

THE IMPORTANCE OF ISTANBUL GRAND AIRPORT (IGA) FOR TURKEY AND ITS INFLUENCE ON WIDELY REGIONAL AIR TRAFFIC AROUND

Ana D. Georgieva*, Murat Düzgün** and Mehmet Tanyaş***

* OkanUniverstiy, Faculty of Economics and Administrative Sciences, Department of International Logistics B.A. Program, Email: ana.d_georgieva@yahoo.com

** Okan University, Graduate School – Social Sciences, Business Administration Ph.D. Program, Email: duzgunmurat@yahoo.com

*** Maltepe University, Faculty of Economics and Administrative Sciences, International Trade and Logistics Management Department, Email: mehmettanyas@maltepe.edu.tr

Abstract Air transportation can be defined as the movement of cargo and passengers by aircrafts, such as airplanes. It has grown to become a huge international industry, which plays a crucial role in the modern globalized world and is one of the main means of common-carrier traveling. In the last decade there has been a significant increase in the regional air traffic in Turkey. The rapid increase of aircraft and passenger movements have shown that although the Atatürk Airport is operating using almost full runway capacity, its current facilities and capacities are not sufficient. And although Sabiha Gokcen, the second Istanbul Airport, does not face immediate problems, there may be a need for new facilities and additional runways in the future. In order to deal with the existing capacity insufficiencies and other problems, the Turkish government started the construction of Istanbul's third airport. Scheduled for six-runway (additional 6 more) development, Istanbul Grand Airport is surrounded by many hopes and the high expectation of becoming the biggest and busiest airport terminal of the world and six continents. But is there really a need of a new airport in Istanbul? and what will its regional and international role be? The aim of this paper is to answer those questions, as well as to explore the opportunities and benefits related with the construction of the Grand Airport and the influences it will have on the regional air traffic around.

Paper type: Research Paper

Published online: 30 June 2015

Vol. 5, No. 3, pp. 239-245

ISSN 2083-4942 (Print)

ISSN 2083-4950 (Online)

© 2015 Poznan University of Technology. All rights reserved.

Keywords: *Air transportation capacity of Turkey, Istanbul Grand Airport (IGA), regional air traffic*

1. INTRODUCTION

Air transportation can be defined as the movement of cargo and passengers by aircrafts, such as airplanes. It has grown to become a huge international industry, which plays a crucial role in the modern globalized world and is one of the main means of common-carrier traveling. The international demand for air transportation of both goods and passengers is constantly growing, the current capacities become insufficient, and new airports are being built all over the world. Turkey is not an exception.

In June 2014 the construction of the largest airport in Turkey (and potentially in Europe) has started. Istanbul Grand Airport (IGA) will be situated in the European part of Istanbul, next to the sea coast. Its construction is surrounded by very high expectations and many hopes, but the airport's capacities and importance are yet to be examined and proven – the first stage of the new airport is expected to be completed by 2017, with the airport being fully operational by 2020, and using its full capacity by 2025-2030.

Considering that the construction of IGA has just begun, and that it will potentially operate at full capacity after more than a decade, it comes as no surprise that the amount of literature regarding the new airport and the role it will play domestically and internationally is very limited. However, the future of IGA seems to be wrapped in mystery, and the construction of the airport is surrounded by numerous questions, such as: is there really a need for a new airport in Turkey and Istanbul? What will the main advantages of the airport be? Will the long-term benefits prevail over the drawbacks? What will be the effect of IGA on Turkey and the world, when it is fully operational? and many others.

The aim of this paper is to give answers to those questions. It is a unique case-study, and a first step of a longer research, which will grow and expand in time, following the construction and development of Istanbul Grand Airport. This initial step is meant to explain and show why there is a need for a new airport in Turkey, and what will the long-term effect of IGA on regional air traffic be.

In order to do so, a research on the development of the aviation sector in Turkey in the last decade, as well as on the capacities and insufficiencies that airports across the country and especially in Istanbul currently have to face, has been made.

Furthermore, a forecast regarding the expected capacities and capabilities of the new airport is being suggested. Based on statistical data and comparison with currently functional airports of similar magnitude, such as Dubai International, it focuses on IGA's role for Istanbul – the major international hub and cultural centre of Turkey, which currently hosts more than 40% of the total air traffic in the country.

In order to further show the regional importance of IGA, four airports representing three regions, strongly connected with the air traffic in Turkey, were selected – Dubai International Airport (Arabian Peninsula), Sheremetyevo Airport (Russia), Sofia Airport and Athens Airport (EU region, closest neighbours of Turkey). Their importance and connection to Turkey are being explained, and their capacities compared with Ataturk Airport – currently the biggest airport in Turkey and Istanbul.

2. AIR TRANSPORTATION IN TURKEY

The role of air transportation in Turkey in the last decades has grown dramatically, partially because of the limited scope of high-speed rail infrastructure and the insufficient quality of some of the road networks. Air transport has proven itself over and over again as one of the best transportation options, especially for long-distance intercity passenger.

According to the Country Report of the Turkish Ministry of Transport and Communications (2011) Turkey has had a tremendous development in the civil aviation sector since the beginning of the new millennium and the sector has grown ten times faster than the world average. The average rate of increase in passenger traffic throughout Turkey is expected to be around 10% (percent) per year (or more) until 2020.

The General Directorate of State Airports Authority (DHMI) announced that through July 2014 alone the passenger traffic in Turkey's airports rose by 12.5% to 92.7 million people, including direct transit passengers. The statistical data published by the Turkish Statistical Institute (TSI) and DHMI shows that between 2002-2013 the number of aircrafts has increased with 179%, seat capacity – with 65%. The total amount of freight (mail, cargo, and baggage) carried both domestically and internationally has tripled. As for air cargo (which is 28% of total air freight), its growth rate is around 190% (Table 1). The total amount of passengers has increased almost 5 times, with passengers domestic lines only increasing almost 10 times. Such a tremendous growth for such a short time – only 11 years! These numbers say a lot – not only about the development of the air sector in Turkey, but about the growth of the economy, international business, and tourism. An interesting fact – more than 32 million people from all over the world choose Turkey as their tourist destination every year, which not only aids Turkish economy, but promotes Turkish culture and history across the world.

Currently there are 52 operational civilian airports across Turkey, the busiest of which are the Atatürk International Airport (Istanbul), Antalya Airport (Antalya), and Sabiha Gokcen International Airport (Istanbul).

Table 1 Air Transportation in Turkey (Source: DHMI 2014)

	2002	2010	2011	2012	2013	Change (2002- 2013)
Number of aircrafts	138	332	349	370	385	179%
Seat capacity	25,114	57,899	6,695	65,208	66,639	165%
Freight (cargo+mail+baggage) carried domestic lines (tonne)	181,198	554,710	617,835	633,074	744,027	311%
Freight (cargo+mail+baggage) carried international lines (tonne)	698,935	1,466,366	1,631,639	1,616,059	1,851,289	165%
Total freight (cargo+mail+baggage) carried (tonne)	880,133	2,021,076	2,249,474	2,249,133	2,595,316	195%
Cargo carried domestic lines (tonne)	53,640	71,216	76,269	84,431	100,097	86%
Cargo carried international lines (tonne)	198,347	470,141	508,206	539,627	631,865	219%
Total air cargo (tonne)	251,987	541,357	584,475	624,058	731,962	190%
Domestic air traffic (unit)	157,415	497,862	579,488	600,818	682,685	334%
International air traffic (unit)	218,626	421,549	462,881	492,229	541,110	148%
Total air traffic (unit)	376,041	919,411	1,042,369	1,093,047	1,223,795	225%
Number of passengers domestic lines	8,700,839	50,575,426	58,258,324	64,721,316	76,148,526	775%
Number of passengers international lines	25,054,613	52,224,966	59,362,145	65,630,304	73,281,895	192%
Total number of passengers	33,755,452	102,800,392	117,620,469	130,351,620	149,430,421	343%

3. AIR TRANSPORTATION IN ISTANBUL

Istanbul is the largest city of Turkey and one of its most important gateways to the world. The city is a major aviation center, as well as the main national and international hub in Turkey with approximately 70 million passengers per year (2013). Today more than 40% of Turkey's passenger traffic and commercial flights come from the two airports in Istanbul – Istanbul Ataturk Airport and Sabiha Gökçen International Airport.

Table 2 Characteristics of the Two Istanbul Airports (DHMI, 2014)

	Ataturk Airport	Sabiha Gokcen
Airport Area (m²)	11,650,000	5,350,000
Opened in	1912/1924	2001
Location	Yesilkoy, European side	Pendik-Kurtkoy, Asian side
Number of runways	3	1
Runways	05/23 2,580x60 m 17R/35L 3,000x45 m 17L/35R 3,000x45 m	06/24 3,000x45 m
Number of terminals	4	1
Terminal capacity	40,000,000	25,000,000
Commercial A/C Slot	55 aircraft/hour	28 aircraft/hour
A/C Parking positions	98	61
International passengers (2013)	34,096,770	6,694,418
Total passengers (2013)	51,320,875	18,641,842

4. ISTANBUL ATATÜRK AIRPORT (ATA)

Istanbul Ataturk Airport is the major airport in Turkey. It was first used in 1912 for military purposes. The first civilian flights took place 12 years later, and in 1942 the first runway and passenger terminal were built up. The Airport is located in Yesilkoy, on the European side of the city, approximately 20 km. away from the Taksim area.

Istanbul Ataturk Airport is the busiest airport in Turkey by total number of passengers (51.3 million in 2013, 34 million of which are international). As seen from the Table 3 below, the total passenger traffic of the Atatürk Airport increased four times within the last 12 years. The Ataturk Airport is also the biggest international airport serving Istanbul (followed by Sabiha Gokcen International Airport), the main base for Turkish Airlines, and an important transit point for international flights between Europe, Asia and Africa. In 2013 the Airports Council

International (ACI) ranked Ataturk Airport 17th in its list of busiest airports in terms of total passenger traffic. Furthermore, the Airport was named the world's 10th in terms of international passenger traffic, and the 5th busiest airport in Europe. The airport has more than 180 international flights by 81 airlines to more than 100 countries around the world. According to 2012 statistics by DHMI, the Airport serves more than 1,000 aircrafts and 100,000 passengers every day. In May 2014 Istanbul Ataturk Airport broke air traffic record of all time in Europe with 1,267 landings and takeoffs (DHMI, 2014).

The table 3 shows the airport passenger statistics of the Airport during the last 13 years. [11]

Table 3 Istanbul Atatürk Airport Passenger Statistics by Year (all figures in millions)

Passengers	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Domestic	4	3	3	5	8	9	10	12	11	12	13	15	17.2
International	9	9	9	10	12	12	14	17	18	20	24	30	34
Total	13	11	12	16	19	21	23	29	30	32	37	45	51.3

Istanbul Ataturk Airport has 3 runways, 2 connected to each other terminal buildings, and 4 terminals: Terminal 1 (for domestic flights), Terminal 2 (for international flights), Terminal 3 (for cargo flights) and a General Aviation Terminal. According to recent studies, the Airport has reached the most of its runway capacity. Thus, plans to reconstruct the current 05/23 runway and build another one, parallel to it, which could handle the air traffic during the reconstruction works, have been suggested. However, government authorities admit that the possibilities to improve and expand Ataturk airport are severely limited, and the building of a new runway is not really an option.

Ataturk Airport has the highest passenger, load and cargo traffic in Turkey. DHMI statistics reveal that 34.45% of the total airline passenger transport in Turkey, 22.23% of the cargo traffic, and 33.40% of the flight traffic in 2012 were performed by Ataturk Airport.

The terminal buildings are currently operated by TAV Airports holding.

5. SABIHA GOKCEN INTERNATIONAL AIRPORT (SAW)

Sabiha Gokcen International Airport (SAW) is the second airport in Istanbul. It was opened in 2001 and is named after Sabiha Gokcen, the first female combat pilot in Turkey. It is located in the Asian part of Istanbul, in the Pendik - Kurtkoy

district, approximately 50 km. away from the Taksim area – the European centre of Istanbul, and 43 km. away from Istanbul Ataturk Airport by motorway. SAW is owned and operated by Airports Management and Aviation Industries Co. Ltd. (HEAŞ), and the terminal building is operated by Istanbul Sabiha Gokcen Airport Construction Investment and Operating Company (ISG).

Table 4 Sabiha Gokcen International Airport Passenger Statistics by Year (all figures in thousands)

Passengers	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Domestic	11,9	2,9	2,8	10,4	560	2,154	2,563	2,789	4,548	7,665	9,117	9,752	12,029
International	35,4	127,3	154,3	235,2	460	763	1,228	1,569	2,092	3,933	4,571	5,120	6,813
Total	47,3	130,2	157,1	245,6	1,020	2,917	3,791	4,358	6,640	11,598	13,688	14,872	18,842

As already mentioned before, the domestic and international passenger demands in Turkey and especially Istanbul have been constantly growing during the last decade. SAW was built because Ataturk International Airport was not large enough to meet these demands. The Airport has one terminal building, a cargo terminal and one runway. Initially SAW's capacity was around 3.5 million passengers (3 million for the international terminal and 0.5 million for the domestic terminal). A decision to upgrade the Airport was made in 2008, and in 2009 the new terminal (which is planned to host 25 million passengers by 2023) was officially opened. Currently there are plans for the construction of a second independent parallel runway.

Table 5 Passenger and Commercial Aircraft Traffic in the Two Istanbul Airports

Commercial Air Traffic (all figures in thousands)									
	Atatürk Airport			Sabiha Gökçen			Total Air Traffic		
	Dom.	Int.	Total	Dom.	Int.	Total	Dom.	Int.	Total
2010	95	179	274	62	37	99	157	216	373
2011	104	198	302	72	40	112	176	238	414
2012	115	231	346	70	42	112	185	273	458
Passenger Air Traffic (all figures in millions)									
2010	12	20	32	7	4	11	19	24	43
2011	13	24	37	9	4	13	22	28	50
2012	15	30	45	10	5	15	25	35	60

In 2013 Sabiha Gokcen International Airport showed 27% growth in total passenger traffic and hosted 18.8 million passengers, 6.8 million of them were international (DHMI).

Table 5 represents the two Istanbul airports' passenger and commercial air traffic (DHMI, 2012). As seen from the table, approximately 62% of the domestic and 85% of the commercial aircraft movements in 2012 were from the Ataturk Airport. As for passenger air traffic – 60% of the domestic and 86% of the international passenger movements in Istanbul were from the Ataturk Airport.

6. THE DEFICIENCIES OF THE TWO ISTANBUL AIRPORTS AND THE NEED FOR A NEW THIRD AIRPORT

Many busy airports around the world are facing different capacity constraints. In 2007, the Federal Aviation Administration of USA (USFAA) issued the Capacity Needs Report, in which 48 of the USA's busiest airports that would fall short of needed capacity between 2007 and 2025 were analysed [24]. The list included such airports, as Baltimore-Washington International, Boston Logan, George Bush Intercontinental, Hartsfield-Jackson Atlanta, and others. There are also many European airports with high traffic loadings with almost full capacity utilisation during many hours of the day such as London-Heathrow and Frankfurt airports [4].

The Ataturk Airport in Istanbul is in the same situation, and currently facing numerous capacity constraints. Sabiha Gokcen International Airport has been taking part of the traffic since 2001, and although it is not facing immediate problems, additional runways and terminals might be needed soon. Ataturk Airport has almost reached its full runway capacity, and the possibilities to improve and expand it are severely limited. The average annual rate of increase in aircraft and passenger movements is more than 10%, government authorities have even stated that the number of travelers has recently surpassed Istanbul's population by four times.

According to the Union of Chambers and Commodity Exchange of Turkey (TOBB), the Ataturk Airport fails to meet the demand of airlines for the commercial slots, crucial for carrying out additional flights, and there is a problem with slot times [21]. The inability to increase the number of aircraft stands is another big problem. In a sense, the airport is part of the city of Istanbul, absorbed by it, so there is no space for an additional runway. The capacity problems limit the number of cargo and charter flights, and prevent the airlines from establishing new routes. Furthermore, side wind problems can prevent the utilization of all the runways. Only one of the runways can be used, thus the number of night flights is increasing. [14]

Air freight has an important role in Turkey's 2023 Vision program, the ambition of which is Turkey becoming one of the world's top 10 largest economies by 2023 (Turkey is currently the world's 17th largest economy by GDP). However, the ACI statistics reveal that although Istanbul's Ataturk Airport is the world's 17th largest for passenger traffic, it is outside the top 30 for cargo. [1] In 2010 it ranked somewhere between 30th and 40th in the world by both cargo and passenger traffic, handling approximately a million tons of load (cargo, freight and mail) and over 32.1 million passengers.

The cargo terminal facilities and capacities are currently insufficient, and the amount of cargo is expected to increase significantly in the next 20 years. Last but not least, regardless of the fact that Istanbul is surrounded by seas, maritime transport integration and connection is not really possible. [14]

To conclude, the rapid increase of aircraft and passenger movements has shown that although the Ataturk Airport is operating using almost full runway capacity, its current facilities and capacities are not sufficient. And that although Sabiha Gokcen, the second Istanbul Airport, does not face immediate problems, there may be a need for modernization, enlargement and upgrade activities in the near future (e.g. construction of new facilities and additional runways).

In order to deal with the capacity insufficiencies and other problems the two Istanbul airports are currently facing, the Turkish government initiated the construction of Istanbul's third airport. The new airport is expected to meet Istanbul's growing domestic and international air traffic demand and to strengthen the city as a regional hub.

7. ISTANBUL GRAND AIRPORT (IGA)

In the beginning of June 2014 the first stones of Istanbul Grand Airport were laid. It will be located on the Black Sea coast, in Arnavutkoy, a district in the northern part of the city's European side, approximately 35 km. from the Ataturk Airport. The construction will take place in the European side of Istanbul, between Yenikoy and Akpinar, on an area of 7,659 hectares, 6,172 of which are in forested land. This fact creates discontent among environmentalists, who rise against the potential ecological footprint which can be left by the construction of the third airport.

The government authorities announced that the airport will be built in four stages. The first stage is expected to be completed in 2017, after which the Grand Airport will be operational with an annual capacity of 90 million.

When fully completed (i.e. when all six of the planned runways are complete), the airport will have a total of six runways, 165 aircraft passenger boarding bridges at all terminals, four terminals connected with a railway system, three maintenance buildings, eight air traffic control towers, 16 taxiways, an airport apron of 6.5 million square meters with a capacity of 500 airplanes, a car park with a capacity of

about 70,000 vehicles and touted as the largest airport car park in Europe, a clinic, fire department, hotels, a convention center, and recycling and waste disposal plants. The airport will be connected to the Istanbul metro, and multi-lane highways will be built to facilitate access to the airport.

Istanbul Grand Airport is expected to relax the aircraft traffic in the European side of Istanbul. When the third airport enters into service (scheduled for 2018) the Atatürk International Airport will continue its operations, but at a lower capacity, and probably by 2021 will be closed and fully replaced by the third airport.

According to the aviation forecasts made in 2010 by Turkey's Middle East Technical University, Istanbul airports' commercial aircraft traffic will be more than 1 million aircraft by 2030, air cargo traffic will almost triple, and the amount of passengers will exceed 118 million per year. The third airport will be able to host 150 million passengers a year, 60 million more than Hartsfield-Jackson Atlanta International Airport, currently the busiest in the world. This will make it one of the world's busiest airports at full capacity.

The construction of the airport is surrounded by many hopes and high expectations: Turkish authorities set out that the biggest and busiest airport terminal of the world and six continents was going to be built in Istanbul, and that the construction of the new airport would be one of the most important projects of the Republic. Specialists predict that by 2018 the Grand Airport will be among the five busiest airports in the world and the biggest and most modern airport in Europe. Istanbul Grand Airport will play a crucial role in the economic development of Turkey and the achievement of the country's 2023 targets. Furthermore, the third airport, the construction of which is said to cost more than 10 billion Euros, is expected to provide jobs for 100,000 people.

Yıldırım Saldıraner (2012) argues that the creation of the new airport will be beneficial in many ways. The names some of the main opportunities that the construction of Istanbul Grand Airport will bring. Firstly, it will stimulate and speed up the creation of new layout and development plans, which will ensure that the airport will have the infrastructure needed for optimal performance, and will reduce the possibility of noise problems. Secondly, the traffic capacity will increase, the number of available slots will rise, and more flights will be in service. Thirdly, the size of the new airport will allow large aircraft flights to take place. Furthermore, the construction of IGA will lead to transit flights growth and passenger services improvement. Last but not least, the new airport is expected to offer new and more rapid transportation systems, with better multimodal transport services and easier access to the airport facilities.

8. REGIONAL AIR TRAFFIC IN TURKEY

According to the latest data from DHMI, the total amount of passengers in 2012 was 130,351,620 people, 65,630,304 of whom came from international lines. The statistical data published by the Turkish Ministry of Culture and Tourism (TMCT) revealed that Turkey was one of the most visited countries in the world in 2012 with more than 31.8 million tourists (49% of the total amount of passengers international lines). Turkey attracted a great number of tourists from Germany (5 million), Russian Federation (3,5 million) and the UK (2,4 million). The most visited cities were Antalya (32%), İstanbul (29%) and Muğla (9%). [20]

In its 2011 Annual Report DHMI published a list of the busiest international flights from Turkey. The busiest destinations included such countries as Germany (19.27%), with Frankfurt-Main and Berlin-Tegel being among the busiest airports, Russia (8.87%) with Moscow Sheremetyevo airport, UK (6.67) with London-Heathrow, and France (4.39%) with Paris-Charles de Gaulle. Greece was on 18th place (1.42%) with Athens airport, and UAE (1.27) with Dubai Airport took the 20th place in the list. [6]

Istanbul is the largest city and the most important international hub in Turkey. Approximately 40% of the total amount of passengers (51,320,875 people), and 52% of the international passengers (34,096,770 people) passed through Istanbul Atatürk Airport in 2012. Currently the Airport is operating at almost full capacity. The possibilities for enlargement are very limited, and the annual number of passengers in the last years has been steadily increasing at a rate exceeding 10% per year. The creation of the new airport in Istanbul will help to deal with the current airport insufficiencies and with its additional capacity of 150,000,000 passengers annually will not only become one of the greatest global and European aviation centers, but will also have a great influence on the regional traffic around.

The following table (Table 6) represents a comparison between the capacities of Ataturk Airport and four other international airports, namely Dubai International airport, Sheremetyevo airport, Athens airport and Sofia airport. These airports have not been selected randomly – each of them has its specific role in the regional traffic around Turkey and represents a different region.

Sofia Airport and Athens Airport are the biggest airports in their countries – Bulgaria and Greece, which are the two EU neighbors of Turkey. Istanbul is the 9th busiest route from Sofia airport by number of departures. As for the Athens Airport, according to a 2014 report issued by the International Civil Aviation Organization (ICAO), all of the TOP-15 destinations from Athens airport are intra-European, with more than half being in the domestic market. [10]

Sheremetyevo is the second largest airport in Russia after Domodedovo, as well as the biggest terminal hub and the largest cargo complex in the country, handling 40% of Moscow's passenger air travel and 56% of its freight market. [15] For consecutive years (2011, 2012, 2013) Antalya has been the top international destination from Sheremetyevo, with Istanbul ranking third, ninth and tenth [16] According to the ACI Europe November 2013 rating, Sheremetyevo Airport was the passenger traffic leader among Europe's largest airports with annual passenger

traffic of more than 25 million passengers. Istanbul airport came in at 2nd place, and Antalya airport was ranked third.

Table 6 Comparison of the Capacities of Dubai International, Atatürk Airport, Sheremetyevo Airport, Athens Airport and Sofia Airport

	Dubai International	Atatürk Airport	Sheremetyevo airport	Athens airport	Sofia airport
Terminals	3	4	6	2	2
Runways	2	3	2	2	1
Number of airlines	125	81	38	60	29
Number of destinations	239	100+	214	109	65
Passenger capacity	75 million	40-50 million	35 million	21 million	4,4 million
Passenger traffic (2013)	66,431,533	51,320,875	29,256,000	12,536,038	3,504,326
Expected passenger traffic (2015)	78.4 million (2015); 103.5 million (2020)	39.5 million (2015); 81,8 million (2030)	35 million (2015); 64 million (2030)	n/a	3,8 million (2015)
Area:	1,972,474 sqm	11,650,000 sqm	400,000 sqm	n/a	n/a
Cargo capacity (tonnes per year)	2.5 million	Approx. 1,3 million	500,000	275,000	20,000
Cargo volumes (tonnes, 2013)	2,435,567	576,983 (2012)	300,000	74,869	17,039
Aircraft movement (2013)	369,953	365,078 (2012)	243,858	140,448	40,526
Additional information:	World's 2nd busiest international hub	World's 17th busiest, 5th in Europe	12th busiest airport in Europe	35th busiest airport in Europe	The busiest airport in Bulgaria

In 2014 Dubai International became the largest airport in UAE and the Arabian Peninsula, as well as the world's second busiest international hub. [7] The top destinations for 2013 were India (8,401,253 passengers), UK (5,099,843) and Saudi Arabia (4,825,114). [8] Dubai is currently the sixth busiest destination from Istanbul. With its modern equipment, area of 1,972,474 sqm and passenger capacity of over 75 million passengers annually, it may become one of the biggest competitors of the new Istanbul Grand Airport.

9. FORECASTS

Although the construction of the new third airport has just begun, the data revealed regarding the upcoming project and the official statistics published about the other two airports and the air traffic in Turkey allow us to make some predictions regarding the effect of Istanbul Grand airport on the air traffic in Istanbul and the whole country.

In 2012 Istanbul Atatürk Airport alone handled around 22% of total air cargo, and 34,5% of the total passenger traffic. According to the Middle East Technical University's (METU) Master Plan (2030), the air cargo of Istanbul will grow up to 2.5 million tons per year by 2030, and considering the current infrastructure, the cargo capacity can be maximized with maximum 1 million tons per year. According to the same study (which does not consider the construction of IGA), the expected total amount of passengers in Istanbul will be around 118,3 million people in 2030 – 81,8 million handled by the Atatürk Airport, and 36,5 million by Sabiha Gokcen. [14]

However, the data from tables 3 and 4 shows that between 2010-2013 (after the construction of the new Sabiha Gokcen modern terminal in 2009) the total amount of passengers has been increasing with annual rate of approximately 17,3% for Ataturk Airport and 18% for Sabiha Gokcen. If we assume that the amount of passengers continues to increase at the same pace (although it is not realistic), the annual number of passengers passing through Istanbul by 2020 only will reach around 213 million – 153 million for Ataturk and 60 million for Sabiha Gokcen (or 43% more than the total amount of passengers in whole Turkey for 2013). 200-213 million people, however, seems like a more realistic forecast for the year 2030. The current total capacity of the two Istanbul airports is around 65 to 75 million people.

According to specialists, 'Istanbul Grand Airport' will be operational by 2017, with initial capacity of 90 million people. IGA must reach its full capacity of 150 million by 2025-2030, with the possibility of hosting additional 50 million people. When operating at full capacity, the new airport will give Istanbul a 47% increase in the operational airport area, 2,5 times rise in runway capacity, 80% increase in the number of terminals, and 230% growth in terminal capacity.

The specifications and capacities of IGA and the comparison of the new airport with other airports (such as Dubai International and Ataturk airport) allow us to assume, that the cargo capacity of the new airport can potentially reach around 2,5-3 million tons per year by 2030, which is equivalent to (and even exceeds) the total amount of cargo in Turkey for 2013.

If we assume that the forecasts by METU are accurate and the two existing airports continue their operations at the same pace, the annual amount of cargo in Istanbul will exceed 2,5 million tons per year by 2030. If the capacities of the

two other airports reach their maximal growth of 1 million tons, the maximum cargo capacity of Istanbul without IGA will potentially be around 2,29 million.

Table 7 The Expected Effect of IGA on the Air Traffic in Istanbul by 2030

	Atatürk Airport	Sabiha Gökçen	IGA	Total
Airport Area (m²)	11,650,000	5,350,000	8,000,000	25,000,000
Number of runways	3	1	6	10
Number of terminals	4	1	4	9
Cargo capacity (tons)	Approx. 1,2 million +1 million (potential)	90,000	Approx. 2,5-3 million (our forecast)	Max. 5,3 million (our forecast)
Terminal capacity (passengers)	40 to 50 million	25,000,000	150,000,000	Max. 215,000,000
Passenger forecast, 2030 (METU)			n/a	118,300,000
Our passenger forecast (2030)				200-213,000,000
Cargo capacity forecast, 2030 (METU)			n/a	2,5 million tons per year
Our cargo capacity forecast				4 – 4,5 million tons per year

However, it is unlikely that the two existing airports will continue operating at their full capacity. The government authorities have been considering the option of diminishing the number of operations of Ataturk Airport after 2021, and even IGA fully replacing it as the main airport of the European part of Istanbul in the next 20 years.

10. CONCLUSION

There has been a tremendous growth of air transportation in Turkey in the last decade which is expected to continue in the decades to come (the average annual rate of growth in passenger and air traffic is expected to be around 10% till 2020). However, Turkey is facing numerous capacity constraints. Istanbul Ataturk Airport and Sabiha Gokcen, two of the biggest airports in the country, may not be able to deal with the growing passenger demands and capacity insufficiencies. Thus, the creation of a third airport in Istanbul, which could solve these problems, started in June 2014.

Definitely, there is a need for a new airport, which could help deal with the insufficiencies and strengthen the role of Istanbul as an international hub. The construction of the new airport is surrounded by many hopes and expectations. It will undoubtedly affect numerous areas of the Turkish economy, such as tourism,

transportation, and international trade. Furthermore, it will promote Turkey and Turkish culture abroad, and will strengthen its role as a regional and global aviation centre. Last but not least, IGA will have a great influence on the regional traffic around Turkey. 'Istanbul Grand Airport' will be built in several stages, the first of which will be completed by 2017.

This paper is the first step of a wider research devoted to the role of IGA in the Turkish and international economy and its influence on the regional air traffic around. The paper explored the current aviation situation in Turkey with focus on air transportation in Istanbul – its largest city, one of the most important international cultural centres, and main Turkish hub. The capacities and constraints of the two Istanbul airports – Atatürk and Sabiha Gokcen have been analysed, and the expectations and needs for a third airport have been described. An analysis of the regional air traffic in Turkey and Istanbul has been made, and Ataturk Airport's capacities and busiest routes were compared with four international airports from different regions of the world – namely Dubai International, Sheremetyevo Airport (Moscow), Athens Airport and Sofia Airport. The last part of the paper suggests forecasts regarding the role of IGA in the development of air traffic in Istanbul and Turkey in the coming 15 years. Whether the suggested forecasts are accurate, and IGA will meet the great expectations surrounding its construction – only time will show.

REFERENCES

- Airports Council International (ACI), 2013, "ACI Annual World Airport Traffic Report: a Comprehensive Analysis of Trends and Data in Airport Traffic".
- Ateş S.S., Kağncıoğlu C.H., June 2013, "Airline Service Process at Ataturk Airport: An Analysis of the Current Situation" International Journal of Business, Humanities and Technology Vol. 3, No. 6. http://www.ijbhtnet.com/journals/Vol_3_No_6_June_2013/5.pdf (accessed 27.07.2014)
- Athens International Airport Official Web-site, "Flight Destinations"<http://www.aia.gr/traveler/flight-info/direct-flights/> (accessed 14.08.2014)
- Berster P., Gelhause M., Wilken D., 2011, "Do Airport Capacity Constraints Have a Serious Impact on The Future Development Of Global Air Traffic?", the 2011 World Conference of Air Transport Research Society (ATRS) <http://elib.dlr.de/72672/1/108-Berster.pdf> (accessed 20.07.2014)
- DHMI (General Directorate of State Airports, Turkey), Official Web-site, "Statistics": <http://www.dhmi.gov.tr/istatistik.aspx> (accessed 01.08.2014)
- DHMI (General Directorate of State Airports, Turkey), "2011 Annual Report", <http://www.dhmi.gov.tr/dosyalar/annualreport/2011/annual-report-2011.pdf> (accessed 20.07.2014)
- Dubai International Airport Official Web-site, "Fact sheets, Reports & Statistics" <http://www.dubaiairport.com/en/media-centre/Pages/Reports.aspx> (accessed 12.08.2014)
- Dubai International Airport Official Web-site, "Press Releases" <http://www.dubaiairport.com/en/media-centre/Pages/press-releases.aspx?id=166> (accessed 12.08.2014)

- Dubai International Airport, 2013, "S13 Start of Season Report" [http://www.acl-international.com/UserFiles/File/DXB%20S13%20Season%20Start%20\(2\).pdf](http://www.acl-international.com/UserFiles/File/DXB%20S13%20Season%20Start%20(2).pdf) (accessed 7.08.2014)
- International Civil Aviation Organization (ICAO), 20.02.2014, "A Future Perfect? Trends and Challenges for the Aviation Industry", 14th Airline Marketing Workshop Athens (accessed 14.08.2014) http://www.aia.gr/media/presentations/14thairline-marketingworkshop/track04/4b2014_02_20_athens.pdf
- Istanbul Atatürk Airport Official Website, 2014, "Stats". <http://www.ataturkairport.com/en-EN/Airlines/Pages/Stats.aspx> (accessed 9.08.2014)
- Istanbul Atatürk Airport Official Website, 2014, "Facts and Figures". <http://www.ataturkairport.com/en-EN/abouttav/Pages/iaaterminal.aspx> (accessed 27.07.2014)
- Istanbul Atatürk Airport Profile, 2014, "Istanbul Prime Location Global Gateway, Atatürk International Airport", <http://www.ataturkairport.com/tr-TR/basinodasi/Documents/IST-Airport-Profile.pdf> (accessed 14.08.2014)
- Saldıraner Y., 2012, "The New Airport in Istanbul; Expectations and Opportunities". <http://www.aabri.com/manuscripts/131548.pdf> (accessed 3.06.2014)
- Sheremetyevo Airport Brochure http://svo.aero/f/1/fly/aviation-marketing/SVO_for_you_2012.pdf (accessed 12.08.2014)
- Sheremetyevo Airport Official Web-site, "Press Releases" <http://www.svo.aero/en/news/2014/3281/> (accessed 14.08.2014)
- <http://www.svo.aero/en/news/2014/3218/> (accessed 14.08.2014)
- <http://www.svo.aero/en/news/2014/3023/> (accessed 14.08.2014)
- <http://www.svo.aero/news/2014/3008/> (accessed 13.08.2014)
- Sofia Airport Official Web-site, "Traffic Statistics" <http://www.sofia-airport.bg/pages/content.aspx?lm01=107&lm02=73&lm03=76> (accessed 14.08.2014)
- Sofia Airport Official Web-site, "Top 20 Destinations" <http://www.sofia-airport.bg/pages/content.aspx?lm01=107&lm02=73&lm03=78> (accessed 14.08.2014)
- TMCT (Turkish Ministry of Culture and Tourism) Official Web-site, "Statistics" <http://www.kultur.gov.tr/EN,36567/tourism-statistics.html> (accessed 12.08.2014)
- TOBB (the Union of Chambers and Commodity Exchange of Turkey), 2012, "Turkish Civil Aviation Assembly Sector Report 2012", <http://www.tobb.org.tr/Documents/yayinlar/2013/CivilAviationAssembly-2012.pdf> (accessed 27.07.2014)
- TOBB (the Union of Chambers and Commodity Exchange of Turkey), 2012, "Türkiye Eğitim Meclisi Sektör Raporu 2011", http://www.tobb.org.tr/Documents/yayinlar/TOBB_egitim_sektor_raporu_2012.pdf (accessed 9.08.2014)
- Turkish Ministry of Transport and Communications, Turkey, 2011 "Transportation in Turkey, Country Report". <http://www.comcec.org/UserFiles/File/ulastirma/%C3%9CLKE%20RAPORLARI/Turkeypdf> (accessed 9.06.2014)
- TSI (Turkish Statistical Institute), 2014, Transportation Statistics, "Airway Statistical Tables" http://www.turkstat.gov.tr/PreTablo.do?alt_id=1051 (accessed 27.07.2014)
- US Federal Aviation Administration (USFAA), 2007, "Capacity Need in the National Airspace System (2007-2025): An Analysis of Airports and Metropolitan Area Demand and International Capacity in the Future". http://www.faa.gov/airports/resources/publications/reports/media/fact_2.pdf (accessed 1.08.2014)