

Developments in Air Transportation in Turkey and Increments in Istanbul Hub

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Abstract— Aviation industry holds a prominent place amongst other transportation sectors as being significantly fast, reliable, safe and economical. Therefore, countries attach special importance to this area not only for economic and social development but also for global integration. Day by day increase in trade volumes between countries also enforces the interest in civil aviation, which is expeditious and dependable. Aviation sector creates more than 32 million jobs all around the world and has a revenue of more than USD 3,6 trillion. When compared with other countries, Turkey has shown a rapid development in aviation industry for the last 10 years. Trend projections of new/enlarged airports, expanding fleets and personnel numbers show that the sector in Turkey tends to grow more and more in the following years. One of the most important indicators for this advancement is the %12,7 raise in passenger and %10,7 raise in cargo transportation in the last 10 years. When the data of the last 10 years is compared with the previous 10 years, it is observed that the increases in passenger and cargo transportation are %194 and %150, respectively. These huge rates show that Ataturk Airport (Istanbul, Turkey), from which 245 different destinations could be flown, became the most important hub of the world in 2015.

Index Terms— Air Transportation, Airport, Hub and Spoke, Istanbul, Turkey,

I. INTRODUCTION

The development of civil aviation dates back to the end of the Second World War when worn military crafts were started to be used to transport humans and goods. Following World War II, lots of companies were established to make flights to places involving North America, Europe and other continents of the world for passenger transportation operations. By means of rapid technological advancements, airline transport has become one of the safest, the most efficient and luxurious means of transport at the present time. So, it has now become easier to travel to distant places and this provides people with the opportunity to easily interact both in the cultural domain and in terms of trade [1].

Together with the developments in technology and globalization, the aviation industry has entered into a rapid development process across the globe. In direct proportion to the welfare level of countries, the share of aviation as a means of transportation has grown rapidly. Today, the facility to travel and carry cargo to most of the places on earth by plane is at one's disposal [2]. The fact that air transport is fast and safe makes it preferable to the other means of transport. The increase in airports that are able to provide service to all kinds of sectors and the existence of modern airplanes in recent years are considered to be great advancements in the air transport.

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Airports have a significant role in carrying out aviation activities. Airport services and the laws of the country are especially important in the formation of hubs. Considering airports that are managed by both public and private enterprises simultaneously, it is known that airports in which private sectors have more shares than their public partners are managed more efficiently compared to those whose shares are owned mostly by public enterprises [3] [4]. Besides, many studies have been carried out in the aviation industry contrasting the performances of public and private airline firms. These studies have shown that the profit margins and performances of airports owned only by private companies are higher in comparison with airports owned by the public sector itself or both by the public and private enterprises [5] For the fact that the aviation industry is dynamic and innovative, private sector can manifest itself.

Airline hubs are airports that an airline uses as a transfer point to get passengers to their intended destination. It is part of a hub and spoke model, as opposed to the Point to Point model, where travelers moving between airports not served by direct flights change planes en route to their destinations [6]. There needs to be appropriate hub centers in order for passengers and cargoes to be transported to different places all over the world using numerous different routes. An airport requires having flights to various destinations in order to be a hub and spoke center.

Many airlines also use focus cities, which have a good catchment area and function much the same as hubs, but on a smaller scale and may also function as feeders to main hubs. Some airlines also use the term secondary hubs for large focus cities [7]. Some airlines may use only a single hub, while other airlines use multiple hubs. Hubs are used for both passenger flights as well as cargo flights [6].

II. AIR TRANSPORT

A. International Airports

Airports are the key spots of air transport. Both passenger and cargo transport operations are carried out in these spots. Day by day, airports come up against more and more passengers and freight traffic in all over the world. According to the data taken from ACI (Airports Council International), Hartsfield-Jackson Atlanta (ATL) International Airport has been the world's busiest airport by passenger traffic by the year of 2015. More than 100 million passengers passed through Atlanta in 2015 and it represented a rise of 5,5% over the previous year. Beijing (PEK) Capital International Airport followed Atlanta with a growth of 4,4% in passenger traffic (Fig.1). As to cargo transport, the Hong Kong (HKG) International Airport, with a growth of 0,4% over the previous year, is the busiest cargo

airport in the world. Hong Kong Airport is followed by Memphis (MEM) International Airport with a growth of 0,8% and Shanghai Pudong International Airport with a growth of 2,9%, subsequently [8]. On the other hand, by aircraft movements, Atlanta is the busiest airport with a growth of 1,6% followed by Chicago (ORD) with a decrease of 0,8% and is Dallas (DFW) with a growth of 0,2%, subsequently [9].



Fig. 1. Top 20 busiest airports in the World [8].

To sum up, the International air transport showed robust growth of 6,3% in international passenger traffic, 2,4% in cargo traffic, 1,8% in total aircraft movements and 2,2% in freight in 2014-2015 [8].

B. Air Transport in Turkey

As a result of the regional aviation policy which came into action in Turkey in 2003, civil air transport operations showed rapid developments. In the last ten years (2006-2015), commercial flights showed an increase of 139%, passengers transported showed an increase of 198% and freight carried grew by 154%. The total of both domestic (national) and international passenger number which was 165.720.234 in 2014 showed an increase of 12.7% and became 181.698.362 in 2015 (Fig-2). The share of the passenger traffic of domestic (national) flights accounted for 52% of the total number of passengers [10].



Fig.2. 2006-2015 yearly domestic and international total passenger traffic in Turkey

Cargo traffic can be said to depend largely on the developments of foreign trade and demand. The total amount of freight (cargo+post+baggage) which was 2.893.000 tons in 2014 increased 9.4% and became 3030951 in 2015. The rate of increase in the last ten years is 125% (Fig.3). As to aircraft movements, there was an increase of 113% in the last ten years (2006-2015) and aircraft movements reached the number of 181509 Fig.4 [10].



Fig.3. 2005-2014 yearly domestic and international total cargo traffic in Turkey

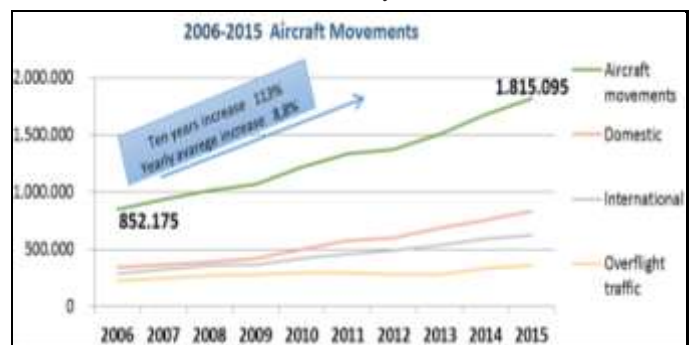


Fig.4. 2005-2014 yearly aircraft movements in Turkey

III. ISTANBUL ATATÜRK AIRPORT (IST)

Air transport in Turkey has grown substantially since the last 20 years [1]. This growth is known to be achieved as a result of national legislation amendments, privatization and government aid to aviation [11] [12]. Istanbul Atatürk Airport (IST) has become an important hub center in recent years. According to the data of the year 2015, its flight points have reached a number of 245 different locations in the world. The increasing aircraft traffic and flights to numerous locations are some features which highlight the importance of the airport. Istanbul Atatürk Airport (IST) is also the main base of the company Turkish Airlines (THY). The increasing numbers of flight points of THY and the company’s goal to expand its capacity more are indications that IST Airport is going to maintain its characteristics of being a HUB in the future, too. According to the data of the years 2014-2015, IST Atatürk Airport grew by 8% in total passenger traffic and 8% in freight traffic Table I [13].

TABLE I: 2014-2015 YEARLY PASSENGER AND CARGO TRAFFIC FOR ISTANBUL

	Year	Passenger Traffic		Total Cargo Traffic cargo+post+baggage	Total Cargo Traffic	
		Domestic	International		Domestic	International
2014	Domestic	18542295			Domestic	222.207
	International	38152871			International	1409321
	Total	56695166			Total	1631528
2015	Domestic	19333873			Domestic	222649
	International	41998251			International	1532075
	Total	61332124			Total	1754724
%	Domestic	4			Domestic	0,2
	International	10			International	9
	Total	8			Total	8

IV. CONCLUSION

Air transport attracts increasing attention compared to other means of transport at the present time. In this regard, the numbers of airline companies have multiplied which results in a great competition in air transportation industry day by day. This fierce competition environment requires airports to increase their effectiveness as in all areas. Airport managers' aim is to make the best with scarce sources.

Together with the developments in technology and globalization, the aviation industry has entered into a rapid development process across the globe like many other sectors [14]. All these developments led to a rapid growth in the sector in Turkey, too. Particularly, the rapid transport facility took the lead in the growth of the industry. Industrial developments, population growth and the proliferation of settlements both helped countries to enhance their economic relations and increased people's opportunity to travel for touristic purposes. All these factors have led to an increase in demand for transportation [13], [15], [16], [17].

The growth of 194% in passenger transport and 150% in freight transport in Turkey in the last 20 years shows that there has been a rapid growth in the sector. Istanbul Atatürk Airport is the preeminent airport and has the most share in this growth. The most important factors in this rapid growth are considered to be the recent legislative amendments and support to the aviation industry. In addition, the foundation of new air carriers other than THY such as Pegasus Airlines, Sun Express and Anadolu Jet contributed to the development of passenger and freight transportation.

The outstanding growth in Turkey is mostly due to the geographic advantages of Istanbul Atatürk Airport [18]. In addition to this, its 245 flight points by 2015 led to the airport to become an important hub center in the world. It is clearly seen that the growing demand is going to continue in Istanbul. In order to meet the increasing demand, there is an urgent need for infrastructure development. IST Airport has a very limited area to be extended since it is located in the urban area. Therefore, the state of Turkey has started studies to establish a new airport.

Istanbul New Airport, scheduled to open and start providing services in 2017, will add a strong momentum to the growth trend in Turkey's civil aviation sector that continues for the last 12 years. This giant project that will carry Turkish Airlines into future, will also turn Istanbul, which already is a natural hub

due to its geographical position, into one of the world's largest aviation centers [13].

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