and the cargo & mail freight volume from 2006 to 2010, as follows.

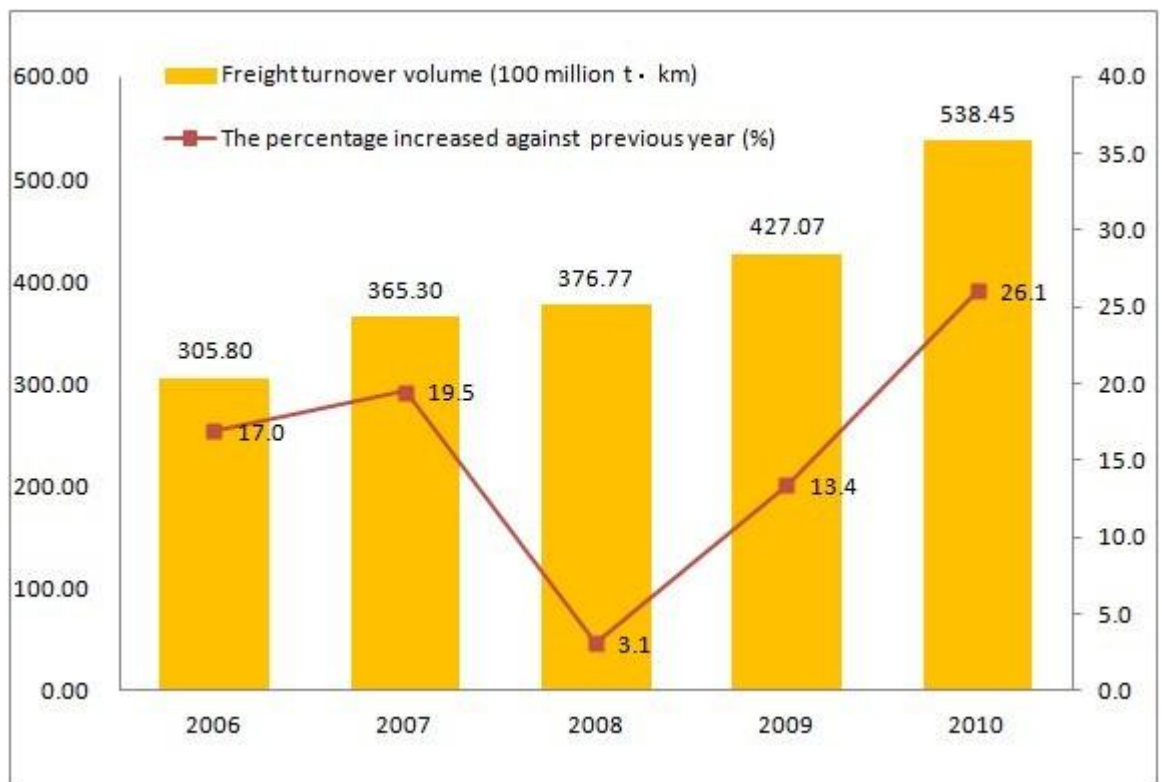


FIGURE 1. The freight turnover volume from 2006 to 2010

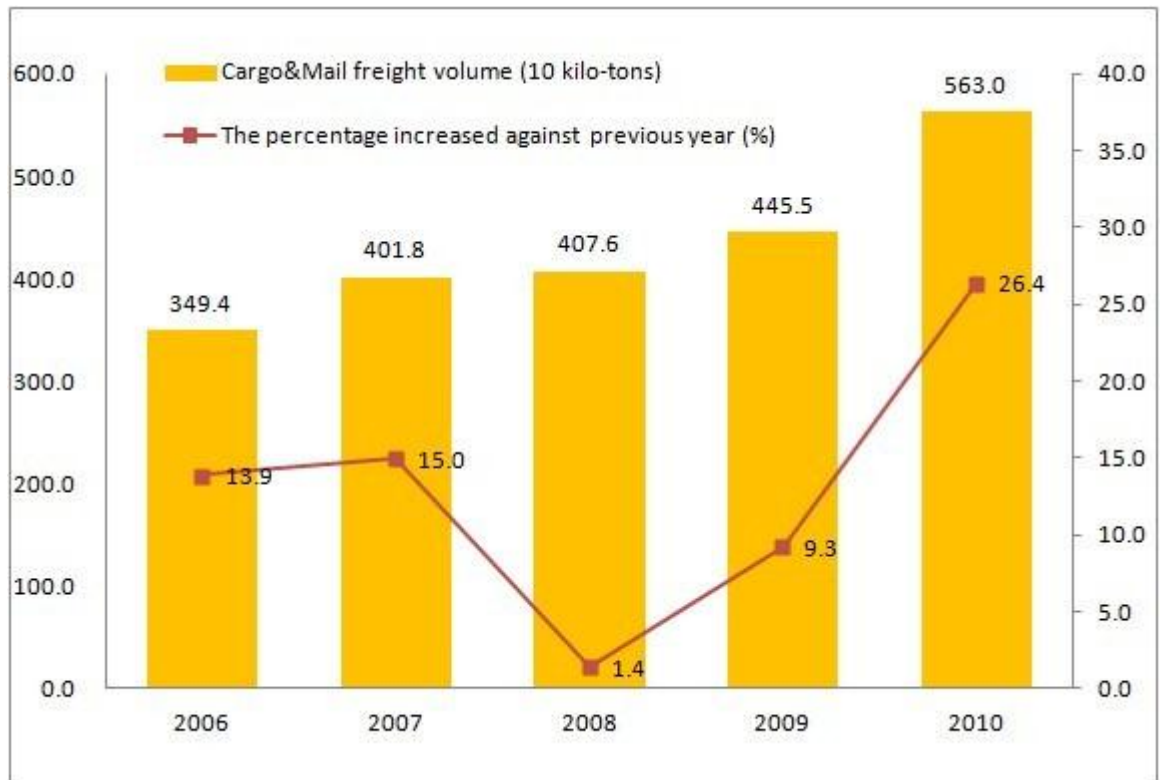


FIGURE 2. The cargo & mail freight volume from 2006 to 2010

#### 4.4.2 Rapid growth of Chinese airport's cargo & mail throughput

In the 90's of 20 centuries, the demand for global air freight presented an accelerating growth and cargo & mail freight volume improved as well. In 2010, Chinese transport airport accomplished the cargo & mail throughput of 1129.0 (10 kilo-tons) and the increased percentage against previous year was 19.4%. From 2006 to 2010, Chinese airport's cargo & mail throughput grew at a rate of 12.42% on average. There were 47 transport airports which completed over 10000 tons cargo & mail throughput, 2 more against previous year. And the transport airports in Beijing, Shanghai and Guangzhou occupied 56.7% of the whole throughput.

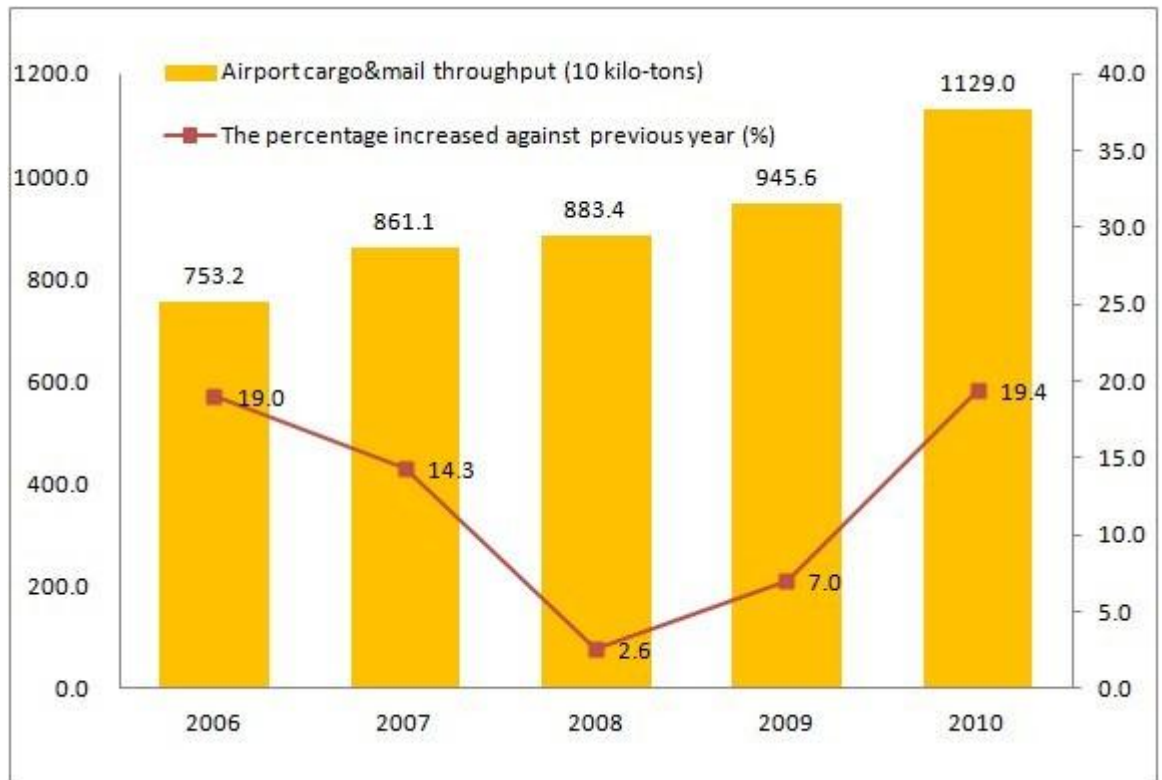


FIGURE 3. China airport's cargo & mail throughput from 2006 to 2010

#### 4.4.3 Construction of freight infrastructure speeds up

For the moment the layout and construction of Chinese airports have fundamentally taken shaped. The big progress in various aspects is such as increasing airport density, improving airport level and strengthening modernization. It forms several regional airports as center, for example, Beijing, Shanghai, Guangzhou, Shenzhen, Chengdu, Xi'an, etc. Other key cities are based on provincial capital. The table is shown the number of freight airports in regions, as follows.

<b>Region</b>	<b>Number of freight airports</b>	<b>Proportion</b>
<b>China</b>	175	100%
<b>Northeast</b>	19	11%
<b>East</b>	46	26%
<b>West</b>	85	49%
<b>Midland</b>	25	14%

FIGURE 4. The number of freight airports in regions in 2010

#### **4.4.4 More attention on air freight**

In recent years, the development speed of air freight is significantly higher than one of air transportation. Many airlines in the world start to focus on this point and devote more energy to air freight market in order to boost operation of air freight comprehensively. In many airlines, freight business is separated from the company and set up a new enterprise which specializes in air freight so that the company strengthens its competitiveness. Chinese air freight market emphasizes on passengers than on cargo, but nowadays cargoes receive further attention.

### **4.5 The threats to develop CCA to air logistics industry**

#### **4.5.1 Intense competition in domestic air freight trade**

Up to the end of 2010, China has 43 air freight enterprises. CNCA (China National Aviation Corporation) completed 1.467 million flight hours and 17.53 billion tons·kilometers of freight turnover volume, the increased percentage against previous year was 23.2%. The cargo & mail freight volume in 2010 was 1.81 million tons and the increased percentage against previous year was 28%. CEA (China Eastern Airlines Group) completed 1.214million flight hours and 13.6 billion tons·kilometers of freight turnover volume, the increased percentage against previous year was 24%. The cargo & mail freight volume in 2010 was 1.648 million tons and the increased percentage against previous year was 20.6%.

CSA (China Southern Airlines Group) completed 1.392 million flight hours and 13.1 billion tons·kilometers of freight turnover volume, the increased percentage against previous year was 30.2%. The cargo & mail freight volume in 2010 was 1.117 million tons and the increased percentage against previous year was 29.6%.

Hainan Airlines Group completed 0.602 million flight hours and 5.71 billion tons·kilometers of freight turnover volume, the increased percentage against previous year was 26.8%. The cargo & mail freight volume in 2010 was 0.522 million tons and the increased percentage against previous year was 29.1%.

Other airlines completed 0.434 million flight hours in all and 3.9 billion tons·kilometers of freight turnover volume, the increased percentage against previous year was 32.6%. The cargo & mail freight volume in 2010 was 0.542 million tons and the increased percentage against previous year was 30.6%.

The pie chart is shown the shares of freight turnover volume in Chinese airlines in 2010, as follows.



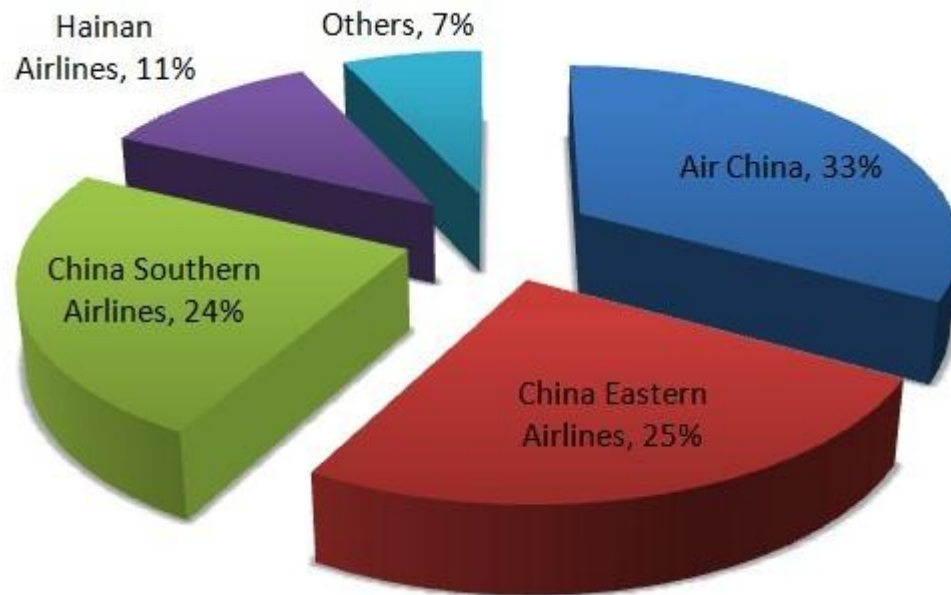


FIGURE 5. The shares of freight turnover volume in China airlines in 2010

It can be seen from pie chart that competition of Chinese air freight market becomes more and more strong. Although CCA is part of CEA Group, CNCA retains a distinct advantage, and other airline groups are not to be overlooked either.

#### 4.5.2 Foreign air freight enterprises capture market share

With open of celestial policy carries out, Chinese Civil Aviation authority loosens its grip to domestic air freight industry and actively expands open-door policy to international air freight trade. Civil Aviation authority also offers some preferential policies such as lowering access threshold to domestic air freight market. It also opens the 5<sup>th</sup> freedom rights to Haikou, Sanya, Xiamen and Nanjing airports while attracting plenty of foreign airlines to

cooperate, which includes allowing both countries' freight to enter in by air transportation, increasing flights, expanding new cities' route, etc. Many global big-scale air freight enterprises has injected into Chinese market. So far there are 60 foreign airlines in 40 open cities operating the international freight business, and the largest are UPS and FedEx.

The advanced foreign air freight enterprises take advantage of high technology and optimal route network and enhance efforts in Chinese market to obtain huge economic profits. In fact, Chinese freight capacity is widely mismatched with its high-growth states in freight market, which is also the reason to increase the competition.

### **4.5.3 Other transportations scramble for freight market**

Along with expressway network consummates, the construction and operation of high-speed railway, the speeds of rail freight and expressway freight turn faster, which threatens to air freight. Road transportation enterprises can deliver the goods at any time, the flexibility is pretty high. With the expansion of highway network, the delivery time shortens. Good network recourses, low cost and considerate services competing for air freight. In addition, road transportation enterprises set up door-to-door service in cities and also increase marketing efforts. With wide adoption of large carrying capacity truck and continuous improvement on national highway system, road transportation enterprises will surely lead to increase competition with air freight enterprises. On the other hand, on major routes of railway it starts to separate passenger train and rail wagon to speed up operation. CRSCS (China Railway Special Cargo Service CO, .LTD) and CRE (China Railway Express CO, .LTD) were also founded to boost the reaction

ability of market while taking advantage of advanced technology to open up logistics distribution network, building road distribution team and developing container transportation to provider customers completed service. The threat of the railway freight cannot be ignored.

## **5 THE TRANSITION TACTICS FROM TRADITIONAL FREIGHT ENTERPRISE TO MODERN LOGISTICS ONE FOR CCA**

### **5.1 The development paths for CCA**

Gongda Xu, Ling Li (2005) states that there are 3 stages from traditional air freight enterprise to air logistics enterprise from the viewpoint of development of logistics, according to the different business models, CCA needs to go through these stages.

#### **1) Traditional aviation transport**

Generally, traditional aviation freight demands passenger aircraft to deliver the goods by using cabin, so the traffic volume is relatively low. Freight transport has been separated from passenger transport for years.

#### **2) Integrated transportation services**

The developed country noticed the expansibility of express transportation and formed logistics system which was based on air transport. Air logistics has significantly different from air freight and it increases the level of productivity

of air freight. Based on the economic profits of express transportation network, air logistics industry provides customers completed transportation product with good-quality service and efficient information system. Completed transportation product is a concept that delivers the required goods from original place to final destination. Because air transportation cannot provide a completed transportation business alone, and logistics system is to combine the transportation networks of air and road. In this way, logistics enterprise may cover most regions in China. Express transportation belongs to combined transport.

### 3) Modern integrated logistics services

Logistics provides freight's development with a broad space. Air transportation service provider, air freight, freight agent, air express and other enterprises constitute integrated logistics service and involve actively. Third-party logistics is the body of integrated logistics service, and forms subcontracting partnership by cooperating with basic transportation service provider. Today in addition to providing express services, foreign giant express companies also provide customers storage, distribution programs and other distinctive-feature services.

## **5.2 The combined logistics operating mode for CCA's transformation**

### 1) Third-party logistics operating mode based on integrated logistics agents

Chinese air logistics enterprises, as third party's identity, need to provide customers comprehensive and integrated logistics services in the process of freight transportation. Jie Xiong, Dezhan Wang, Chen Zhang (2007) thinks that the provided services may not be accomplished by enterprise itself and the enterprise needs to transfer some services to 3PL (3 Party Logistics) transportation companies to complete. Based on Chinese air logistics enterprise's own features and supported by air transportation, CCA can learn from mature operation experience of 3PL companies, then optimize and reorganize all the resources to design the logistics services with own features. At the moment, Chinese air freight enterprises don't really contact and communicate with clients. If CCA can establish long-term partnership with several air freight agents and make the most of agents' goods resources to broaden range of services. In this way, CCA can develop the relationship with clients.

## 2) The logistics service mode based on domestic targets

Compared with international logistics enterprises, Chinese air freight companies have big gap in experience and resource technology. For instance in China there are 20 cargo planes flying international routes, but UPS has 600 cargo planes operating flight transports. Judged by the number of cargo planes, there is a huge discrepancy between both. Songhua Wu (2010) states that Chinese freight companies have only local network system, but international companies consider the resource integration from the world point of view and they have huge global network which is not established in a short time. CCA has strong network in airmail and domestic air freight, so can use its advantages to strive for the best benefits. In all parts of local logistic, CCA should strengthen service. On international network, cooperating with foreign logistics enterprises is ideal choice.

### 3) The logistics service mode based on personalization

The objective of aviation logistics enterprises should be same as logistics, customer-centric, and combine with the supply chain of manufacturing company to set the distribution so that it forms integrity of logistics services, high quality door-to-door service. Various clients have different needs, especially small and medium enterprises' ability is limited, and their requirements have their own specialty so CCA can provide personalized logistics services according to their needs. For example CCA can assist clients to have a promotion in the process of logistics service. The promotion activities include highlighting the goods, advertising campaign, logistics support of promotional material and so on.

CCA can combine these three operating modes in situations that it is incapable of creating the whole logistics system. Except for cooperation and strategic alliance with local agents, CCA might also create partnerships through communication and consultation with international logistics enterprises. On that basis, CCA can transform traditional operating mode to meet the need of economic integration.

## **6 ADOPTABLE SAFEGUARDS**

### **6.1 Improvement on service combination**

According to *Air Cargo Carriers should Change Their Operation Model (2007)*, air freight enterprises need to combine their own services to win the market

share. Reorganization of service combination makes service range bigger and more detailed so as to occupy more market share of same sector. Through service combination's introduction, CCA excavates value-added services in the service chain. Fully committing to the promotion of high value-added goods transportation such as express delivery, small packages, special safeguard delivery and JIT transport can help CCA to strive for high-end market. CCA already has relatively broad air network, in North America, Europe and Southeast Asia, it operates scheduled passenger-cargo flights every day. And CCA uses various models of passenger-cargo aircrafts so its frequency, take off and landing time have the dominant positions. In addition, CCA undertakes international transit freight service under Special Proportion Agreement (SPA). Shanghai has a strategic location, so the areas cover around half of the world's population can be arrived within 4 hour flights. CCA can take full advantage of positive operating environment to launch new product services in hub construction of air freight.

According to Lufthansa Cargo product overview, it is available to analyze its service system. Lufthansa Cargo defines its services as time definite (td) products and the service is subdivided into two service levels, they are:

- td.Flash – The fastest way (international express service)
- td.Pro – The worldwide way (economic and reliable service)

Targeting for different goods, Lufthansa composes several service products under the combination of the following services and the two services above.

Care/td – The most responsible way (targeting for dangerous goods)

Cool/td – your option for the air of temperature-sensitive goods (targeting for insulated goods)

Fresh/td – The freshest way (targeting for perishable goods)

Live/td – The live way (targeting for animals that can be legally shipped)

Safe/td1 – The safest way (targeting for valuables, for example diamond and jewel)

Safe/td2 – The best-protected way (the goods which is easy to be stolen, for example art and exclusive goods)

By analyzing the customer needs and refined service products, Lufthansa Cargo obtains high income.

CCA can learn from this approach and reorganize services. Targeting for different goods and customer needs, CCA can provide appropriate service plans, which can help CCA to convert into logistics industry gradually.

## **6.2 Building the logistics network**

Establishing and improving CCA's national logistics network will further increase transport capacity, service quality and transport efficiency, to lay the foundation to logistics industry.

### 1) Improvement on air network

CCA's basic business is air transport. Based on the existing air network it can obtain more route resources by doing merger and acquisition. CCA can also enlarge the scope of its service by consultation and cooperation with more airlines.

### 2) Set up distribution network



And based on the transport network, CCA can set up distribution network by merging or self-establishing, step by step. When the distribution network reaches a certain size, it can extend the network by cooperating with partners in surrounding areas. In this way, CCA even develops the business with cities in international cooperation and set up comprehensive logistics network.

### 3) Set up alliance

Strengthening the cooperation with enterprises and establishing strategic alliance are efficient methods for developing logistics. Today the competition becomes more drastic, the resource of air freight enterprise alone is far from sufficient. Expanding network of services to increase efficiency, searching for the suitable partners to build the alliance and extend service chain can both decrease the time of supply chain and improve the service quality.

### 4) Cooperation with the competitive enterprise

With favorable geographical location, Shanghai Pudong International Airport, CCA has a lot of competitors. Competitive relationship contributes to the enterprises of gain and loss. It might as well establish cooperative relationship to get win-win.

### 5) Cooperation with logistics enterprise

The present CCA and logistics enterprise are two independent individuals, which impedes effective control and management of logistics business and is difficult to meet integrated trends of logistics services. The quality of service is the magic weapon for competition in logistics industry and it is also the basic condition for enterprise to be in high quality. It is hard for CCA to compete against international air freight giants if customer satisfaction cannot be improved. Through building partnership with logistics enterprises, CCA can

take advantage of cooperated enterprise's logistics services and resources to increase the varieties of logistics service and expand geographical coverage so that improving enterprise's competitiveness.

#### 6) Air logistics brand building

CCA was identified as the pilot unit of transporting dangerous cargo and it signed cooperation agreements with the world's top 500 companies such as Agilent, Bayer and BASF. CCA can consider to cooperation with China Express Mail Service (EMS) in the domestic express market and so as to improve own express quality.

At present, CCA's freight operations in Shanghai area mainly involve China Cargo Airlines, Shanghai Eastern Logistics Co., Ltd and Surface Service Department in Eastern Airlines. There are multi main body participations and various departments are fragmented. CCA has a weak grip in freight resource, so it is hard to achieve internal resources integration. In the future, CCA should make some effort to be the integrator of resources. Resources include like domestic logistics supply chain, relevant information and financial resources. With the integration of resources, CCA should provide client full value chain service and logistics project design to satisfy the various demand and build own air logistics brand.

### **6.3 Construction of freight network information platform**

The key to the integration strategy in aviation logistics enterprises is information sharing. Information sharing necessarily requires that aviation logistics chain sets up modern network information platform to improve integration management of aviation logistics information. So CCA can realize more public and transparent in the process of operation and become more electronic in logistics business. CCA provides e-commerce platform at present and comprises mainly information platform administration, product release, product ordering, order flow control, cargo tracking, customer complaints and other functions. E-commerce platform consists of cargo e-commerce web system and cargo operation backend system. CCA's e-commerce platform is not good as Air China's and China Northern Airline's in both business operation and products publicise promotion.

1) Improve internal logistics information platform

It is necessary to set up and continuously improve internal logistics information platform to achieve information sharing of cargo for CCA's transforming into logistics enterprise. CCA's staffs can keep abreast of cargo to ensure unobstructed cargo transportation so that it helps CCA to improve transport efficiency and logistics service level.

2) Establishing customer information system

CCA can also establish customer information system to keep contacting with clients in time and hold the first-hand information from clients to understand their real demands. Meanwhile clients can keep track of freight information through information platform to realize information sharing.

3) Strengthen company's external release and brand promotion

Internet is major propaganda platform for enterprise and CCA can make the best of network resource. With the speed of network's renewing, CCA can replace website content in time and release the latest information which includes logistics management of enterprise and the information about enterprise logistics. In this way, CCA can promote propaganda and service as well as build and enhance the enterprise brand.

## 7 CONCLUSION

Along with continued sustained growth of national economy, it provides good circumstance for developing aviation logistics. Under the situation that global business expends rapidly and liberalization of global air transportation develops fast, Chinese aviation logistics industry is facing opportunities and challenges in higher openness and broader field. It is the only path for CCA to change single freight and storage logistics business and insert modern logistics concept into the enterprise so that CCA can survive and develop in the fierce competition.

When air freight company transforms into logistics enterprise, above all the thing is customer. Combing client's interests and excellent aviation logistics service can truly forms own core competitiveness to avoid bidding wars. Meanwhile it is necessary to improve comprehensive supporting facilities such as logistics network, information construction, institutional framework construction and so on to certify for transition.

CCA needs to begin with client's requirements, then explore more innovative services to show customization and strive to be client's nominated carrier. In

one hand, overall improvement in logistics service level enhances value chain, and in other hand, gradual rolling out new portfolio of services can satisfy more and more clients' demands. Through building strong brand effect, CCA can obtain varieties of clients and assimilate a lot of useful experience to build new global freight logistics service system.

## REFERNCES

22.07.2003/A3. Shenzhen Daily. Air Freight: What is SPA Agreement. Accessed on 10 October 2012.

[http://www.aq200.com/jt/2008/0227/article\\_1302.html](http://www.aq200.com/jt/2008/0227/article_1302.html)

Mu Tian. Air Cargo Carriers should Change Their Operation Model. Accessed on 11 November 2012.

<http://www.askci.com/freereports/2008-05/200852292928.html>

Fanrong Kong. The Development Condition and Trend of International Aviation Logistics. Accessed on 14 October 2012.

<http://wenku.baidu.com/view/a746126c561252d380eb6eb0.html>

Gongda Xu, Ling Li. Explore the Development Path for Inserting Modern Logistics into Chinese Aviation Transportation Industry. Accessed on 17 November 2012.

<http://file.lw23.com/5/59/597/59741a99-d301-4725-a59f-c0f4e9222388.pdf>

Hehua Li, Yu Zhong. Present SWOT and Development Countermeasures of Shanghai's Air Freight Industry. Accessed on 12 December 2012

<http://wenku.baidu.com/view/a0c3e05c312b3169a451a41c.html>

Jie Xiong, Dezhan Wang, Chen Zhang. TPL Mode of China Aviation Freight-agency Enterprises. Accessed on 25 November 2012.

<http://wenku.baidu.com/view/e3abd52558fb770bf78a55e3.html>

Jun Yun. An Analysis on China Aviation Logistics Trends. Accessed on 13 October 2012.

<http://wenku.baidu.com/view/0130ac1cc281e53a5802ff66.html>

Lufthansa Cargo product overview. Accessed on 26 December 2012.

[http://lufthansa-cargo.com/en\\_de/mainnav/products/product-overview/](http://lufthansa-cargo.com/en_de/mainnav/products/product-overview/)

Ran Wei. The Vertical Integration and Implementation Approach of China Aviation Logistics Chain. Accessed on 18 November 2012.

<http://wenku.baidu.com/view/97ecf3240722192e4536f6fa.html>

Songhua Wu. Thinking about Global Air Freight System for CCA's Construction. Accessed on 10 December 2012.

<http://www.cnki.net/KCMS/detail/detail.aspx?filename=KYSW201015017&DbCode=CJFD>

Wei Zhang. The Development and Analysis of Development Strategy for Chinese Aviation Logistics. Accessed on 14 October.

<http://www.xzbu.com/3/view-1476076.htm>

Xueqiang Huang. Trends and Outlook for China Air Freight. Accessed on 27 October 2012.

<http://wenku.baidu.com/view/9e2211d73186bceb19e8bbec.html>