

Study on the Development of Modern Aviation Logistics in Zhengzhou aviation airport based on SWOT Analysis

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Abstract: Aviation logistics is an important part of modern logistics and makes much progress with other modes of transportation with its safety, quickness, convenience. Rapid development of the air logistics not only brought new opportunities for those domestic aviation logistics companies in Chinese market, but also brought changes in market environment. Facing the new market opportunities and challenges, studying the history, present situation, strategies of world's aviation are essential for Aviation logistics enterprise, especially for the future development of local Aviation logistics enterprise. This paper takes Zhengzhou aviation airport as a research object and attempt to solve the problems of how to establish a clear strategy for enterprise development and how to consolidate its leading position and keep its regional advantages. The paper uses the SWOT model to analyze the strengths, weaknesses, opportunities and threats of aviation logistics. Then, based on the history, current situation and problems of the Zhengzhou aviation airport, the author gives the corresponding recommendations for the development of Zhengzhou aviation airport to provide a reference.

1. Introduction

Aviation logistics is the effective flow of the process about raw materials, finished products and related information from the beginning to the end. It refers to the airport as the main body, relying on the airport route network and air transport advantages, with the help of modern letter Information technology, integrating multiple modes of transport and related resources, connecting the supply and demand subjects. Aviation logistics combines processing, warehousing, transportation, loading and unloading, sorting, distribution, information and capital exchange to form a complete supply chain service and provide customers with door-to-door solutions. Compared with traditional air freight, air logistics should not only realize air transport of goods, but also participate in the whole process of logistics operation, as well as the overall design and management of it. It can be seen that air logistics pays more attention to integrating logistics functions and coordinating the cooperation between all parties. The modern logistics system is composed of five logistics systems including railway, waterway, highway, pipeline and aviation. Aviation logistics plays an important role in the modern logistics system with the characteristics of safety, accuracy and speed, and has gradually become an important part of the logistics system. With the advantages of fast speed, globality and saving the total cost of supply chain, air transport has become a major force for world economic growth and development. All countries have taken the development of aviation logistics as a means to enhance economic level and competitiveness.

With the steady growth of aviation logistics in the world, China's aviation logistics industry is improving its strategic position. Zhengzhou aviation airport aviation port area is classified as China's first national economy comprehensive experimental area. At present, Zhengzhou Xinzheng international airport and the nearby Xinzheng comprehensive bonded zone are the main carriers for Zhengzhou to develop modern aviation logistics. However, with the rapid development of Zhengzhou aviation airport, there are also many problems, such as weak freight facilities, low information level, low quality of personnel in related industries, small scale and small number of

freight forwarder enterprises, and weak linkage with Zhengzhou land port.

Based on the advantages and problems of Zhengzhou aviation airport, SWOT analysis is adopted in this paper to analyze the advantages, disadvantages, opportunities and threats of Zhengzhou aviation airport, and the author give corresponding suggestions to provide reference for the development of Zhengzhou aviation airport.

2. The related concepts and theories

2.1 The Concept And Characteristics of Aviation Port

2.1.1 The concept of aviation port

The aviation port constitutes of the civil aviation airport and the related service facility, and is the base that guarantees the airplane to takeoff and land safely and the distribution center of air passenger and the cargo. Many people think that an airport is an airport, but in fact, an aviation port is not the same as an airport. The scope of aviation port is larger than an airport. So an aviation port includes not only an airport, but also relevant service facilities around the airport, as well as high-end industrial parks built based on the airport. To put it simply, an airport can only be called an aviation port if it has a larger scale. However, an airport, no matter how big or small, can only be called an airport if it has the ability to take off and land and the necessary infrastructure. Generally speaking, the scale of an aviation port is larger than that of an airport, and its supporting facilities, transportation, passenger and cargo transportation and other aspects are far stronger than those of an airport.

2.1.2 The characteristics of an aviation port

The aviation port has characteristics of many passenger and cargo routes, large passenger and cargo throughput. The city where the aviation port is located is large in scale and relatively developed in economy. Generally speaking, the development of this region is dominated by high-end industries, and it is the core city of this region. The city where the aviation port is located is very important in geographical location. Generally speaking, the city is the transportation hub of the region and even the whole country. The other transportation modes of the city, such as roads, railways and sea routes, are also extremely developed, which are incomparable with those of other surrounding cities.

2.2 The Meaning of Aviation Logistics

2.2.1 The concept of aviation logistics

Aviation logistics refers to the process that goods from the supplier to receive on the efficient effective flow and storage of to satisfy customer's need, regarding the air transport as the main mode of transportation. it combines transport, storage, loading and unloading, processing, sorting, distribution, information to form a complete supply chain, providing users with multi-function, the integration of comprehensive services.

2.2.2 The characteristics of aviation logistics

The biggest advantage of Aviation logistics is fast speed competed with other modes of transportation. Its shortcoming is also very obvious, the first is that the aviation logistics cost is extremely high, the cost includes airports, aircraft maintenance, routes opened, freight facilities and other related costs. The second is that it has strict limits on transportation of the specifications of the goods weight. In addition, air logistics is often unable to "door to door" transport, but also it need other means of transport for multimodal transport.

2.3 The Meaning of Modern Aviation Logistics

2.3.1 The concept of modern aviation logistics

Modern aviation logistics includes the general name of many links, including transportation, storage, loading, unloading, handling, packaging, circulation processing, distribution, information processing, and so on. It is no longer the traditional sense of cargo handling, but the full application of information technology to the entire logistics process.

2.3.2 The difference between modern aviation logistics and traditional aviation logistics

Compared with the traditional aviation logistics, the modern aviation logistics introduce high-tech means and carries on the scientific management of the logistics information, so that it can improve the logistics speed and accuracy, reduce inventory, reduce cost, extend and expand the function of the traditional aviation logistics.

In addition, traditional aviation logistics is only simple cargo transportation, while modern aviation logistics includes cargo transportation and additional value-added services. In terms of operation, traditional aviation logistics usually transmits information manually and moves goods usually relying on manual operations, while modern aviation logistics usually realizes information exchange and intercommunication through computers and moves goods usually through mechanized equipment. Traditional aviation logistics standards are not unified, while modern aviation logistics implements standardized services. All parts and equipment used in the normal operation process have unified specifications nationwide and globally.

3. Introduction to the Zhengzhou aviation port

3.1 The Development Course Of Zhengzhou Aviation Port

In October 2007, Henan provincial party committee and the provincial government approved the establishment of Zhengzhou aviation port area. Three years later, the state council approved the establishment of Zhengzhou Xinzheng comprehensive bonded zone. On November 17, 2012, the state council approved the central plains economic zone planning, which proposed to build Zhengzhou aviation airport economic comprehensive experimental zone with Zhengzhou aviation airport as the main body, comprehensive bonded zone and associated industrial park as the carrier, comprehensive transportation hub as the support, and air freight development as the breakthrough point. On March 7, 2013, the state council approved the Zhengzhou aviation airport economic comprehensive experimental zone development plan (2013-2025). Since October 2007, when Zhengzhou aviation airport area was approved for establishment, the area of Zhengzhou aviation airport has been on the rise. The size of Zhengzhou aviation airport has increased from 138 square kilometers in 2007 to 415 square kilometers in 2013.

3.2 The Current Situation Of The Development Of the Zhengzhou Aviation Port

In 2016, operating freight airlines 21 in Zhengzhou has opened the whole cargo airlines 34 (29 international routes, navigation city 37, 187 passenger routes (26 international routes, intercontinental route 2), the three economic zones with basic formed across America, Europe and Asia, covering the world's major economies hub-and-spoke airline network, become the central region into "open the portal area all the way". Zhengzhou aviation airport handled 457,000 tons of cargo and mail in 2016, up 13.2% year on year. The national ranking rose from 8th to 7th. By May 2017, the throughput of cargo and mail has reached 169,400 tons, up 5.9% year on year.

4. Swot analysis of aviation logistics in zhengzhou aviation airport

4.1 The Advantage

4.1.1 Location advantage

Located in the central hinterland of China, Zhengzhou is the transportation hub of China's roads, railways and aviation. It is close to all developed economic zones in China, which is conducive to the development of multimodal transport and has great advantages in the development of aviation logistics.

Zhengzhou aviation airport has convenient transportation and obvious geographical advantages. It is located in the southeast of Zhengzhou city. Although it is far away, the completion of metro line 2 and suburban line has greatly shortened the time on the road. Zhengzhou aviation airport is surrounded by three expressways, namely Beijing-Hong Kong-Macao expressway, Shangdeng-Deng expressway and circum-city expressway. In addition, national highways 310 and 107 intersect at the airport that lays a foundation for the construction of a modern transportation system in the future.

4.1.2 Transportation infrastructure advantage

In terms of air transport, Zhengzhou Xinzheng airport is one of the eight regional hub airports. It now has 34 freight routes and 187 passenger routes. The 2.5 hour air transport radius covers 90% of the population and 95% of the national economic aggregate.

In terms of railway transportation, Zhengzhou is located at the intersection of Beijing-guang railway and Longhai railway. In terms of high-speed rail, expressways and trunk roads, Zhengzhou is the transportation hub of the country. In addition, Zhengzhou is the starting point of Zhengzhou-Europe railway and the new starting point of Eurasian land bridge in the middle of China.

In terms of highway transportation, Zhengzhou is one of the seven main hub cities of highways in China. Zhengzhou passenger transport station is one of the largest passenger transport stations in China. There are 310 and 107 national highways passing through Zhengzhou and several expressways connecting various cities inside and outside the province.

4.1.3 Freight rate control advantage

In terms of freight price making, the freight of Zhengzhou aviation airport have independent price control power, the regulation of freight is relatively flexible. In addition to China southern airlines, other airlines freight rates are determined by Zhengzhou aviation airport transport independent, airlines just give their bottom line, the specific price determined by the airport company.

In terms of freight forwarders, the shipping space of most aircrafts in airports is contracted by freight forwarders. After the arrival of goods, the agents are responsible for the delivery of goods or the shippers pick up the goods themselves. The right to decide the cargo space is in the airport and the right of distribution is in the airline company. Zhengzhou aviation airport has the right to independently allocate, receive and deliver goods, the right to decide the cargo space is in the airport, and the right to distribute is in the airline company, but the airline company gives the airport a lot of rights, the two sides coordinate with each other, and the efficiency has been greatly improved. The advantage of Zhengzhou aviation airport is one-stop service, less this intermediate link of the freight forwarder. Zhengzhou aviation airport directly facing customers, not only can improve the efficiency of work, but also give customers a certain discount in freight.

In the face of customers, most airports cannot guarantee the source of goods due to their economic and geographical problems. The shipping space is contracted by freight forwarders, who face the shippers, so some profits of value-added services are also obtained by freight forwarders. On some routes, Zhengzhou aviation airport directly faces the cargo owners, reducing the intermediate links to reduce the freight costs and attract the cargo owners. In addition, the profits

generated by value-added services are also obtained by the airport, that greatly improving the benefits of the airport.

4.2 The Disadvantage

4.2.1 Weak freight facilities

Though the aviation logistics developed rapidly in recent years, corresponding facilities and supporting of aviation logistics service has not been completely keep up with, especially in the construction of the airport runway, there is no a special offer freight service track in Zhengzhou Xinzheng airport, it obviously can't meet the demand of the increasing freight. On the other hand, the number of aircraft specially providing cargo services is relatively small. At present, the cargo volume of Zhengzhou Xinzheng airport is still mainly dependent on the luggage carried by passengers in the passenger plane.

4.2.2 Low level of informatization

As a relatively high-end mode of transportation, aviation logistics requires the cooperation of transportation companies, freight forwarding companies, airlines and other companies. It also requires high efficiency of information transmission to ensure the quality of service. At present, the information systems used by airlines, transport companies and freight forwarding companies are relatively closed and not open to other enterprises. Due to the slow flow of information in the market, opaque prices and other problems, the development of aviation logistics is greatly restricted. At present, each company is still fighting on its own, and the information is relatively scattered. Therefore, an information sharing and price transparency platform is urgently needed to effectively integrate the resources of all parties.

4.2.3 Freight forwarding enterprises are small in scale

The development of regional aviation logistics mainly depends on the promotion of large airlines and freight forwarding companies. For example America Memphis airport, as the world's largest freight hubs, the center of the fedex freight business accounted for 93.6% of total airport freight volume. Sketching from the airport, fedex area occupies the entire airport about a quarter of the area, the more than 50% of income of the Memphis airport are created by fedex. As Memphis airport's biggest customer, its economic radiation output value reached \$28 billion.

Because Zhengzhou is located in the hinterland, trade is more backward than coastal areas, the local freight forwarding enterprises are small in size and number. Zhengzhou Xinzheng international airport has only six large scheduled cargo airlines and only one route per cargo airline.

4.2.4 Zhengzhou aviation airport and zhengzhou land port linkage is not strong

As a comprehensive transportation hub, Zhengzhou has developed various modes of transportation, especially in land transportation. However, the linkage between Zhengzhou aviation airport and Zhengzhou land port is not strong, and the multimodal transport connecting land and air cannot be very efficient. Zhengzhou is still only a "transportation hub" and not a "logistics hub". Only when air port and land port are linked together, logistics industry clusters are built, a unified information platform is built, and information and goods are quickly distributed that make Zhengzhou be transformed from a "transportation hub" to a "logistics hub".

4.3 The Opportunity

4.3.1 The global economy and trade continue to grow

With the integration of global economy, the global economy and trade continue to grow; On the other hand, with the development of science and technology, the restrictions on air transport goods are gradually relaxed, and more and more goods are suitable for air transport. Both of them provide a good prospect for the future development of aviation logistics in Zhengzhou aviation airport. In addition, Zhengzhou aviation airport has built eight high-tech and high-value-added industrial parks.

Generally speaking, these high-tech and high-value-added goods will be transported to all parts of the world by air, which also provides sufficient guarantee for the supply of goods of Zhengzhou aviation airport.

4.3.2 Consumption level increases

Recently, China's economy is growing steadily and rapidly, and people's consumption level is also rising rapidly. As the world's most populous country, China has a huge demand for various products. In recent years, Chinese have begun to pursue some foreign high-quality goods, and China has become the first market of many world famous brands, especially luxury consumption. China has been recognized as the first consumer of luxury products, and the share of luxury consumption in the world is still rising. These high value-added and easily damaged goods are generally transported to China by air, which also provides a great opportunity for the development of Zhengzhou aviation airport.

4.3.3 Opportunities brought by the development of e-commerce

In recent years, with the rapid development of e-commerce, people begin to go crazy in shopping online. "overseas online shopping" and "global purchase" are even more popular. In 2015, the average person in China had overseas online shopping 18 times a year, it is far higher than the 7 times last year. The goods they buy online are from the United States, Europe and other economically developed countries and regions, and these countries and regions is far from our country , but people often pursuits of speed, and on the long distance transportation speed the other could not compete with air transportation, so that through the "overseas online shopping", "global purchase" the goods are bought only through air transport to our country, it also provides great opportunities for the development of Zhengzhou aviation airport.

4.3.4 National strategic support

The state has positioned Zhengzhou aviation airport as "international aviation logistics center", "modern industrial base led by aviation economy", "an important gateway for inland areas to open to the outside world", and "core growth pole of the central plains economic zone of modern aviation city".

Zhengzhou Xinxing international airport has been identified one of the eight regional hub airports in China, the first national airport experimental zone by the civil aviation administration of China. Zhengzhou aviation development has been upgraded to a national strategy.

Cities in Henan province have opened direct buses to Zhengzhou Xinxing international airport, and a new Xinxing airport station has been set up on the intercity railway, which has effectively attracted a large number of passengers. The southern flight area of Zhengzhou Xinxing international airport was renovated, and its northern cargo area was rebuilt.

In addition, in order to attract large enterprises at home and abroad, Zhengzhou has also given a lot of preferential policies to enterprises. For example, the newly established domestic enterprises in the transportation industry will be exempted from the income tax in the first year, and the income tax will be halved in the second year. To reduce or exempt the income tax of newly established domestic capital warehousing industry for one year; A number of fees have been reduced or exempted for domestic and foreign aviation logistics enterprises, export processing enterprises and high-tech enterprises that have settled in the port area.

In terms of routes, Zhengzhou aviation airport set up bases or open up new routes in Zhengzhou. At the beginning of operation, if the source of passengers cannot be guaranteed, the airline subsidy can be enjoyed within a certain period of time upon approval.

4.4 The Threat

4.4.1 Competition between aviation airports in the Midwest has intensified

In recent years, the competition between the airport in the central and western regions has intensified. The xi 'an Xianyang airport is one of the eight regional hub airport planned and

constructed by China's civil aviation of , it put forward to construct the "airport city" in recent years, its geographical position is superior, that is the center of the northwestern region economy, politics, commerce. And there is a lot of competition between Xianyang airport and Zhengzhou aviation airport in investment promotion and capital introduction.

Wuhan Tianhe airport is also one of the eight regional hub airports in China. In April 2017, the T3 terminal of Wuhan Tianhe airport was officially put into use, which will bring the passenger and cargo throughput of Wuhan Tianhe airport to a new level and have great potential for development. On the other hand, Wuhan is located along the Yangtze river and enjoys a unique advantage in carrying out multimodal transport. The Wuhan municipal government plans to turn Wuhan Tianhe airport into a central aviation hub. Therefore, Wuhan Tianhe airport also has great competition with Zhengzhou aviation airport.

4.4.2 Impact of other modes of transport on aviation logistics

Because Zhengzhou is located in the inland, the threat of shipping to air freight is basically zero. At present, the mode of transportation that poses the greatest threat to Zhengzhou aviation airport is railway transportation. The biggest advantage of air transport than other modes is speed advantage, but in recent years, with the development of high-speed rail, railway transport can compete with air transport in Short and medium transport, and the number of goods of rail transport is bigger than air transport, but cost is lower than the air transport, and the requirements of the specifications of the goods weight is loose in air transport, and rail transport can transport the goods to some economic underdeveloped city no airport. On the other hand, with the opening of the Zhengzhou-europe train and the construction of the new Eurasian land bridge, railway transportation is more competitive than air transportation due to the low cost in some cases where the requirements for speed are not particularly high.

4.4.3 The needs of customer are becoming more diverse

With the diversification of customer demand, the variety of goods transported by air transportation also increases, There are not only ordinary goods, but also goods with great difficulty in transportation, such as animals and plants, so the requirements on airport freight facilities are becoming more stringent. In terms of logistics facilities and services, we take Frankfurt airport as an example, the southern cargo area of Frankfurt airport establishes corresponding air mail center and animal lounge for important letters and documents and precious animals. Frankfurt airport is the first airport in the European Union that has the ability to import animals and can provide high-quality services. Its animal lounge can adjust the temperature, complete the cleaning and maintenance of animals and many other functions. It can also implement 24-hour video monitoring of precious animals.

It is this differentiated and targeted service that makes Frankfurt airport the largest airport in Germany and one of the top ten cargo hubs in the world. Zhengzhou aviation airport should also upgrade its cargo facilities to meet the needs of different customers and different goods, and adopt targeted and differentiated services, that make it the leader of the Chinese airport.

5. The modern aviation logistics development recommendations of zhengzhou aviation airport

Zhengzhou aviation airport has a good development prospect, and it still has great advantages compared with other domestic airports. Therefore, it should choose the aggressive strategy, but at the same time, it also faces great competition, so it is suitable to adopt the defensive strategy. Therefore, this paper believes that Zhengzhou aviation airport should choose the combination of SO and WT strategies. Since it is lucky to have the opportunity of rapid global economic development, frequent trade contacts, rapid development of e-commerce and policy support from the state and the government of Henan province, it should cherish such opportunities. If there is no such background in the future, Zhengzhou aviation airport will not be able to achieve great development even if the internal promotion range is large.

5.1 Open up more new routes

Zhengzhou aviation airport has been operating 43 airlines, 171 routes have been opened, of which 30 are all cargo international routes, ranking first in the central and western regions, and basically forming a route network covering major inland Chinese cities with Europe, the United States, Asia and Oceania. Although Zhengzhou aviation airport currently occupies the first place in the central and western regions in terms of routes, it is still not enough to be compared with Beijing capital international airport, Shanghai pudong international airport and Guangzhou baiyun international airport, which are the largest domestic airports. Part of the goods in Henan province still need to be transferred through Beijing, Shanghai, Guangzhou and other super-large airports, which greatly affects the timeliness of aviation logistics and Zhengzhou aviation airport's ability to attract goods and investment.

For Zhengzhou aviation airport, opening up more new routes means more sources of goods and passengers. It is necessary to focus on the development of routes not yet developed by other airports in China, so as to gather passengers and goods sources from all over the country and greatly improve passenger and freight throughput.

5.2 Learn from the experience of developed aviation logistics regions around the world

At present, there are Memphis airport economic zone in America, Frankfurt airport logistics city in Germany, schiphol airport economic zone in the Netherlands and other aviation logistics developed airports in the world. Take Memphis airport economic zone as an example, Memphis has modern system of sea, land and air transportation, perfect hardware facilities and advanced software services. In addition, the airport also cooperated with Memphis airport's largest customer fedex to develop various advanced systems to ensure accurate information transfer and high-speed flow of goods.

In terms of customer service, Memphis airport puts airlines first place and provides excellent service for airlines. Due to the excellent service attitude of Memphis airport, the airline company also provides corresponding funds for the airport in terms of airport equipment construction, which to a large extent contributes to the Memphis airport becoming a world-famous airport.

Zhengzhou aviation airport has many similarities with Memphis airport economic zone in the United States, so it should also learn from Memphis airport economic zone to build a more complete transportation network and complete hardware facilities, to improve considerate service for customers and improve customer satisfaction.

5.3 Training the talent of aviation logistics

As we all know, with the expansion of Zhengzhou aviation airport scale, its demand for talents is also rising. Because the talents needed by aviation logistics need to know transportation, foreign trade, warehousing and other aspects of knowledge, and the training period is also long, even if the university is learning logistics management major students, they still need to go through some training after graduation to be qualified for this job.

Enterprises can cooperate with colleges and universities in Henan province to advance the training, it will shorten the training time before entry, and train some corresponding talents for some positions with great gaps. After graduation, students can be recruited into enterprises and start work directly.

6. Summary

In this paper, SWOT analysis is used to analyze the strengths, weaknesses, opportunities and threats of Zhengzhou aviation airport, and corresponding Suggestions are given to provide reference for the development of Zhengzhou aviation airport. Zhengzhou aviation airport should constantly improve itself, seize the opportunities given by The Times, learn from the experience of developed aviation logistics regions around the world, and become China's "Frankfurt".

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