



الهيئة العامة للطيران المدني  
General Authority of Civil Aviation

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# CIVIL AVIATION

Issue 88, May 2015, Rajab 1436

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**Swissport is Licensed  
for Ground Services  
in Saudi Airports**

## **Prince Mohammad Bin Abdul Aziz Airport in Full Operation**





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# Airports of the Future and the Third Model

The concept of airports—even the international ones—since a long time did not exceed the well known traditional role. They have been just facilities owned wholly or partially by governments in order to facilitate basic aviation operations such as arrivals, departures and takeoffs of planes. Such functions were accompanied by some of the minimum essential humble services such as coffee shops and cafeterias which provide snacks and light meals.

A significant shift occurred in the late eighties, particularly in 1987 when the previous British Airports Authority was privatized by public notation under the 1986 Airports Act. Soon after the organization became the largest private operator of airports in Britain as it operates 7 airports in a regulated market.

Since that day the concepts have changed rapidly. The scope of airports work has expanded. They no longer remain just units for the operation of facilities, infrastructure and superstructure in an establishment called the airport, but airports become commercial units in their own right possessing a package of commercial projects.

Due to the fact that the world is changing rapidly since the start of the World Wide information technology revolution, all indications suggest that a new airport business model is emerging. Let's call it airport 3.0: the airport as a consumer brand, similar to the prevailing consumer brands as: Apple, Coca-Cola, Google, Lufthansa and many others. Forecasters of this nascent entity assert that it is a natural progression of the current dominant model, but in the end it will be expanding in scale and scope. They also say that this model is expected to face three key global challenges: increased globalization, entrepreneurial management and the consumer-centric tech-



By Dr. Faissal H. Al-Sugair  
VP, General Authority for Civil Aviation

nological revolution.

It is well known that the philosophy of the branding is based on the ability to raise the value of the product or the ability to generate greater demand for the product. Perhaps luxury watches for example represent the first category, while the successful chain of fast-food restaurants represent the second category. Contrary to the predominant perception, the ultimate goal of a brand is not identifying or generating emotional appeal, but the assertive ability to shift market demand.

To achieve such important successes, the emerging airport 3.0 model must help airport management focus on three strategic elements:

1. Aviation industry: Namely by strengthening the fundamental function of the airport as a provider of the air transport services and operations.
2. The Airport city: to push the airport role as a catalyst for regional development, proactively searching for commercial development opportunities, generating new relationships with public and private entities.
3. Consumer Brand, changes the paradigm of the traditional airport relationship with consumers by planning and monetizing client touch points, offering convenience solutions and process simplification.

In short, airports have got available opportunities to actually constitute successful brands. These opportunities do not actually suffer from competition in the surrounding environment; they often enjoy the protection and support of the country's local and national administrations, since they are national landmarks enhancing the successes of the country in the economical, commercial, and political aspects ■

## Eastern Province Governor Officially Launches The First Cargo Village In The Kingdom

**K**ing Fahd International Airport (KFIA), on 7 April 2015 officially unveiled its “Cargo Village”. The launch event was presided over by His Royal Highness, Prince Saud bin Naif, Governor of the Eastern Province, in presence of HE Mr. Sulaiman Abdullah Al-Hamdan, President of (GACA), Royal Family members and top management of KFIA.

The facility is spread over half a million square metres. More than 70% of goods bound for the Gulf region is destined for the Kingdom and by facilitating operations the Cargo Village positions KFIA as a multi-modal shipment and clearance destination, offering direct access to Saudi Arabia and bypasses the need for cargo to transship through neighboring countries.

Commenting on this occasion, Al Hamdan said, “We are delighted by the launch of the first cargo village in the Kingdom, and we believe that it will play a vital role in supporting the Saudi economy. KFIA’s Cargo Village offers ease of shipping and cargo services while serving as a regional hub for global companies. Most importantly the Cargo Village creates



new economic and employment opportunities for the Eastern Province”.

For the planning and implementation of the Cargo Village, KFIA has worked in cooperation with Saudi Customs and Changi Airports International (CAI). Designed to the latest international standards, the Cargo Village has been customised to maximize convenience in KFIA. It guarantees express cargo delivery with reduced shipping times and increases cargo capacity.

The Director-General of KFIA, En-

gineer Yousef Al-Dhahiri, expressed pride in the launch, saying: “King Fahd International Airport is proud to present to Dammam, the Kingdom and the region this dynamic facility revolutionising the way cargo is handled in the region”.

The two-year construction commenced in December 2012. It is now fully operational and attracted leading international and regional freight companies, such as DHL Express, NAQEL, SMSA Express, TNT and UPS to work at KFIA.

## Hainan plans to order 30 787-9s

**H**ainan Airlines plans to order 30 Boeing 787-9s in an order valued at US\$7.7 billion at list prices.

The Chinese Group said in a filing to the Shanghai Stock Exchange that it would take delivery of the first unit in 2021. It currently has eight 787-8s in service.

The relatively early delivery slots are coming from United Continental, which is converting some of its 787-9 orders to 777-300ERs.



## Swissport is Licensed for Ground Services in Saudi Airports

Within the context of GACA's strategy calling for raising operational efficiency in the Kingdom's airports and improving the standard of services in the civil aviation sector by promoting competition, enhancing general performance, and coping with the growing increase in air traffic, GACA tendered its second license for provision of ground services to international companies and consortiums as well as to the Saudi Ground Services Company which is the sole operator of these



services in Saudi airports now.

From the 18 international and local organizations which applied to the tender, 12 bidders were prequalified while 11 bids have been approved. Upon bids evaluation Swissport International, one of the best international companies in airport ground services, scored the highest evaluation

mark and is currently finalizing all technical and legal formalities. The winning company is expected to commence activities within six months.

It's worth mentioning that GACA is planning to offer more licenses in air cargo, aircraft catering, and in other services aiming to combat monopolization and enhance competition between the different providers which will contribute to provision of quality services in the Saudi air transport sector.

## Solar power comes to Dubai World Central

Maktoum International Airport (DWC) has invested in a solar array which is expected to significantly reduce its carbon footprint and feed power directly into the national grid.

It is the first solar project to be linked directly to the Dubai Electricity and Water Authority (DEWA) grid and is expected to be followed by several other similar projects across Dubai.

Airport operator, Dubai Airports, has partnered with DEWA on the pioneering new project.

By tapping the sun's energy, the 100-panel solar array aims to limit the power used by DWC's employee gate facility.

The solar panels, which is located on the roof of the building, have a capacity of 30KW and generates about 48.8MWh of electricity per year, equal to about two-thirds of the power used by the building.

Feeding power into the DEWA power grid allows both Dubai Airports and DEWA to further reduce their reliance on power generated using fossil fuel.

"The solar array is just one of several projects across our airports aimed at adopting ways to limit our environmental impact while safeguarding the significant economic and social contributions the aviation sector provides Dubai," says DWC's senior vice president of operations, Majed Al Joker.



The project also forms part of a broader environmental drive outlined in the Dubai Integrated Energy Strategy 2030, aimed at reducing the emirate's reliance on fossil fuels.

"We are pleased to implement the first smart initiative to connect solar power to buildings," says DEWA's EVP of strategy and business development, Waleed Salman.

"This supports the Dubai Integrated Energy Strategy 2030 to diversify the energy mix and increase the share of renewable energy in Dubai's total power output to 7% by 2020 and 15% by 2030, and achieve our strategy of supporting sustainable energy projects in Dubai."

## Airbus and Boeing Plan to Make Flying Even More Uncomfortable

**B**oth Boeing and rival Airbus have generated thousands of orders for their new single-aisle passenger jets, with projected deliveries of the new Airbus A320neo starting in late 2016 and the Boeing 737 MAX entering service in 2017. Both planes feature new, more fuel-efficient engines, but the aircraft makers also aim to improve the economics for the airlines by accommodating more seats into the cabin.

Boeing acceded to a request from Ryanair, Europe's largest low-fare airline, to add 11 seats to the 189 already planned for the 737 MAX 8 to create a model called the 737 MAX 200. Ryanair



placed \$11 billion order for 100 of the new planes.

If Boeing got one, then Airbus needs one too, and sure enough, the European maker received

certification from the European Aviation Safety Agency to add 15 seats to the 180 already approved for the A320neo, bringing the passenger capacity to 195.

Because the A320neo is shorter than the 737 MAX 200, Airbus almost certainly will have to use a 27-inch seat pitch to accommodate all those seats into the plane. Seat pitch is the distance between the plastic back of the seat you're sitting in and the plastic back of the seat in front of you. Airbus claims wider seats give passengers roughly equivalent space. Ryanair expects the 737 MAX 200 to retain its current 30-inch seat pitch, but a decrease to 29 inches is not out of the question.

## US airlines to handle 1.1 billion passengers by 2035

**T**he US's aviation system will continue to grow over the next two decades with greater numbers of people expected to fly more miles each year.

The improving economy continues to bode well for the health of the US air transportation system.

The FAA and industry are continuing to deploy NextGen technologies and procedures to ensure that the nation's aviation system can safely and efficiently meet our growing airspace demands.

According to the FAA's Aerospace Forecast Fiscal Years 2015 to 2035, Revenue Passenger Miles (RPMs) growth for US airlines is projected to grow by an aver-



age of 2.5% per annum over the next 20 years while load factors are predicted to rise marginally to 84.2% by 2035.

US airlines served an estimated 756.3 million passengers in 2014, up by 2.3% from the 2013 level, with the figure expected to top 1.1 billion per annum by 2035 based on an average yearly rise of

around 2%.

During the same 20 year time period, revenue ton miles (RTMs) for US airlines is predicted to grow to 72.6 billion by 2035 at an average annual growth rate of 3.6%, while air traffic movements are expected to soar from 49.6 million in 2014 to 59.9 million per annum by 2035.



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- The Arabian Petroleum Supply Co., (APSCO) has a leading position in aviation fueling services, enjoying over 53 years of experience in the Saudi market.
- APSCO Aviation activities include into- plane fueling and fuel depot operations covering most international and domestic airports kingdom-wide.
- APSCO is the first Saudi fueling company to become a strategic partner with the International Air Transport Association (IATA), a member of the Joint Inspection Group (JIG), a member of the Fuel Technical Committee in the Arab Air Carrier Organization (AACO) and certified by the (ISO 9001: 2008) UKAS Quality Management System.
- APSCO is committed to providing high-quality aviation products and services to customers, toward the highest international aviation standards.
- APSCO has performed various projects in close cooperation with GACA and airport authorities on development of into-plane facilities and fuel depots at many airports in Saudi Arabia.



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# PMIA in Full Operation

**A**l-Madina Al- Munawwara is one of the main arrival and departure outlets of pilgrims and Umra performers, whose numbers are growing steadily. In order to ensure the status of the city in serving the pilgrims and visitors to the Prophet's Mosque, the government of Saudi Arabia is keen to provide an international gateway to accommodate the huge number of travelers heading to the city. A strategic decision was taken approving the building of Prince Muhammad Bin Abdul Aziz new International Airport (PMIA) in partnership with the private sector, based on Build/Transfer/Operate (BTO) agreement. PMIA to become the first airport in Saudi Arabia is constructed and operated with this method, which had achieved many successes in a number of countries.

This decision reflected the Saudi government's firm belief in the importance of the rapidly evolving aviation sector as a significant partner in the Kingdom's development. The sector possesses the elements of a great viable investment as air transport is vastly growing in the Middle East, especially in Saudi Arabia, which is characterized by its large size, its geographical location and religious status in the Muslim world, in addition to the fact that Saudi Arabia's economy is characterized by its durability, strength and openness.

## Implementation phases

The airport construction project started with the engineering design phase, which was assigned to one



of the largest global firms of experience in this field. This phase was followed by the design phase of the same firm taking into account the Islamic culture and architectural heritage of the city of Medina. This was further followed by the site survey and soil testing stage.

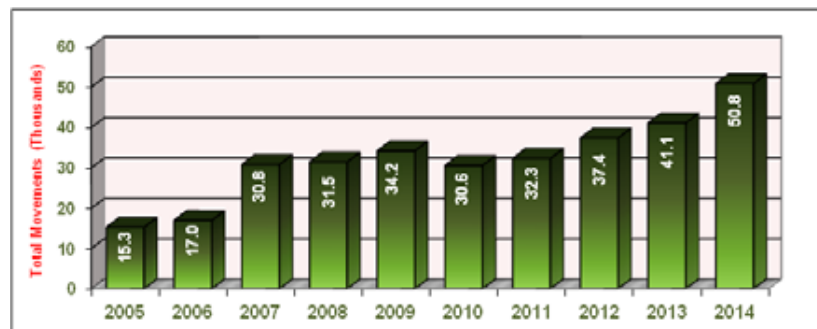
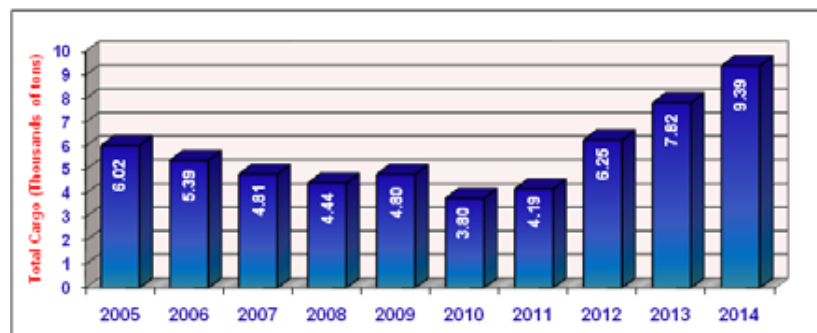
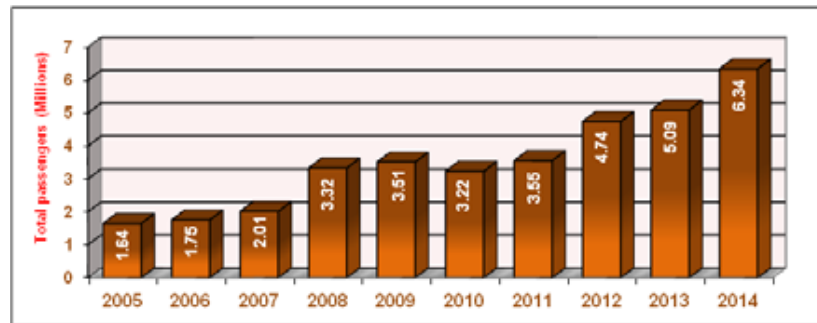
On 29/10/2011 AD, the General Civil Aviation Authority (GACA) signed the Build/ Transfer/ Operate (BTO) contract with "Taibah consortium composed of three leading companies in the fields of constructions and operation. The consortium members are (TAV Holding company, a leading investor in the construction and the operation of airports, Saudi Oger and Al Rajhi Holding Group). Taibah consortium has initiated the Development of this major project, and it was completed in a record time. The experimental operation of the airport was conducted on Sunday 4/12 /2015.

This phase was a necessary stage for assessing the preparations and the assurance of the readiness of all systems and operational equipments. It is a pre- start of commercial operation and the official opening of the airport. Based on the signed agreement Taibah consortium will operate the new airport for 25 years.

PMIA represents the effective and successful partnership between the public and private sectors, and an important step in the transformation of the role of GACA from an operator to a monitor and a regulator body. The airport also embodied a milestone that reflects the cultural heritage of the city of Madina, by contributing in raising the level of the services provided to passengers. The capacity of the airport is 8 million passengers annually in its first phase, with a total area of 4 million square meters.



## Projected air Traffic Growth at PMIA



### Key Facilities:

A new 153,000 square meters Passenger Terminal Complex, the Airport's main facility, was constructed just opposite to the old passenger terminal on the airfield side. It is composed of a 3-door building besides the passenger boarding building and houses 4 terminals (domestic, international, Hajj & Umrah, and VIP). The New Airport is equipped with (16) board-

ing gates linked to 32 boarding bridges directly leading to aircraft. The complex embraces 64 check-in counters, 24 self-service kiosks in addition to 16 counters reserved for Hajj season. A most advanced baggage handling system was installed with 10 loop baggage conveyor belts totaling 4,000 meters in length. To ensure passenger comfort, the complex was provided with (6) pilgrims waiting halls, adjacent to the Hajj

& Umrah Terminal, with a total area of 10,500 square meters, fully equipped with all necessary utilities and amenities.

The terminal complex was also equipped with 36 lifts, 28 escalators, and 23 moving walkways. An almost 6,000 square meters area of the terminal was allocated to commercial facilities such as restaurants, cafés bank branches and ATM machines. All Airport facilities were provided

with high speed Wi-Fi services. The Airport has a 4335-meter long and 60-meter wide runway to serve all types of aircraft.

PMIA was provided with a large car parking capable accommodating 1500 cars plus 200 car parking positions allocated for car rental companies and another 200 parking positions allocated for public buses. The Airport has a 3,920 square meters architectural master piece mosque with an uncovered yard at the front of the Airport in addition to (16) prayer areas inside the Airport Terminal.

The New PMIA has availed a lot of employment opportunities to the Saudi youth in all areas starting from the construction phase up to commercial operation.

#### Airport Operating Airlines

As this airport is of special importance to the Muslim world, it has managed to attract a large number of local, regional and international airlines. The most prominent airlines using the airport in addition to the leading Saudia and NAS, are Turkish Airlines, Egypt Air, Emirates,, Etihad, Gulf Air, Qatar Airways, Maroc Airlines, PIA, RJ, Sudanese Airlines, Fly Dubai, Arabia Air and other international airlines operating throughout the year and during the Hajj season.

#### LEED Gold Certificate

PMIA won the LEED gold certificate, for its eco-friendly green buildings, to become the eighth airport in the world to win this prestigious certificate and the only airport outside the United States to obtain it. The prize is awarded by the US Green Building Council (USGBC) .



#### Economy in the Use of Water

PMIA adopts the policy of rationalization of water consumption through the use of modern techniques in the provision of water to supply more than 45% of the airport's needs.

#### Energy Saving

PMIA is applying state of the art technologies to help save energy,

thus reducing the impact of global warming during the operation. For example, by the adoption of lighting systems and air conditioners with high efficiency of negative environmental impact of the airport, beside the use of solar cells .As such the airport consumption in energy is reduced by 34% compared to similar size airports ■

# GACA OPERATIONAL COMMUNICATIONS SYSTEMS OVERVIEW

**I**NTRODUCTION GACA aviation communications system is a blend of many sub-systems interconnected in such a way to produce an integrated system that satisfies all availability continuity and safety requirements stipulated by the ICAO. Below is a brief functional description of the communications sub-systems.

a) The Voice Communications Switching System (VCSS)

The VCSS serves as a master sub-system that enables intercommunications between ATC operators, the dynamic assignment of communications responsibilities i.e., telephone lines (Hotlines and Public) as well as radio channels according to defined maps generated by ATC.

b) Emergency VCSS Communications System (EVCS)

The EVCS is used to secure RCAGs communications in case of VCSS failure.

c) Radios

1- Remote Controlled Air-Ground (RCAG)

The RCAGs enable ENROUTE communications between ATC controllers and aircraft flying within the FIR.

2- Radio Transmitter Receiver (RTR)

The RTRs secure communications between ATC controllers and aircraft operating within the terminal area and the tower zones.



By Dr. Mohamed Elfatih Elamin\*

3- portable radios

Portable radios are used to ensure continuity of communications in case of RTR failure.

4- VHF GROUND STATION (VGS)

The VGS is composed of DIGITAL radio(s), a computer and are linked through a data link. The goal of the VGS is to serve airlines operations besides ATC.

d) ATC Recorders/Reproducers

The recorders are used for on-line recording of all transactions between ATC controllers and aircrafts as well as between controllers. Two types of recorders are furnished, Digital recorders used for RCAGs and RTRs and analogue recorders used for intercommunications between controllers as well as telephonic communications outside the VCSS. The Reproducers are used to play-back recorded tracks for archiving and incident investigations.

e) Private Automatic Branching Exchange (PABX)

The PABX is mainly used to:-

1. Establishment of public telephone circuits for ATC administrative and technical staff maintenance use, and
2. Programming of public telephone circuits as back-up to the VCSS HOTLINES.

f) Master Clock (MC)

The master clock is a central timing source based on Global Positioning System (GPS). It distributes accurate time signals to all ATC operators, VCSS, EVCSS and Recording/Reproducing systems. Installing MC in all kingdom ATC units guarantees a unified time source for all aviation related activities.

g) Very Small Aperture Terminal (VSAT)

The VSAT is a satellite based communications media used as:-

1. The main communications media when no ground based links are available, i.e., the empty quarters, oceans,....
2. A back-up media in case of failure of ground based links ■

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\* Technical Advisor - GACA/ANS/SED/COMMUNICATIONS

# Dynamic Optimization in Air Traffic Management

Aviation is one of the fastest developing industries that in recent years has witnessed an incredible increase in terms of its size and operations. It has been therefore striving hard to develop resources to have consistent, affordable, and efficient means related to air traffic management in a reliable and cost-beneficial manner.

An air traffic controller possess the global view of air traffic and is a point-of-contact for the pilots, not just to avoid collisions but efficient management of air traffic. Airspace is divided into several manageable sectors, each being managed by air traffic controllers. As with the growing aviation industry the job of air traffic controllers becomes tedious so two possible solutions were thought to tackle the ever-growing congestion. First, to increase the number of runways and second, to increase the number of sectors. These solutions can only go some distance because of the costs involved and management of traffic in small sectors. In addition, building new airports or extending existing ones causes many serious economic, political, geographical and environmental problems. Therefore, other possible ways are thought out to control and manage the flight paths.

Dynamic Optimization methods here become the appropriate candidate. Various optimization methods have been applied in the industry to control the routes. It all started with the known number of flights (static optimization problem) but with the increasing



By Dr. Amer Farhan Rafique\*

number of air traffic and increasing number of uncertainties, static optimization methods become less viable option. In addition, the static solutions need to be revised as aircraft arrive and new information becomes available. However, there are different levels of uncertainties associated with the information regarding the operational environment (weather, runway situation, etc.), the aircraft, and taxiways. Therefore, dynamic air

traffic management, thus, became the more viable option.

Environmental concerns are under discussion in aviation meetings across the globe. Delays caused by congestion in the air traffic at various airports are one of the major sources of environmental pollution and the unnecessary cost to airlines, passengers, and related aviation businesses. Aircraft, thus, are frequently forced to fly at altitudes and/or cruise speeds for which they are not designed. This results in unnecessary fuel burn and hence the related gaseous emission which rises environmental concerns at both local and global levels. There is a need to address this important issue and route optimization comes into play.

The process of route optimization not only involves taking into account the correct calculations of aircraft performance and



weather conditions, but also route restrictions imposed by air traffic controllers in various air spaces and the relevant regulatory restrictions. The process of route optimization can be challenging as it involves numerous different elements and the best flight route depends on various factors and the actual conditions of each flight.

Another factor to look towards optimization methods in air traffic management is the ever-increasing costs. The delays in air traffic due to congestion often results in needless costs to the airlines, pas-

sengers and related aviation businesses. These probable costs of congestion are estimated to be in billions per year.

Route optimization and, therefore, aircraft emissions controls can be resolved at three levels. The first being the operational level where reduced fuel usage in aircraft operations can reduce emissions. At the level of airlines, it can be mitigated during aircraft designing and manufacturing. Finally, at the level of air traffic management there can be optimization by providing the aircrafts with ac-

curate flight plans that can be optimized in route according to the needs of the flight. Air transportation also simultaneously deals with a number of stakeholders, including airlines, air traffic control, government, and airports, each having their own set of objectives. Consequently, the formulation of air traffic management problem may involve the simultaneous optimization of various and not necessarily aligned objectives, which inevitably leads to tradeoffs.

To conclude, the last couple of decades have witnessed continuous rapid increase in global air traffic. Furthermore, with projected growth, the existing air traffic control infrastructure is struggling to keep things going. Consequently, many efforts are in place to either improve the existing systems or develop new ones to attack these problems.

One of the most ambitious and promising schemes in the development and innovation of future aviation concepts and systems is the use of dynamic optimization tools. The theory of dynamic optimization provides a mathematical framework for decision makers to control a dynamic system in the best possible way with respect to a given performance index. It is though not a straightforward solution as the effective realization and use of dynamic optimization requires advances in communications, navigation, surveillance, and human factors technology and procedural changes ■

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## Air-Traffic Movements (2014)

Rank	Airport	Total Passengers	% Change
1	ATLANTA GA, US (ATL)	96178899	▲ 1.9
2	BEIJING, CN (PEK)	86130390	▲ 2.9
3	LONDON, GB (LHR)	73408442	▲ 1.4
4	TOKYO, JP (HND)	72826862	▲ 5.8
5	LOS ANGELES CA, US (LAX)	70665472	▲ 6.0
6	DUBAI, UAE (DXB)	70475636	▲ 6.1
7	CHICAGO IL, US (ORD)	70015746	▲ 4.4
8	PARIS, FR (CDG)	63808796	▲ 2.8
9	DALLAS/FW TX, US (DFW)	63523489	▲ 5.1
10	HONG KONG, HK (HKG)	63148379	▲ 6.0
11	FRANKFURT, DE (FRA)	59566132	▲ 2.6
12	JAKARTA, ID (CGK)	57005406	▼ 4.8
13	ISTANBUL, TR (IST)	56767108	▲ 10.7
14	AMSTERDAM, NL (AMS)	54978023	▲ 4.6
15	GUANGZHOU, CN (CAN)	54780346	▲ 4.4
16	SINGAPORE, SG (SIN)	54091802	▲ 0.7
17	NEW YORK NY, US (JFK)	53635346	▲ 6.4
18	DENVER CO, US (DEN)	53472514	▲ 1.7
19	SHANGHAI, CN (PVG)	51651800	▲ 9.5
20	KUALA LUMPUR, MY (KUL)	48932471	▲ 3.0
21	SAN FRANCISCO CA, US (SFO)	47114611	▲ 4.8
22	BANGKOK, TH (BKK)	46423352	▼ 9.6
23	INCHEON, KR (ICN)	45662322	▲ 9.6
24	CHARLOTTE NC, US (CLT)	44333475	▲ 2.0
25	LAS VEGAS NV, US (LAS)	42869517	▲ 2.4
26	PHOENIX AZ, US (PHX)	42125212	▲ 4.5
27	MADRID, ES (MAD)	41815261	▲ 5.3
28	HOUSTON TX, US (IAH)	41194558	▲ 3.3
29	MIAMI FL, US (MIA)	40941879	▲ 0.9
30	SÃO PAULO, BR (GRU)	39773716	▲ 9.2

Total passengers enplaned and deplaned, passengers in transit counted once.

Rank	Airport	Total Cargo	% Change
1	HONG KONG, HK (HKG)	4411193	▲ 5.9
2	MEMPHIS TN, US (MEM)	4258530	▲ 2.9
3	SHANGHAI, CN (PVG)	3181365	▲ 8.6
4	INCHEON, KR (ICN)	2557680	▲ 3.8
5	ANCHORAGE AK, US (ANC)	2482153	▲ 2.5
6	DUBAI, UAE (DXB)	2367574	▼ 3.1
7	LOUISVILLE KY, US (SDF)	2293134	▲ 3.5
8	TOKYO, JP (NRT)	2132377	▲ 5.6
9	FRANKFURT, DE (FRA)	2132132	▲ 1.8
10	TAIPEI, TW (TPE)	2088727	▲ 6.2
11	MIAMI FL, US (MIA)	1998782	▲ 2.8
12	PARIS, FR (CDG)	1890829	▲ 0.8
13	SINGAPORE, SG (SIN)	1879918	▲ 0.4
14	BEIJING, CN (PEK)	1831167	▼ 0.6
15	LOS ANGELES CA, US (LAX)	1818766	▲ 3.7
16	CHICAGO IL, US (ORD)	1672465	▲ 11.7
17	AMSTERDAM, NL (AMS)	1670674	▲ 6.7
18	LONDON, GB (LHR)	1588652	▲ 4.9
19	GUANGZHOU, CN (CAN)	1454044	▲ 11.0
20	NEW YORK NY, US (JFK)	1315590	▲ 1.9
21	BANGKOK, TH (BKK)	1231445	▼ 0.4
22	TOKYO, JP (HND)	1098182	▲ 15.1
23	INDIANAPOLIS IN, US (IND)	999149	▲ 0.7
24	DOHA, QA (DOH)	995370	▲ 12.7
25	SHENZHEN, CN (SZX)	963871	▲ 5.5
26	LEIPZIG, DE (LEJ)	906490	▲ 3.2
27	ABU DHABI, AE (AUH)	806068	▲ 13.1
28	KUALA LUMPUR, MY (KUL)	776727	▲ 8.7
29	Al Maktoum, DUBAI, AE (DWC)	758371	▲ 262
30	OSAKA, JP (KIX)	745895	▲ 9.3

Total Cargo: loaded and unloaded freight and mail in metric tons.

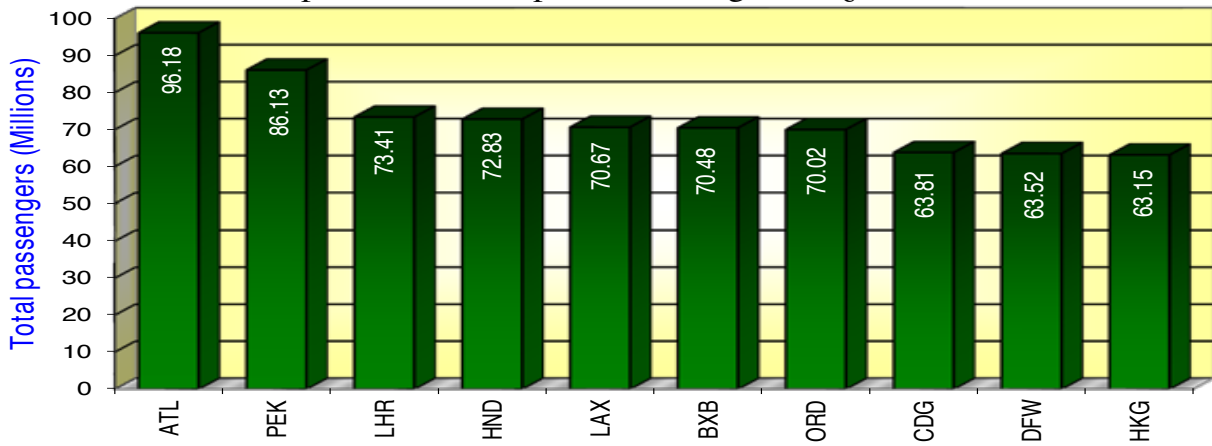
Rank	Airport	Total Movements	% Change
1	CHICAGO IL, US (ORD)	881933	▼ 0.2
2	ATLANTA GA, US (ATL)	868359	▼ 4.7
3	DALLAS/FW TX, US (DFW)	679820	▲ 0.3
4	LOS ANGELES CA, US (LAX)	636706	▲ 3.5
5	BEIJING, CN (PEK)	581773	▲ 2.5
6	DENVER CO, US (DEN)	565525	▼ 2.9
7	CHARLOTTE NC, US (CLT)	545178	▼ 2.3
8	LAS VEGAS NV, US (LAS)	522399	▲ 0.3
9	HOUSTON TX, US (IAH)	508935	▲ 0.5
10	LONDON, GB (LHR)	472817	▲ 0.2
11	PARIS, FR (CDG)	471318	▼ 1.5
12	FRANKFURT, DE (FRA)	469026	▼ 0.8
13	AMSTERDAM, NL (AMS)	452687	▲ 2.9
14	ISTANBUL, TR (IST)	439549	▲ 8.2
15	TORONTO ON, CA (YYZ)	434846	▲ 0.8

Total Movements: landing - take off of an aircraft.

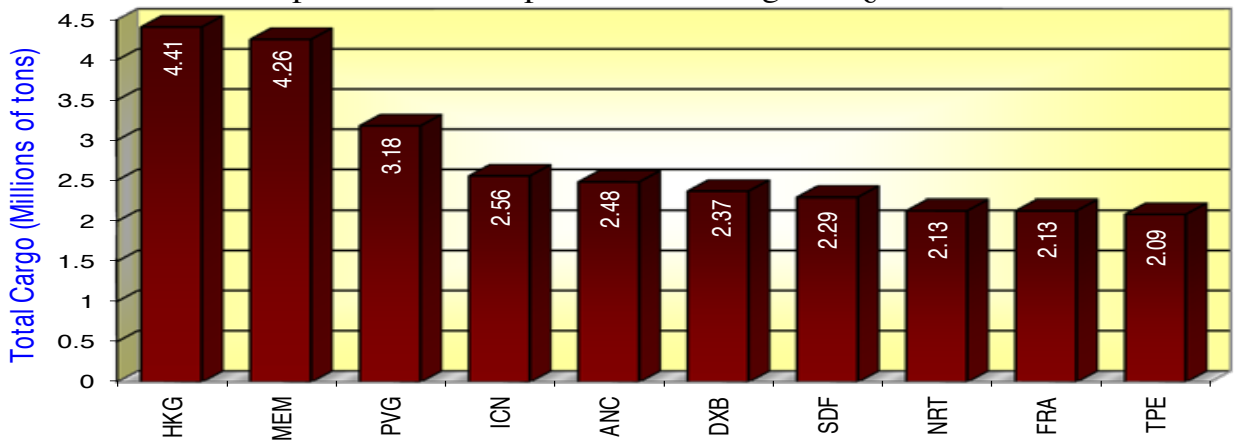
Rank	Airport	Total Movements	% Change
16	SAN FRANCISCO CA, US (SFO)	431633	▲ 2.4
17	PHOENIX AZ, US (PHX)	430461	▼ 1.2
18	TOKYO, JP (HND)	425604	▲ 5.6
19	NEW YORK NY, US (JFK)	422912	▲ 4.2
20	PHILADELPHIA PA, US (PHL)	419253	▼ 3.2
21	GUANGZHOU, CN (CAN)	412210	▲ 5.1
22	MINNEAPOLIS MN, US (MSP)	412049	▼ 4.8
23	MEXICO CITY, MX (MEX)	409954	▲ 3.5
24	MIAMI FL, US (MIA)	402973	▲ 1.0
25	SHANGHAI, CN (PVG)	402105	▲ 8.3
26	HONG KONG, HK (HKG)	401861	▲ 5.0
27	NEWARK NJ, US (EWR)	398630	▼ 3.7
28	DETROIT MI, US (DTW)	392655	▼ 7.8
29	JAKARTA, ID (CGK)	382287	▼ 3.6
30	MUNICH, DE (MUC)	376678	▼ 1.4



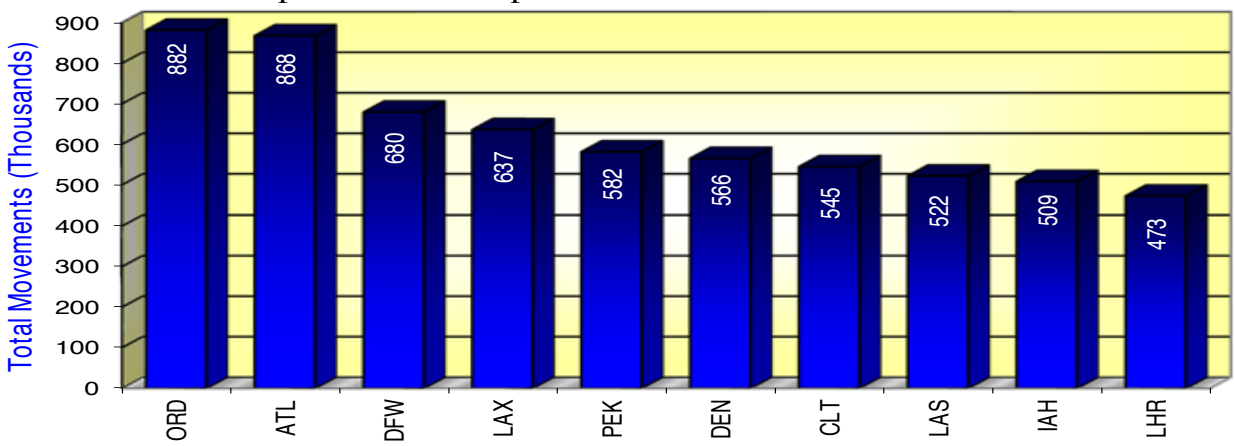
Top 10 World Airports Passenger Traffic 2014



Top 10 World Airports Total Cargo Traffic 2014



Top 10 World Airports Aircraft Movements 2014



Source: ACI

## Forthcoming Aviation Conferences, Exhibitions & Seminars

### 15 May – 15 July 2015

#### 15 - 16 May

Idaho Aviation Expo  
Idaho Falls, ID, USA  
[aeromark.com/](http://aeromark.com/)

#### 16 May

AOPA Fly-In California  
Salinas, CA, USA  
[aopa.org/Community-and-Events/AOPA-Fly-In/2015/About](http://aopa.org/Community-and-Events/AOPA-Fly-In/2015/About)

#### 16 - 17 May

The Great New England Airshow  
Chicopee, MA, USA  
[greatnewenglandairshow.com/](http://greatnewenglandairshow.com/)

#### 17 - 19 May

9th National Aviation System  
Planning Symposium  
Charleston, SC, USA  
[nasao.org/Events/StateConferences.aspx#](http://nasao.org/Events/StateConferences.aspx#)

#### 17 - 20 May

ALTA CCMA Airlines &  
Supplier's Annual Meeting  
Punta Cana, Dominican Republic  
[alta.aero/ccma/2015/home.php](http://alta.aero/ccma/2015/home.php)

#### 18 - 20 May

ACI EUROPE 8th Regional  
Airports Conference and  
Exhibition  
Reykjavik, Iceland  
[aci-europe-rac.com/](http://aci-europe-rac.com/)

#### 18 - 21 May

AFI Aviation Week  
Maputo, Mozambique  
[icao.int/ESAF/AFI-Aviation-Week/Pages/default.aspx](http://icao.int/ESAF/AFI-Aviation-Week/Pages/default.aspx)

#### 19 - 21 May

European Business Aviation  
Convention & Exhibition  
(EBACE2015)  
Geneva, Switzerland  
[ebace.aero/](http://ebace.aero/)

#### IATA Aviation Fuel Forum

Barcelona, Spain  
[iata.org/events/aff/Pages/index.aspx](http://iata.org/events/aff/Pages/index.aspx)

#### 19 - 22 May

Block Upgrade Demonstration  
Showcase and Symposium  
(BUDSS)  
Montreal, Canada  
[icao.int/meetings/budss/Pages/default.aspx](http://icao.int/meetings/budss/Pages/default.aspx)

#### 23 May

Discover Aviation & Airshow  
Spectacular  
Yukon, OK, USA  
[sundanceairport.com/](http://sundanceairport.com/)

#### 23 - 24 May

The Rochester International  
Airshow  
Rochester, NY, USA  
[secure.rocairshow.info/Default.asp](http://secure.rocairshow.info/Default.asp)

#### 26 - 27 May

ICAO Legal Seminar  
Seoul, Republic of Korea  
[icao.int/secretariat/legal/Pages/seminars.aspx](http://icao.int/secretariat/legal/Pages/seminars.aspx)

#### 26 - 28 May

Airline Purchasing &  
Maintenance Expo  
London, UK  
[apmexpo.com/](http://apmexpo.com/)

#### 27 - 28 May

Fatigue Risk Management  
Systems Regional Meeting  
Lima, Peru  
[iata.org/events/Pages/fatigue-systems-meeting.aspx](http://iata.org/events/Pages/fatigue-systems-meeting.aspx)

#### Mobilization Workshop

Geneva, Switzerland  
[iata.org/events/Pages/mobilization-workshop.aspx](http://iata.org/events/Pages/mobilization-workshop.aspx)

#### 27 - 29 May

Global Regional Aviation Asia  
Summit  
Shanghai, China  
[asianaviation.com/event/178/Global-Regional-Aviation-Asia-Summit-2015](http://asianaviation.com/event/178/Global-Regional-Aviation-Asia-Summit-2015)

#### 28 May

US Aircraft Financing & Leasing  
Fort Lauderdale, FL, USA  
[aeropodium.com/usaf1.html](http://aeropodium.com/usaf1.html)

#### 29 - 31 May

AeroExpo UK  
Sywell Aerodrome, UK  
[aeroexpo.co.uk/](http://aeroexpo.co.uk/)

#### 31 May - 2 June

Routes Middle East & Africa  
Manama, Kingdom of Bahrain  
[routesonline.com/events/176/routes-middle-east-and-africa-2015/](http://routesonline.com/events/176/routes-middle-east-and-africa-2015/)

#### 31 May - 3 June

1st International Symposium on  
Sustainable Aviation (Issa-I)  
Eskisehir, Turkey  
[issasci.org/](http://issasci.org/)

#### 1 - 3 June

ACI-NA's JumpStart® Air  
Service Development Conference  
Seattle, WA, USA  
[aci-na.org/jumpstart](http://aci-na.org/jumpstart)

#### 2 - 4 June

E-Cargo Conference  
Geneva, Switzerland  
[iata.org/events/Pages/e-cargo.aspx](http://iata.org/events/Pages/e-cargo.aspx)

#### JEC Americas

Houston, TX, USA  
[jeccomposites.com/events/jec-americas-2015-houston](http://jeccomposites.com/events/jec-americas-2015-houston)

#### 3 - 5 June

The International Aviation Forum  
Killarney, Ireland  
[connect-aviation.com/](http://connect-aviation.com/)

#### 4 - 5 June

13th Annual China Airfinance  
Conference  
Shanghai, China  
[euromoneyseminars.com/china-airfinance/details.html](http://euromoneyseminars.com/china-airfinance/details.html)

#### 4 - 6 June

Lyon Air Expo  
Lyon, France  
[franceairexpo.com/](http://franceairexpo.com/)

20th Annual Maryland Regional Aviation Conference  
Ocean City, MD, USA  
[marylandairportmanagers.org/conference-registration/](http://marylandairportmanagers.org/conference-registration/)

**7 - 10 June**

87th Annual AAAE Conference and Exposition  
Philadelphia, PA, USA  
[events.aaae.org/sites/150501/index.cfm](http://events.aaae.org/sites/150501/index.cfm)

**9 - 10 June**

SAE 2015 Aviation Technology Forum  
Shanghai, China  
[sae.org/events/atif/](http://sae.org/events/atif/)

**9 - 11 June**

GAD Asia – Global Airport Development  
Kuala Lumpur, Malaysia  
[nzairports.co.nz/w/category/events/](http://nzairports.co.nz/w/category/events/)

**10 - 11 June**

Airline & Aerospace MRO & Flight Operations IT Conference  
London, UK  
[aircraft-commerce.com/conferences/default.asp](http://aircraft-commerce.com/conferences/default.asp)

**11 - 13 June**

EFA Prague  
Prague, Czech Republic  
[efaprague.com/](http://efaprague.com/)

**13 June**

CANSO Africa Conference  
Durban, South Africa  
[canso.org/africaconference2015](http://canso.org/africaconference2015)

**14 - 16 June**

CANSO Global ATM Summit & 19th AGM  
Durban, South Africa  
[canso.org/agm2015](http://canso.org/agm2015)

**15 - 18 June**

NATA Aviation Business Conference  
Washington, DC, USA  
[nata.aero/Events/2015-NATA-Aviation-Business-Conference.aspx](http://nata.aero/Events/2015-NATA-Aviation-Business-Conference.aspx)

**19 June**

Fundamentals of IS-BAH Workshop  
Washington, DC, USA  
[nata.aero/Events/Fundamentals-of-IS002DBAH-Workshop.aspx](http://nata.aero/Events/Fundamentals-of-IS002DBAH-Workshop.aspx)

**22 - 24 June**

AAAE International Airport Emergency Preparedness Conference  
Houston, TX, USA  
[events.aaae.org/sites/150601/](http://events.aaae.org/sites/150601/)

**AAAE/USCTA Contract Tower Program Workshop**

Washington, DC, USA  
[events.aaae.org/sites/150602/index.cfm](http://events.aaae.org/sites/150602/index.cfm)

**22 - 26 June**

6th PAN American Aviation Safety Summit  
Medellin, Colombia  
[alta.aero/safety/2015/home.php](http://alta.aero/safety/2015/home.php)

**23 June**

WFW Aviation Forum Operating Lessor Financing  
London, UK  
[aeropodium.com/wfw.html](http://aeropodium.com/wfw.html)

**23 - 24 June**

Aviation Day Africa  
Nairobi, Kenya  
[iata.org/events/Pages/aviation-day-africa.aspx](http://iata.org/events/Pages/aviation-day-africa.aspx)

**23 - 25 June**

136th Slot Conference  
Vancouver, Canada  
[iata.org/events/sc136/Pages/index.aspx](http://iata.org/events/sc136/Pages/index.aspx)

**24 - 26 June**

ACI EUROPE 25th General Assembly, Congress & Exhibition  
Prague, Czech Republic  
[aci-europe-events.com/annual-general-assembly/](http://aci-europe-events.com/annual-general-assembly/)

**25 June**

NBAA Regional Forum  
Teterboro, NJ, USA  
[nbaa.org/events/forums/2015TEB/](http://nbaa.org/events/forums/2015TEB/)

**27 - 28 June**

Southeast Aviation Expo  
Columbia, SC, USA  
[scaonline.com/](http://scaonline.com/)

**29 - 30 June**

4th Ground Damage Stakeholders Meeting  
London, UK  
[groundhandling.com/grounddamage/](http://groundhandling.com/grounddamage/)

**29 June - 1 July**

22nd Annual AAAE/FAA Airfield Safety, Sign Systems & Maintenance Management Workshop  
Los Angeles, CA, USA  
[events.aaae.org/sites/150604/index.cfm](http://events.aaae.org/sites/150604/index.cfm)

**AAAE/IAAE North America/ Europe Transatlantic Airport Conference**

Limerick, Ireland  
[events.aaae.org/sites/150603/index.cfm](http://events.aaae.org/sites/150603/index.cfm)

**Summer School of Aviation Finance**

Cambridge, UK  
[euromoneyseminars.com/european-summer-school-of-international-aviation-finance/details.html](http://euromoneyseminars.com/european-summer-school-of-international-aviation-finance/details.html)

**30 June**

4th Annual MBA Mediterranean Business Aviation  
Sliema, Malta  
[aeropodium.com/mba.html](http://aeropodium.com/mba.html)

**30 June - 1 July**

European Civil Aviation Conference (ECAC)  
Strasbourg, EU  
[ecac-ceac.org/conference/en\\_ECAC34/welcome](http://ecac-ceac.org/conference/en_ECAC34/welcome)

**30 June - 2 July**

Flight Attendants/Flight Technicians Conference  
Tucson, AZ, USA  
[nbaa.org/events/fa-ft/2015/](http://nbaa.org/events/fa-ft/2015/)

**7 - 8 July**

Safety 1st Regional Advanced Line Service Workshop  
Chicago, IL, USA  
[nata.aero/Events/2015-Advanced-Line-Service-Workshop-Chicago%2C-IL.aspx](http://nata.aero/Events/2015-Advanced-Line-Service-Workshop-Chicago%2C-IL.aspx)

**9 - 12 July**

F-AIR Colombia  
Rionegro, Colombia  
[asianaviation.com/event/163/F-AIR-COLOMBIA-2015](http://asianaviation.com/event/163/F-AIR-COLOMBIA-2015)